

OAKDALE WEST INDUSTRIAL ESTATE

Buildings 5A & 5B CEMP Construction Environmental Management Plan

Prepared for:

Goodman Property Services (Aust) Pty Ltd
The Hayesbery
1-11 Hayes Road
Rosebery NSW 2018

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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 Goodman Property Services (Aust) 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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DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
630.30435.00000-R03-v1.1	22 February 2023	Drew Williams/ Kelsy Sammons	Stephen Shoesmith/ Alanna Ryan	Alanna Ryan

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1 Introduction

1.1 Development Overview

Oakdale West Industrial Estate (Oakdale West) is a regional warehouse and distribution hub, located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Oakdale Industrial Precinct located within the Western Sydney Employment Area (WSEA) (see **Figure 1**).

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 7348 for the staged development of Oakdale West Industrial Estate (Oakdale West) comprising a warehousing and a distribution hub at Kemps Creek in Western Sydney. SSD 7348 incorporates the approval of a 'Concept Proposal' to guide the future development of the estate and consent for the 'Stage 1 Development'. The Stage 1 Development includes construction of the proposed Western North South Link Road (WNSLR), site-wide bulk earthworks, estate wide basins, and lead-in services. It also includes infrastructure and associated services, landscaping, and construction and use approval for Precinct 1 (**Figure 1**).

A copy of Development Consent SSD 7348 (as modified) is attached as **Appendix A**.

As per Condition B3 of SSD 7348, the Concept Proposal consent did not approve the building layout of Lots 5A and 5B and this was assessed by a separate DA submitted to Penrith City Council. The construction and use of Lots 5A and 5B as part of Stage 6 of the Concept Proposal was approved by Penrith City Council on 16 February 2023 under Development Application (DA) DA 22/0546.

A copy of DA 22/0546 is attached as **Appendix B**.

This Construction Environmental Management Plan (CEMP) has been prepared to cover the construction of Lots 5A and 5B in Precinct 5 as part of Stage 6 works at Oakdale West (**Figure 2**) under DA 22/0546. Works comprise the construction, use and fit-out of Warehouses 5A and 5B as a warehouse and distribution centre including:

- Ancillary office space;
- Associated truck and car parking areas;
- Loading bays;
- Site Landscaping;
- Signage;
- Fit-out (office area and warehouse racking);
- 24/7 hours of operation; and
- Subdivision.

The layout of Lots 5A and 5B is shown in **Figure 3**.

For the purposes of this document, the development is described in:

- Environmental Impact Statement, Oakdale West Estate – State Significant Development Application (EIS) prepared by Urbis (2017), including all specialist assessments and other appendices;
- Oakdale West Industrial Estate (SSD 7348) Modification 1 prepared by Urbis (2019), including all specialist assessments and other appendices;

- SSD7348 MOD 10, Oakdale West Stage – S.4.55(1a) Application to Modify Architecture Plans prepared by Keylan Consulting (2021) including all specialist assessments and other appendices; and
- SSD7348 MOD 11, Oakdale West Stage – S.4.55(1a) Application to modify Concept Plan and conditions of consent, prepared by Keylan Consulting (2022) including all specialist assessments and other appendices.

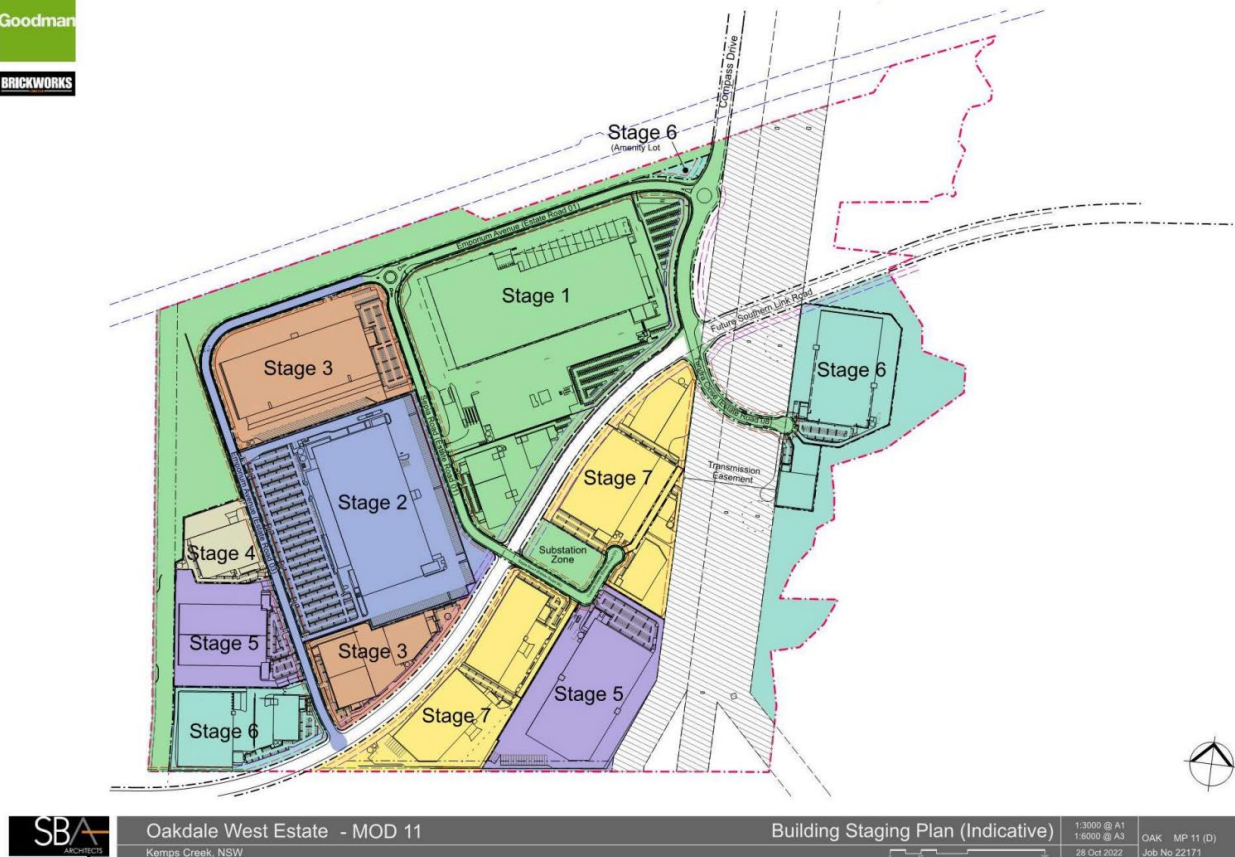


Figure 1 Oakdale West Staging Plan

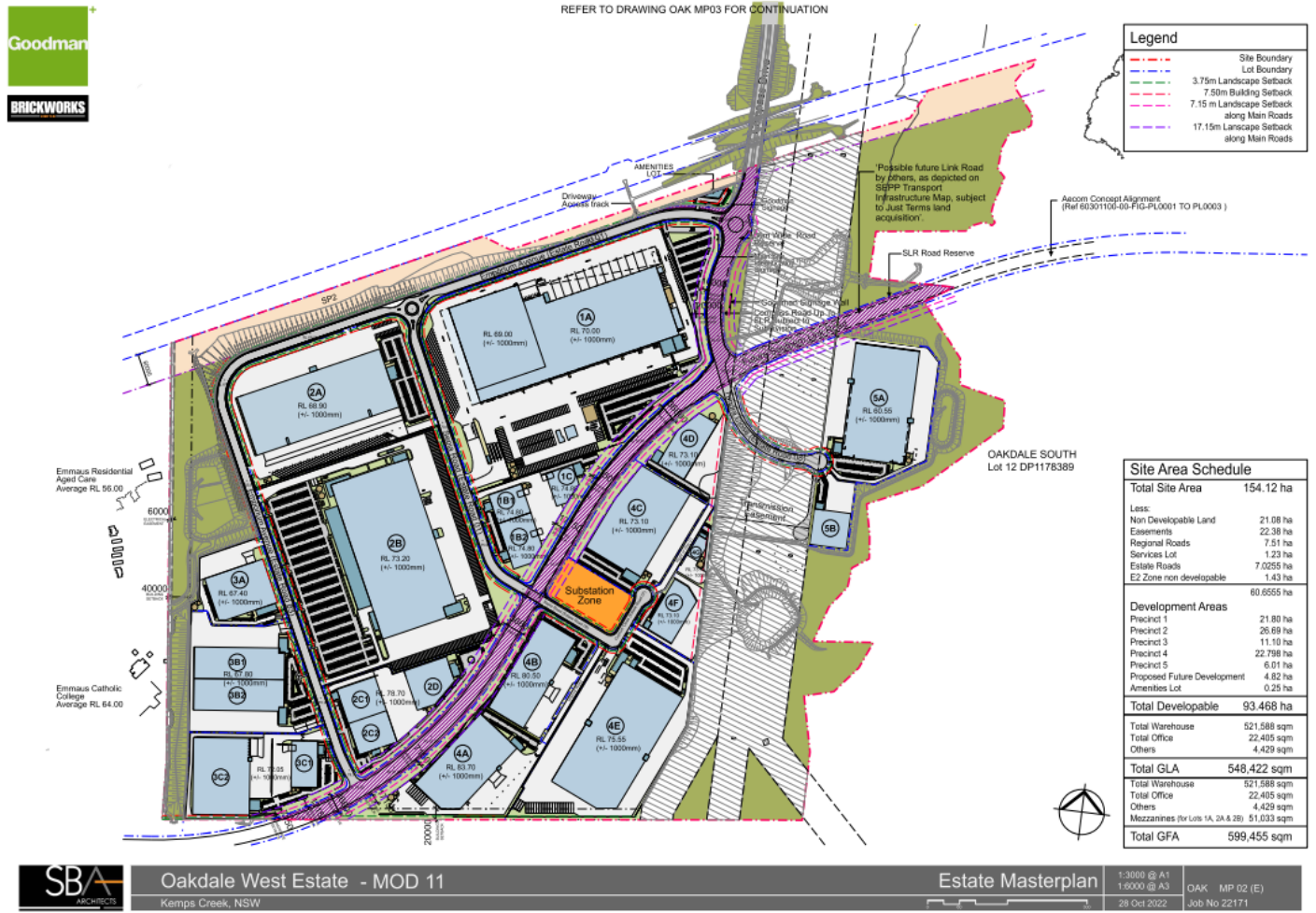


Figure 2 Oakdale West Precinct Plan

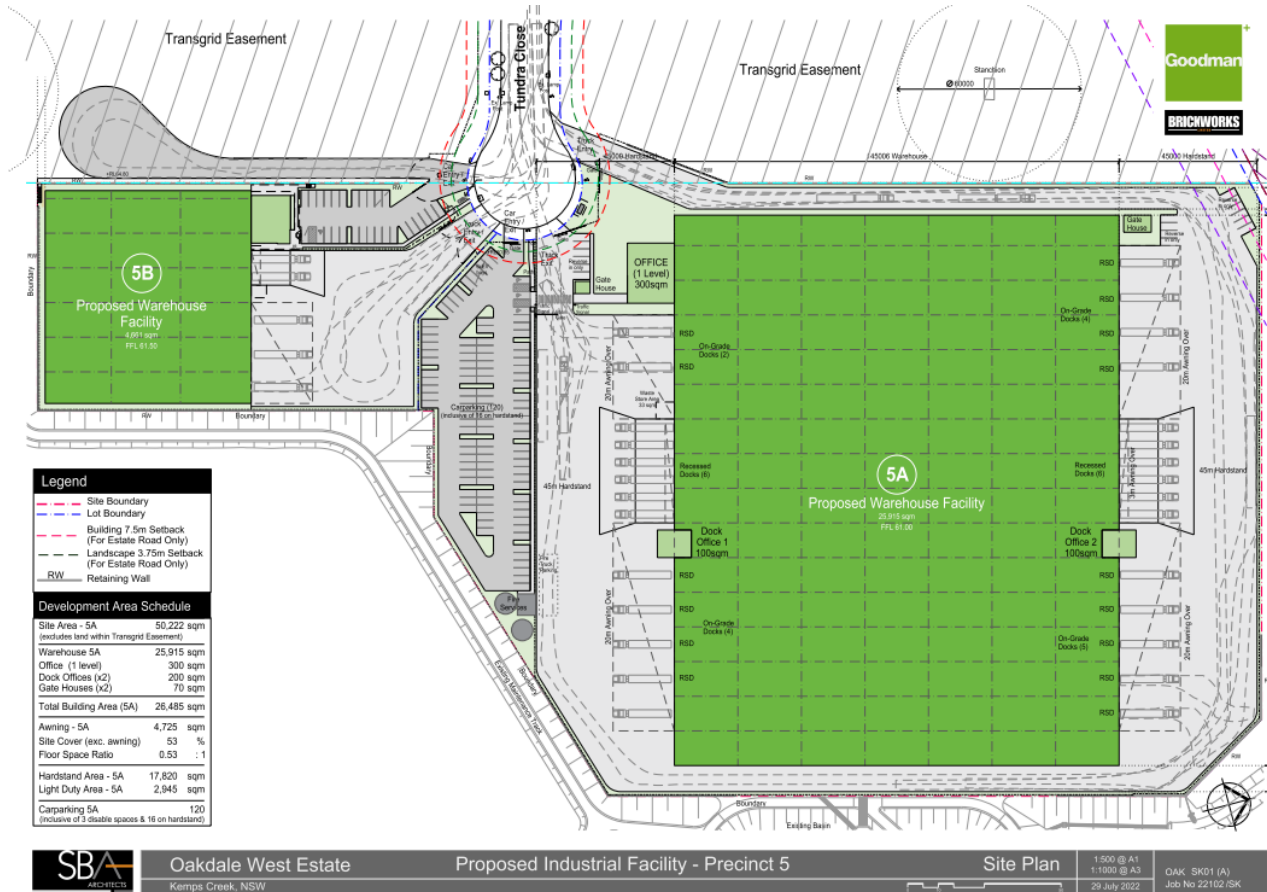


Figure 3 Building 5A and 5B Layout



1 PERSPECTIVE 01



2 PERSPECTIVE 02

Figure 4 Proposed Buildings 5A and 5B

1.2 CEMP Context

The CEMP has been prepared to address Schedule C Condition C18 of SSD 7348 as well as Condition 21 of DA 22/0546 for Lot 5A and 5B.

In addition to the above, this CEMP has included the following specialist management plans:

The following specialist management plans have been prepared to support this CEMP:

- Construction Noise and Vibration Management Plan (CNVMP) (SLR);
- Construction Air Quality Management Plan (CAQMP) (SLR);
- Community Consultation Strategy (CCS) (SLR);
- Construction Traffic Management Plan (CTMP) (Ason);
- Erosion and Sediment Control Plan (ESCP) (Rubicon);
- Soil and Water Management Plan (SWMP) (Rubicon);
- Flora and Fauna Management Plan (Ecologique);
- Unexpected Finds Protocol Contamination (AECOM);
- Unexpected Finds Protocol Archaeological (Rubicon);
- Landscape Plan (Scape Design);
- Sustainability Management Plan (SLR); and
- Waste Management Plan (WMP) (SLR).

1.2.1 Scope

This CEMP has been prepared to satisfy Condition C18 of SSD 7348 for future development at Oakdale West. The specific requirements of these consent conditions, along with where these requirements have been addressed within this CEMP, are listed in **Table 1**.

Table 1 CEMP Context

SSD 7348 Consent Condition	CEMP Section
C18. A Construction Environmental Management Plan (CEMP) shall be submitted to the Consent Authority for each stage of the Concept Proposal prior to the commencement of construction of the relevant stage. The CEMP must:	This Plan
(a) be prepared by a suitably qualified and experienced environmental consultant, or the Environmental Representative appointed for Stage 1 of the Development;	Section 1.2.3
(b) be prepared in consultation with relevant Government agencies, infrastructure and utility providers, including but not limited to, TransGrid, Endeavour Energy, Water NSW and TfNSW, where relevant for each stage;	Section 1.2. 3
(c) detail the construction activities to be undertaken in the relevant Stage of the Development;	Section 2.2

SSD 7348 Consent Condition	CEMP Section
(d) include detailed procedures for managing the environmental impacts of construction, including stormwater, erosion and sediment controls, dust, noise and traffic management; and	Section 4
(e) detail the roles and responsibilities for environmental management on the Site.	Section 3.2

It is noted that the CEMP requirements under Schedule D Condition D119 to D122 of SSD 7348 are specific to the Stage 1 Development including the WNSLR and are generally not applicable to this Plan. Notwithstanding this, appropriate sub-plans have been prepared to ensure a consistent and robust approach to the management of construction environmental impacts across Oakdale West.

1.2.2 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 the development;
- Clearly and concisely document the commitments made in the development application including relevant management plans, that are required to be implemented with during construction;
- Demonstrate to Council how the applicant proposes to meet all of its regulatory obligations including those outlined in the Conditions of Consent;
- Outline the controls to be implemented by the contractor in order to meet those obligations;
- Clearly and concisely document the conditions imposed by SSD 7348 and DA 22/0546 that are required to be implemented and/or complied with during the construction phase; and
- Assist to establish Lot 5A and 5B at Oakdale West in a manner that avoids (where possible) or minimises impact to the surrounding environment and populace.

1.2.3 Preparation

This CEMP has been prepared by SLR Consulting (Australia) Pty Ltd (SLR). SLR provides global environmental and advisory solutions from a network of offices in Asia-Pacific, Europe, North America and Africa.

This CEMP has been prepared with consideration to the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources 2004).

Consultation

Consultation for this CEMP, although not required under DA22/ 0546, has been undertaken in accordance with SSD 7348 Condition C18(b). Feedback received has been summarised below in **Table 2** and is attached as **Appendix C**.

Table 2 Consultation

Government Agency	Consultation Received
Water NSW	
Penrith City Council	Correspondence was received from Penrith City Council on 22 December 2022.

Government Agency	Consultation Received
Endeavour Energy (EE)	
Transgrid	
Traffic for NSW (TfNSW)	
Department of Environment (DPE)	

2 Development Description

2.1 Location

Oakdale West is legally described as Lot 101 to 103 in DP 1262308 and Lot 105 to 111 DP 1262310, at the far south-western extent of the Western Sydney Employment Area (WSEA) within the Penrith Local Government Area (LGA).

Oakdale West is bound to the north by the Water NSW Pipeline and to the east by the Ropes Creek riparian corridor. Land along the eastern boundary of the site is also affected by a transmission easement associated with TransGrid infrastructure. To the east of the site is Goodman's Oakdale South Estate. Emmaus Catholic College and Emmaus Retirement Village is located to the west of the site. Other boundaries interface with adjoining rural lands used for a mix of rural-residential and agricultural.

As shown in **Figure 2**, Buildings 5A and 5B are located towards the northern boundary of Oakdale West, adjacent to Link Road.

2.2 Construction Activities and Staging

Construction is scheduled to commence in March 2023 and extend until November 2023. The construction activities will be staged and are summarised in **Table 3**.

Table 3 Construction Staging

Stage	Indicative Duration
Civil works	March 2023 – June 2023
Establishment of site sheds and fencing	March 2023
Warehouse and office construction	May 2023 – September 2023
Warehouse and office fit out	July 2023 – November 2023

Construction activities include:

- Detailed excavation;
- Pouring of concrete slabs on ground and suspended slabs to the office building;
- Erection of structural steel warehouse;
- Install of retaining walls;
- Install of civil stormwater infrastructure;
- Roofing and cladding to warehouse;
- Internal fit out of warehouse and office;
- Install of loading dock facilities and building services; and
- Building carpark road, external paving and landscaping.

No vegetation clearing, bulk earthworks or supporting infrastructure will be required as part of Stage 8 as this has been approved and undertaken as part of Stage 1 in accordance with SSD 7348.

2.3 Construction Hours

Construction hours will be in accordance with Conditions 35 which are reproduced below:

35. *Construction works or subdivision works that are carried out in accordance with approved consent that involve the use of heavy vehicles, heavy machinery and other equipment likely to cause offence to adjoining properties shall be restricted to the following hours in accordance with the NSW Environment Protection Authority Noise Control Guidelines*

Activity	Day	Time
Construction	Monday – Friday Saturday	7 am to 6 pm 7 am to 1 pm (if inaudible on neighbouring residential premises), otherwise 8am to 1pm
	No work is permitted on Sundays and Public Holidays.	

Other construction works carried out inside a building/tenancy and do not involve the use of equipment that emits noise are not restricted to the construction hours stated above.

The construction hours will be provided to all staff and contractors in the induction. The movements of staff and contractors will be recorded for this project.

2.4 Construction Contact Details

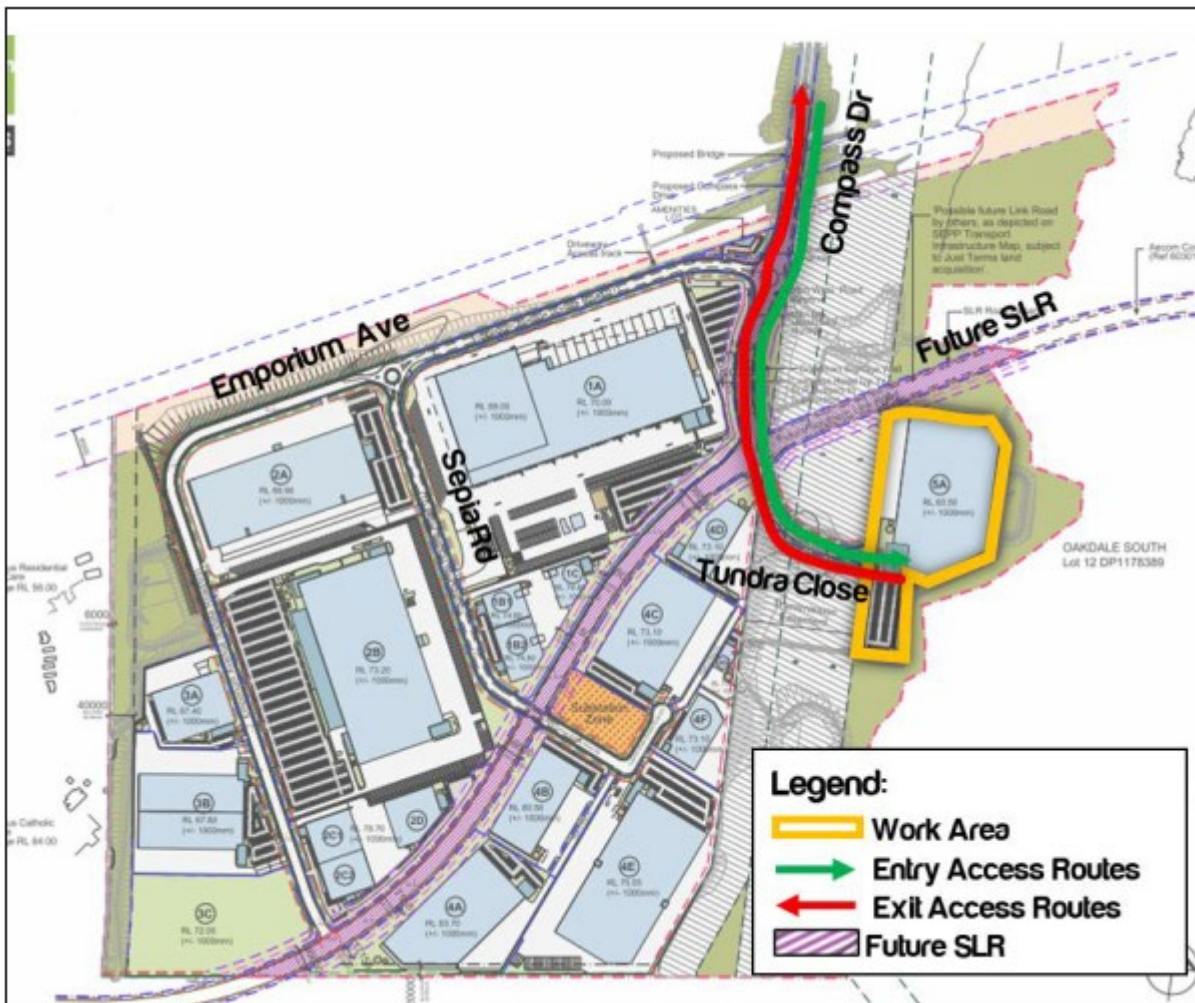
Table 4 lists the key contacts during the construction of Buildings 5A and 5B.

Table 4 Construction Contact List

Role	Name	Company	Contact Details
Project Principal/Superintendent	Adrian Tesoriero	Goodman	Adrian/Tesoriero@goodman.com
Site Manager	Nicholas Ivanovic	Qanstruct	0404 812 487 nivanovic@qanstruct.com.au
Contractor’s Project Manager	Chris Cunico	Qanstruct	ccunico@qanstruct.com
Contractor’s WHS&E Advisor	Jacob Lourey	Qanstruct	0439 344 448 jlourey@qanstruct.com.au
Environmental Representative	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au
Communications and Community Liaison Representative	Kiera Plumridge	SLR	0458 967 285 kplumridge@slrconsulting.com

2.5 Construction Site Access

Access to the site shall be available via Compass Drive via the Southern Link Road, and Emporium Avenue, as shown below. Relevant truck routes are outlined within **Figure 5**.



Source: CTMP (Ason 2023)

Figure 5 Construction Site Access Routes

2.6 Contractor Car Parking

All contractor parking areas will be wholly within dedicated parking areas in the Oakdale West Estate. The engaged contractor shall nominate Contractor parking zones that do not obstruct any vehicle manoeuvre routes. The location of Contractor parking lots are expected to change as construction continues and encompasses various portions of the Site. Where possible, contractor car parking areas will be separated from truck movements.

3 Environmental Management Framework

3.1 Environmental Policy

The Tenant promotes and encourages a sustainable environment throughout their business activities and sources supplies and services in ways that prevent pollution and promote compliance with legal and other requirements. As a result, an Environmental Policy has been developed and implemented, which will be implemented throughout the duration of the construction of Building 5A and 5B.

Qanstruct Environmental Management System is certified by Global-Mark to ISO 14001:2016 Environmental Management Systems. A copy of the Environmental Policy is attached as **Appendix D**.

3.2 Roles and Responsibilities

The key personnel responsible for environmental management during construction of Building 5A and 5B are listed in **Table 5**.

Where Goodman is nominated as having responsibility as the Applicant, this may be delegated to their specialist consultants and their contractors.

Table 5 Personnel Responsible for Environmental Management

Role	Responsibilities
Project Principal	<ul style="list-style-type: none"> Environmental reporting responsibility associated with the development.
Contract Superintendent	<ul style="list-style-type: none"> Environmental reporting responsibility associated with the development.
Project Manager	<ul style="list-style-type: none"> Environmental reporting responsibility associated with the development.
Contractor's Project Manager	<ul style="list-style-type: none"> Overall responsibility for environmental management and compliance; Oversee the implementation of this CEMP and request adequate resources to enable implementation of this CEMP; Report on the performance of the CEMP to the Project Manager for review and as a basis for system improvement; Liaise with Goodman to keep them informed of the project's progress; Coordinate environmental inspections and reporting and authority liaisons; Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; Direct reasonable steps be taken to avoid or minimise any unintended or adverse environmental impacts, and, failing the effectiveness of such steps, direct that the relevant actions cease immediately should an adverse impact on the environment be likely to occur. Attend the Environmental Review Group (ERG) meetings if ERG meetings are deemed necessary by the Environmental Consultant; and Provide adequate environmental inductions/training to employees and contractors regarding their requirements under this CEMP.

Role	Responsibilities
Contractor's National OHSE Manager	<ul style="list-style-type: none"> • Ensure the legislative and corporate safety, health and environment management measures and controls are implemented and maintained; • Participate in risk and hazard identification and control; • Participate in incident investigations and management; and • Participate in health and safety inspections.
All employees, contractors and subcontractors	<ul style="list-style-type: none"> • Ensure familiarity, implementation and compliance with this CEMP and appended management plans; • Support Goodman's commitment to sustainability, environmental management and compliance; • Work in a manner that will not harm the environment or impact on surrounding receptors; • Report all environmental incidents and complaints to the Project Manager without delay; and • Report any inappropriate construction practices and/or environmental management practices to the Project Manager without delay.

3.3 Statutory Requirements

3.3.1 SSD 7348

The works at Buildings 5A and 5B will comply with the relevant conditions of SSD 7348.

SSD 7348 incorporates the approval of a 'Concept Proposal' to guide the future development of the estate and consent for the 'Stage 1 Development'. As such, conditions applicable to this CEMP are limited to those contained in Schedule B and Schedule C of SSD 7348.

Schedule D of SSD 7348 is specific to the Stage 1 Development (including the WNSLR) and is therefore generally not applicable to this CEMP. Notwithstanding this, where appropriate, relevant conditions have been considered and addressed to ensure a consistent and robust approach to the management of construction environmental impacts across the Oakdale West Estate. If there is any inconsistency between the plans and documentation referred to in Condition D2(c), the most recent document shall prevail to the extent of the inconsistency. The Project Manager will be notified if any inconsistencies are identified.

Relevant conditions of SSD 7348 to this CEMP and how they have been addressed are included in **Appendix E**.

3.3.2 DA 0546

DA 22/0546 imposes a number of environmental performance and management requirements applicable to the construction of Lot 5A and 5B at Oakdale West. A copy of DA 22/0546 attached as **Appendix B**.

Relevant conditions of DA 0546 to this CEMP and how they have been addressed are included in **Appendix E**.

3.3.3 Other licences, permits, approvals and consents

In accordance with Condition B4 of the SSD 7348 consent, 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.

We note all endeavours will be made to obtain the relevant permit's/licences etc, however we are reliant on the Tenants Representative to provide the information within a timeframe reasonably requested by Goodman's Representative.

Additional licences, permits, approvals and consents required throughout operation as described in SSD 7348 and DA 22/0546 Consent Conditions, including the documents listed above in **1.1** and **1.2** are summarised in **Table 6**.

Table 6 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.	Goodman	As required	SSD 7348 Condition B4

3.4 Inductions and Environmental Training

The Contractor's Project Manager will ensure that all employees and contractors involved in the construction of Buildings 5A and 5B at Oakdale West 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).

The environmental induction training will cover all elements of the CEMP and will include, as a minimum, the following:

- Purpose and objectives of the CEMP;
- Requirements of due diligence and duty of care;
- Conditions of any environmental licences, permits and approvals;
- Potential environmental emergencies on site and the emergency response procedures (including the Emergency Spill Response Plan), locations and training in the use of emergency spill kits for spills on water and on land;
- Reporting, and notification and management requirements for pollution, contamination and other environmental incidents, and for damage and maintenance to environmental controls;
- High-risk activities and associated environmental safeguards i.e. earthworks, vegetation clearing, night works, operation and maintenance of concrete washouts, and washing, refuelling and maintenance of plant and equipment;
- the environmental sensitivity of all retained native vegetation, which are critically endangered ecological communities under both State and Federal legislation (Section 4 FFMP);

- Legal duty of care to ensure that no deliberate or inadvertent clearing or damage resulting from the activities being undertaken;
- The penalties that apply under both State and Federal legislation for any deliberate or inadvertent clearing or damage resulting from the activities being undertaken;
- The stop work procedure required should any damage occur to native vegetation (refer Section 5).
- Site-specific issues including:
 - Sound erosion and sediment control practices, water quality controls and sediment basin management (see **Section 4.6**);
 - Responsibilities under the *Heritage Act 1977* if an object of potential non-Aboriginal heritage is uncovered during construction;
 - The potential to encounter wildlife; and the stop works procedure that will be implemented in the event any fauna unexpectedly occurs (see **Section 4.9**);
 - Access into the Water NSW pipeline corridor is prohibited unless written access consent has been obtained from Water NSW;
 - Noise, vibration and air quality management controls (see **Sections 4.2, 4.3 and 4.4**);
 - Requirement to maintain surrounding property access for residences and businesses and to minimise disruptions to these properties for the duration of construction;
 - Location of reuse bins, washing, refuelling and maintenance of vehicles, plant and equipment;
 - Waste minimisation principles (see **Section 4.7**);
 - Identification, reporting and management of contaminated land (see **Section 4.11**); and
 - Incident management processes (see **Section 3.5**).

Toolbox talks 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. 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); and
- Outline the mitigations measures for the works and the area (see **Section 4**).

All employees 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.

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.

3.5 Incident and Non-Compliance Response and Handling Procedure

For the purposes of this CEMP, SSD 7348 describes an 'incident' as 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. SSD 7348 describes a 'non-compliance' as an occurrence, set of circumstances or development that is a breach of the consent.

3.5.1 Performance Objective

To ensure that any incident and/or non-compliance caused by or relating to the construction of Buildings 5A and 5B is effectively responded to, and any resulting adverse environment and/or human health impact is promptly prevented or effectively managed.

3.5.2 Responsibility

The Contractor's Project Manager is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an incident and/or non-compliance. All employees, contractors and subcontractors are to immediately:

- Notify the Contractor's Project Manager who will notify Oakdale West's Environmental Representative (ER) of any hazard or potential hazard that may result in an incident and/or non-compliance, regardless of the nature or scale; and
- 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.

The induction and toolbox talks outlined in **Section 3.4** will be used to ensure all site employees, contractors and subcontractors are aware of and understand their obligations for incident and/or non-compliance response.

3.5.3 Notification Requirements

3.5.3.1 Incidents

Section 147 of the *Protection of the Environment Operations Act 1997* (POEO Act) defines material harm as:

- (a) *harm to the environment is material if:*
- (i) *it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or*
 - (ii) *it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and*
- (b) *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.*

Notification responsibilities for incidents that have caused or threatened to cause material harm to the environment are detailed in Section 148 of the POEO Act. In summary, these are broadly categorised as:

Duty of an employee or any person undertaking an activity:

Any person engaged as an employee or undertaking an activity with regard to Buildings 5A and 5B will, immediately after becoming aware of any potential incident (even if outside of normal business hours), notify the Contractor’s Project Manager who will notify the Environmental Consultant of the incident and all relevant information about it. The Contractor’s Project Manager will be available 24 hours a day, seven (7) days a week and will have the authority to stop or direct works.

Duty of an employer or occupier of the premises to notify:

The employer or occupier of the premises (in this case, the ER) on which the incident occurred, who is notified (or otherwise becomes aware of) of the incident, will immediately notify the relevant authorities about the incident and all relevant information.

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; and
- Fire and Rescue NSW.

Table 7 lists the contact details for these authorities. 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; and
- Details of any required assistance.

Table 7 Regulatory Authority Contact List

Regulatory Authority / Stakeholder	Key Contact	Contact Details
Department of Planning and Environment (DPE)	Compliance Unit	1300 305 695 or 02 9228 6111 Major Projects website
Environment Protection Authority (EPA)	Environment Line	131 555 info@environment.nsw.gov.au
	Head office (Sydney)	02 9995 5000
Penrith City Council	Main switchboard	02 4732 777 council@penrith.city
Water NSW	Main switchboard	1300 662 077 Customer.Helpdesk@waternsw.com.au

Regulatory Authority / Stakeholder	Key Contact	Contact Details	
	Incident Notification Number – 24 hours	1800 061 069	
NSW Public Health Unit	Sydney Local Health District	Business hours: 1300 066 055 After hours: 02 9515 6111	
SafeWork NSW	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.	
Emergency Services	NSW Police NSW Fire and Rescue NSW Ambulance Service	131 444 1300 729 579 -	In case of emergency – 000

In accordance with Condition D135 of Development Consent SSD 7348, once Goodman becomes aware of an incident Goodman is required to immediately (within 24 hours) provide a written incident notification via email to the DPE and other relevant agencies of an incident, or potential incident, that causes (or may cause) harm to the environment. A detailed incident report (**Appendix F**) is then to be provided to the DPE within 30 days of the incident.

3.5.3.2 Non-Compliances

In accordance with Condition D136 of SSD 7348, the DPE will be notified in writing via the Major Projects website within seven days of becoming aware of any non-compliance.

D137 and D138 of SSD 7348 states a non-compliance notification will 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.

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

i. Incidents and Non-Compliance Handling Procedure

Upon becoming aware of an incident and/or non-compliance, the procedure outlined below will be followed.

1. Preventative Action

Where possible and safe to do so, immediate action will be taken to prevent, stop, contain and/or minimise the environmental impact of the incident and/or non-compliance.

In the unlikely event that an incident and/or non-compliance requires the evacuation of the site, actions will be completed in accordance with evacuation procedures. All employees and contractors are to be made aware of the location of emergency assembly areas through site inductions, signage and regular toolbox talks.

2. Assistance

If adequate internal resources are not available and the incident and/or non-compliance threatens public health, property or the environment, it is essential that Fire and Rescue NSW be contacted by telephoning “000” for emergency assistance.

Contacting Fire and Rescue NSW does not negate the notification requirements in **Section 3.5.3**.

3. Notify

Under the provisions of the POEO Act, there is a duty to notify any incident that has caused or threatens to cause material harm to the environment and all relevant information about the incident. The specific duties to notify are outlined above in **Section 3.5.3**.

In the event of a serious incident or emergency, it is more than likely that Fire and Rescue NSW will take control and manage the required investigation and remedial activities. Any instructions issued will be strictly adhered to.

Condition D135 and Appendix 8 of Development Consent SSD 7348 requires that the DPE and other relevant authorities be provided with a written incident notification via email within 24 hours after the incident.

A written notification will:

- 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; and
- Identify a project contact for further communication regarding the incident.

Non-compliances will be notified in accordance with **Section 3.5.3.2**.

4. Investigate

Undertake immediate investigative work to determine the cause of the incident and/or non-compliance.

5. Remedial Action

Undertake appropriate remedial action to address the cause of the incident and/or non-compliance and mitigate any further environmental impact. In some instances, outside resources such as specialist contractors/consultants may be required.

6. Record

It is imperative that an honest assessment of the situation is carried out and documented in order to minimise the potential for similar events in the future. On this basis, every incident is to be recorded in the Construction Contractor’s Incident Report Form. A copy of the completed report will be maintained for at least five years by the Construction Contractor.

Condition D135 and Appendix 8 of Development Consent SSD 7348 requires that a detailed incident report be provided to the DPE within 30 days of the incident occurring.

The Event Notification Report will include:

- A 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; and
- Details of any communication with other stakeholders regarding the incident.

All non-compliances are recorded in accordance with Condition D137 of SSD 7348.

7. Preventative Action

Once the incident and/or non-compliance has been suitably handled, appropriate measures will be identified and implemented to reduce the possibility of re-occurrence.

3.5.4 Incidents and Non-Compliance Register

An Incidents and Non-Compliance Register will be maintained during construction and will contain the following:

- A copy of the environmental incident and non-compliance notification requirements and handling procedure contained above in **Section 3.5.3** and **3.5.4**;
- Site evacuation procedures;
- A separate reference sheet containing the contact details for the contacts listed in **Table 4** and the contact details for the regulatory authorities listed in **Table 7**;
- Blank hard copies of Qanstruct Incident Report Form; and
- Copies of all completed Incident Report Forms, which are to be maintained for at least five years after the event to which they relate.

3.5.5 Minor Environmental Incidents

There is the possibility of minor environmental incidents occurring as part of this project. SLR have defined a 'Minor Environmental Incident' as an incident where there has been no potential or actual material harm to the environment (see 'material harm' definition outlined in **Section 3.5.3**). Examples may include excessive dust impacts sighted by the project team or a small contained hydrocarbon spill that does not leave a site boundary and are cleaned up without residual on-site environmental harm (RMS 2018).

Minor environmental incidents will still be handled under the process outlined in **Section 3.5.4** except there will be no requirement for government notification. All minor or major incidents will be recorded in the Incidents Register, with details of the events also included in Oakdale West's Environmental Representative Monthly Report. A minor incident does not constitute a non-compliance with the Development Consent.

3.6 Complaints Response and Handling Procedure

All complaints will be handled in accordance with the sections below and the *Oakdale West Community Communication Strategy (CCS)* (SLR 2022b) (see **Appendix G**).

3.6.1 Performance Objective

To ensure that all environmental complaints in relation to the construction of Buildings 5A and 5B at Oakdale West are promptly and effectively received, handled and addressed.

3.6.2 Responsibility

The Communications and Community Liaison Representative is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint. The induction and toolbox talks outlined in **Section 3.4** will be used to ensure all site employees are aware of and understand their obligations for complaints response.

All employees who take 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.

3.6.3 Complaints Handling Procedure

Upon becoming aware of a complaint, the protocol outlined below will be followed.

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 4**.

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 Communications and Community Liaison Representative 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 CCS (SLR 2022b).

3. Investigate

A field 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.

If the complaint is due to an incident, the notification requirements and handling procedures outlined in **Section 3.5.3** and **3.5.4** respectively 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. 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 in order to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the CCS Complaints Register (**Appendix G**). 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 3.6.4**.

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.

ii. Complaints Register

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

- A copy of the environmental complaint handling procedure contained in **Section 3.6.3**;
- A separate reference sheet containing the contact details listed in **Table 4**, provided in **Appendix G**;
- Copies of all completed Complaint Forms which are to be maintained for at least five years after the event to which they relate.

3.7 Dispute Resolution

In the event that a dispute arises between Goodman and Council or a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the construction of Buildings 5A and 5B at Oakdale West, either party may refer the matter to the Planning Secretary for resolution. The Planning Secretary's determination of any such dispute will be final and binding on the parties.

In the case of a dispute between Goodman and a community member/complainant, either party may refer the matter to the DPE and/or relevant regulatory authority for consideration, advice and/or negotiation. If the matter escalates, a third party mediator may be required.

Additional information can be located in the CCS (SLR 2022b) attached as **Appendix G**.

4 Environmental Management Commitments

Environmental aspects with the potential to be impacted through the construction of Buildings 5A and 5B are addressed in the following sub-sections. These issues have specific regulatory requirements imposed 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.

4.1 General

Table 8 lists the general environmental controls that will be implemented throughout the construction of Buildings 5A and 5B to minimise the potential for adverse impacts on the local environmental and surrounding receptors.

Table 8 General Construction Environmental Management Controls

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
All monitoring records will be maintained to demonstrate compliance with the CEMP, including: <ul style="list-style-type: none"> • Site environmental inspection reports • Environmental monitoring data • Internal and external audit reports • Reports of environmental incidents, environmental, associated actions taken, and follow-up actions • Minutes of management review meetings • Induction and training records 	Qanstruct	For 5 years after completion date	Best practice
Construction employees and contractors will be suitably inducted and trained prior to commencing any work on site.	Qanstruct	Prior to commencing construction and ongoing	CEMP Section 3.4
The incidents and complaints management strategies contained within Sections 3.5 and 3.6 will be implemented to ensure that any incidents and/or complaints relating to the construction activities are promptly and effectively addressed.	Qanstruct	Ongoing	CEMP Sections 3.5 and 3.6
All licences, permits, approvals and consents as required by law will be obtained and maintained as required for the development.	Qanstruct	Prior to commencing construction	SSD 7348 Condition B4

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Signage will be erected in accordance with DA22/0546 Condition 28.	Qanstruct	Prior to commencing construction	DA22/0546 Condition 28

4.2 Noise

Construction noise relating to Buildings 5A and 5B works will be managed in accordance with the CNVMP (SLR 2022a) prepared to support this CEMP, attached as **Appendix H**.

Table 9 outlines the project specific Noise Management Levels (NMLs) to be adhered to during construction as outlined in the CNVMP (SLR 2022a).

Table 9 Project Specific Construction Noise Management Levels

Receiver	Period	LAeq,15min Construction NMLs (dBA)	
		Standard Hours	Highly Noise Affected
N1, N7 & N8	Day	49	75
N9 – N14	Day	44	75
N2 & N6	Day	55 ¹	n/a

Note 1: Noise level of LAeq 55 dBA has been adopted, with consideration to the generally accepted 10 dB noise reduction typically achieved through a partially open window.

It is understood that a Noise Agreement between the applicant and receiver N3, N4 and N5 has been made. As such, no criteria are applicable at receivers N3, N4 and N5.

The environmental management controls in **Table 10** will be implemented to minimise the potential for adverse noise emissions from the construction of Buildings 5A and 5B.

Table 10 Environmental Management Controls for Noise

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Environmental Matters			
<p>Noise levels from the premises (including all associated plant and equipment) shall not exceed the relevant noise criteria detailed in the Noise and Vibration Assessment prepared by Wilkinson Murray and dated 28 April 2022 (RWDI # 2102730), and consent SSD-7348-MOD-11. A certificate is to be obtained from a qualified acoustic consultant certifying that the buildings 5A and 5B, (including all associated mechanical plant and ventilation) have been constructed to meet the noise criteria. This certificate is to be submitted to the Principal Certifying Authority prior to the issue of an Occupation Certificate.</p> <p>The provisions of the Protection of the Environment Operations Act 1997 apply to the development, in terms of regulating offensive noise.</p>	Construction Contractor	Ongoing	DA 22/0546 Condition 20
Project Planning			
Less noise and vibration intensive construction techniques for rock breaking and concrete sawing will be used.	Qanstruct	Ongoing	CNVMP / Best practice
Works will be completed during standard daytime construction hours outlined in Section 2.3 .			
Truck routes to site will be in accordance with the approved Construction Traffic Management Plan.			
Scheduling			
<p>Respite offers will be considered where high-noise works are predicted to exceed 75 dBA for residential 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.</p> <p>Consultation with these receivers will be undertaken to determine appropriate respite periods, such as exam periods for schools.</p>	Communications and Community Liaison Representative	Ongoing	CNVMP / Best practice
<p>Duration respite will be considered where it may be beneficial to the 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 CCS.</p>	Communications and Community Liaison Representative	Ongoing	CNVMP / Best practice

Measure	Person Responsible	Timing / Frequency	Reference / Notes
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.	Qanstruct	Ongoing	CNVMP / 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.			
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 project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Qanstruct	Ongoing	CNVMP / Best practice
Plant and Equipment Source Mitigation			
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).	Qanstruct	Ongoing	Best practice
Noisy equipment will be sited behind structures that act as barriers, or at the greatest distance from the noise-sensitive area; or orienting the equipment so that noise emissions are directed away from any sensitive areas, to achieve the maximum attenuation of noise.			
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.	Qanstruct	Ongoing	Best practice
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.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Truck movements will be kept to a minimum, i.e. trucks are fully loaded on each trip.			
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. Refer to the CCS.	Communications and Community Liaison Representative	Ongoing	CNVMP / Best practice
Where complaints are received, work practices will be reviewed and feasible and reasonable practices implemented to minimise any further impacts. Refer to Section 3.6 .			
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.	Qanstruct	Ongoing	CNVMP / 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 Section 5 for full details of monitoring requirements.			
Roles and Responsibilities			
All personnel will be made aware of their role and responsibilities to comply with the CNVMP.	Qanstruct	Ongoing	CVNMP Section 10

4.3 Vibration

Vibration during the construction of Buildings 5A and 5B will be managed in accordance with the CNVMP (SLR 2022a) prepared to adhere to best practice standards, and attached as **Appendix H**.

The vibration dose values (VDVs) recommended in the EPA's *Assessing Vibration: a technical guideline* (2006) for vibration of an intermittent nature are listed in **Table 11**.

Table 11 Acceptable Vibration Dose Values for Intermittent Vibration

Location	Daytime ¹		Night-time ¹	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Note 1: Daytime is 7:00 am to 10:00 pm and night-time is 10:00 pm to 7:00 am.

The recommended safe working distances for vibration intensive construction plant are listed in **Table 12**. These recommendations are for the practical management of potential vibration to minimise the likelihood of cosmetic damage to buildings and disturbance or annoyance in humans.

Table 12 Recommended Safe Working Distances for Vibration Intensive Plant

Plant Item	Rating / Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline) ¹
		Residential and Light Commercial (BS 7385) ¹	Heritage Items (DIN 4150 Group 3) ²	
Vibratory Roller	< 50 kN (Typically 1-2t)	5 m	11 m	15 m to 20 m
	< 100 kN (Typically 2-4t)	6 m	13 m	20 m
	< 200 kN (Typically 4-6t)	12 m	15 m	40 m
	< 300 kN (Typically 7-13t)	15 m	31 m	100 m
	> 300 kN (Typically 13-18t)	20 m	40 m	100 m
	> 300 kN (Typically > 18t)	25 m	50 m	100 m
Small Hydraulic Hammer	300 kg – 5 to 12t excavator	2 m	5 m	7 m
Medium Hydraulic Hammer	900 kg – 12 to 18t excavator	7 m	15 m	23 m
Large Hydraulic Hammer	1600 kg – 18 to 34t excavator	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	5 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	2 m

Note 1: Criteria reference from Roads and Maritime CNVG.

Note 2: Criteria reference from DIN 4150.

The environmental management controls in **Table 13** will be implemented to minimise the potential for adverse vibration impacts from the construction of Buildings 5A and 5B.

Table 13 Environmental Management Controls for Vibration

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Vibration			
Noise levels from the premises shall not exceed the relevant noise criteria detailed in the 'Noise and Vibration Assessment - Oakdale West Estate Buildings 3C, 3C2, 5A and 5B' (RWDI#2102730) prepared by RWDI Australia Pty Ltd date 2/11/2022. The provisions of the Protection of the Environment Operations Act 1977 apply to the development, in terms of regulating offensive noise.	Construction Contractor	Ongoing	DA 22/0546 Condition 20
Where works are required within the minimum working distances, vibration monitoring will be undertaken to confirm that vibration is within acceptable levels.	Qanstruct	Ongoing	CNVMP / Best practice
Where there is a risk that vibration activities may cause damage to nearby structures and buildings or if these are located within the minimum working distance from the construction activity, a building condition inspection will be undertaken at least three weeks before the construction activity commences.			
The Building Condition Inspection Reports will contain photographs of the inspected properties and include details of the inspectors' qualification and expertise, together with a list of any identified defects, where relevant. The reports will be submitted to the owner of each property and to Goodman before the commencement of any vibration intensive activities.		Before and after any vibration activities within minimum distances	
A copy of the Building Condition Inspection Reports and CNVMP will be submitted to Goodman at least 10 working days prior to commencement of piling, excavation by hammering or ripping, compaction, demolition operations, or any activity which may cause damage through vibration.			

4.4 Air Quality

Construction air quality will be managed in accordance with the CAQMP (SLR 2022) prepared to support this CEMP, attached as **Appendix I**.

The CAQMP will be implemented during the construction of Buildings 5A and 5B at Oakdale West to ensure that acceptable levels of amenity are maintained for surrounding residents and the relevant ambient air quality criteria are complied with for particulate matter at surrounding receptor locations.

The environmental controls in **Table 14** will be implemented to minimise the potential for adverse dust emissions and impacts during the construction.

Note: **Table 14** is replicated as Table 7 in the CAQMP.

Table 14 Environmental Management Controls for Air Quality

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Environmental Matters			
Dust suppression techniques are to be employed during all works to reduce any potential nuisances to surround properties.	Construction Contractor	Ongoing	DA 22/0546 Condition 13
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.	Qanstruct		
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 Section 3.5 of the CEMP.	Qanstruct	Ongoing	CEMP Section 3.5
All dust and air quality complaints will be undertaken as per Section 3.6 of the CEMP.			CEMP Section 3.6
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	Best practice
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.		Daily	
Preparing and Maintaining the Site			
Dust generating activities in areas close to receptors will be closely monitored and additional mitigation applied as required to best manage potential dust emissions	Qanstruct	Ongoing	Best practice
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			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
All on-road vehicles will comply with relevant vehicle emission standards (prescribed by the NSW RMS), where applicable, and will be maintained in good condition, in accordance with manufacturer's specifications and POEO Act.	Qanstruct	Ongoing	Best practice
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: <ul style="list-style-type: none"> • 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.			
Operations			
Only cutting, grinding or sawing equipment fitted with suitable dust suppression systems, such as water sprays will be used.	Qanstruct	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.	Qanstruct	Ongoing	Best practice
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			
No waste materials, timbers or any other combustible materials will be burnt on site.	Qanstruct	Ongoing	Best practice

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Earthworks			
Scopes of work will be planned in such a way to assist in minimising the duration that surfaces are left denuded.	Qanstruct	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 Qanstruct Project Manager to identify the scope of work or source of the emission prior to undertaking and applying any additional mitigation measures.		Ongoing	
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.	Qanstruct	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.	Qanstruct	Ongoing	Best practice
Record all regular inspections and maintenance undertaken of site haul routes and project related access 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.			
Demolition			
Ensure effective water suppression of dust is used during demolition operations.	Qanstruct	Ongoing	Best practice
Bag and remove any biological debris or damp down such material before demolition.			

4.5 Traffic

Construction traffic will be managed in accordance with the Construction Traffic Management Plan (CTMP) (Ason 2023) prepared to support this CEMP and is attached as **Appendix J**.

The CTMP seeks to minimise traffic impacts on the surrounding road network, ensure safety and efficiency for workers, pedestrians and other road users, and provide information regarding the construction vehicle access routes and any changed road conditions.

The anticipated vehicle movements generated by the construction of the Site have been estimated having consideration of the likely requirements for construction staff, plant, equipment and haulage. The anticipated construction schedule has been provided by the contractor, with the estimated traffic volumes are as follows:

- AM Peak 53 movements per hour (movements, in and out combined)
- PM Peak 53 movements per hour (movements, in and out combined)
- Daily Total 603 daily movements (movements, in and out combined)

The environmental management controls in **Table 15** will be implemented to ensure road safety and network efficiency during construction.

Table 15 Environmental Management Controls for Traffic

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Mud and soil from vehicular movements to and from the site must not be deposited on the road	Construction Contractor	Ongoing	DA 22/0546 Condition 14
All vehicles shall enter and leave to site in a forward direction.	Construction Contractor	Ongoing	DA 22/0546 Condition 50
Emergency vehicle access to and from the Site will be available at all times while the site is occupied by construction activities.	Drivers / Qanstruct	Ongoing	CTMP Section 2.3
Drivers will not use Bakers Lane for access to and from the Site.	Drivers / Qanstruct	Ongoing	CTMP Section 2.3, 4.1.3 and 5.2
All construction vehicles will access the site via Compass Drive, the Link Road, Tundra Close and Emporium Ave and Sepia Rd as shown in Figure 5.	Drivers / Qanstruct	Ongoing	CTMP Section 3.1
Any TGS shall maintain a suitable level of access past work areas for pedestrians or cyclists at all times.	Qanstruct	Ongoing	CTMP Section 3.2
A bus route is available from St Marys Train Station to Oakdale West Estate for additional access for construction workers.	Qanstruct	Ongoing	CTMP Section 3.3
A schedule for deliveries of materials and goods will be established on the previous day, and Traffic Controllers will maintain radio contact with construction vehicles at all times.	Qanstruct	Ongoing	CTMP Section 4.1.3
At no stage will queueing occur on the public road network. In the event that vehicles are required to use a layover prior to arrival at site, they will laydown within Tundra Close before arriving to site in order to avoid any on-street queueing.	Qanstruct		
Future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 60 truck movements (30 in, 30 out) per day, as per Section 4.1.3 of the CTMP.	Qanstruct	As required	CTMP Section 4.1.3

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Contractors shall nominate the parking zones without obstructing any vehicle manoeuvre routes. The location of Contractor parking lots are expected to change as construction continues and encompasses various portions of the Site.		Ongoing	CTMP Section 4.2.2
Vehicles will be tracked upon entry and exit of the Site's access to ensure that vehicles are abiding by both the timed restrictions and construction volume constraints.			CTMP Section 4.2.3
All material loading will occur within the construction site boundary.			CTMP Section 4.2.4
No loading will occur outside of the provisioned areas			
Equipment, materials and waste will be kept within the construction site boundary.			
During latter stages of construction, tie in works will be required within the kerbside of Emporium Avenue and Sepia Road. All materials handling shall be undertaken off the public roadway, however in the event materials handling are required from the roadway, then prior approval shall be sought and obtained from the relevant Authorities. Noting that Estate Roads are currently in private ownership, this would require consent of the Estate Management and be subject to special management.			
An application to Council will be submitted in the event that any special or discreet work activities require the use of kerbside parking for the purposes of a Works Zone.		As required	CTMP Section 4.2.5
Temporary exclusion fencing will be erected along the entire boundary of the site and will be maintained for the duration of the construction program. The fencing is to ensure unauthorised persons are kept out of the Site.		Prior to commencing construction and ongoing	CTMP Section 4.2.6
Site access gates would be provided within Tundra Close and will be closed at all times outside of the permitted construction hours		Ongoing	CTMP Section 4.2.7
Pedestrians and cyclists using the footpath fronting the Site are to be managed using pedestrian boom gates or equivalent, as outlined in Section 4.2.7 of the CTMP.		Prior to commencing construction and ongoing	CTMP Section 4.2.7
Chain mesh construction fencing will be provided along all site frontages accessible by the public to prevent unwanted pedestrian and/or cyclist access.			
Any Signage and/or line marking to be installed as a result of these construction works shall be installed as per Council's Engineering Construction Specification For Civil Works document (October 2017).	Qanstruct	Ongoing	CTMP Section 4.2.8
Traffic Guidance Schemes (TGSs) will be prepared, approved and updated in accordance with Section 4.2.9 of the CTMP.	Qanstruct	Ongoing	CTMP Section 4.2.9

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Safety to motorists and pedestrians throughout the area will be maintained during construction through the preparation and execution of TGS's, which will be monitored and updated accordingly throughout the project.	Qanstruct		CTMP Section 6.2
All drivers will adhere to the Driver Code of Conduct and Responsibilities outlined in Section 5 of the CTMP.	Qanstruct		CTMP Section 4.2.1 Section 5
Drivers are to be issued with a copy of the Drivers Code of Conduct if driving any vehicle for work-related purposes.	Qanstruct		CTMP Section 5.2 and 5.3
Management will take all steps necessary to ensure company vehicles are as safe as possible, in accordance with Section 5.4 of the CTMP.	Qanstruct	Ongoing	CTMP Section 5.4
If a vehicle crash or incident occurs, the procedure outlined in Section 5.5 of the CTMP will be followed.	Qanstruct	Following a vehicle crash or incident	CTMP Section 5.5
The environmental mitigation measures outlined in Section 5.6 will be adhered to.	Qanstruct	Ongoing	CTMP Section 5.6
Noting that construction works for the remainder of the OWE infrastructure and Building works will still be underway, each contractor shall liaise regularly in order to avoid any conflict of large deliveries and to ensure that the cumulative construction impacts are minimised and do not exceed approved operational limits.	Qanstruct	Ongoing	CTMP Section 6.3
The CTMP will be reviewed in accordance with Section 7.1 of the CTMP.	Qanstruct	Monthly, at minimum	CTMP Section 7.1

4.6 Soil and Water

The following documents have been prepared to ensure appropriate soil and water management during the construction of Buildings 5A and 5B:

- Soil and Water Management Plan (SWMP) (Rubicon Enviro 2022) – attached as **Appendix J**. The SWMP aims to ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise erosion and sedimentation impacts and potential impacts to water quality in creeks, waterways and groundwater along the project corridor.
- Erosion and Sediment Control Plan (ESCP) (Rubicon Enviro 2022) – attached as **Appendix K**. The ESCP aims to reduce the potential for risk of environmental impacts caused by erosion and sedimentation associated with project activities.

While these documents should be referred to for specifics, the environmental management controls are summarised in **Table 16**.

Table 16 Environmental Management Controls for Water and Soil

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
General			
No fill material shall be imported to the site until such time as a certificate demonstrating that the material is suitable has been submitted to, considered and approved by Council.	Construction Contractor	Ongoing	DA 22/0546 Condition 15
An appropriately qualified person/s shall supervise all filling works.	Construction Contractor	Ongoing	DA 22/0546 Condition 16
Carry out an independent review of all documentation relating to the filling of the site, and submit a review findings report (in accordance with requirements of DA 22/0546) Council and any Principal Certifying Authority.	Construction Contractor	On completion of filling works	DA 22/0546 Condition 16
Certify by way of a Compliance Certificate or other written documentation that fill materials have been placed on the site in accordance with all conditions of this consent and that the site will not pose an unacceptable risk to human health or the environment.			
Submit a copy of the Compliance Certificate or other documentation to Council and any Principal Certifying Authority.			
Planning, permits and personnel for soil and water management activities and controls will be managed as per Table 9 in the ESCP.		Ongoing	ESCP Section 9
Training will be provided to all project personnel, including relevant sub-contractors on sound erosion and sediment control practices and the requirements from this plan through inductions, toolbox talks and pre-start briefings.		Pre-construction / Ongoing	SWMP Section 6

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
A Project Soil Conservationist (Certified Professional in Erosion & Sediment Control - CPESC) will be engaged and consulted throughout construction to provide advice and review SWMP preparation, erosion and sediment control design, installation, maintenance and the development of Progressive Erosion and Sediment Control Plans (PESCPs).	Qanstruct	Pre-construction / Ongoing	SSD 7348 Condition D80(a) SWMP Section 6
Environmental Work Method Statements (EWMSs) may be required to be prepared and implemented to manage soil and water impacts for activities assessed as having high environmental risk (see SWMP Section 6 (SW3) for further examples of these activity types).		Ongoing	SWMP Section 6
Contaminated soils and Acid Sulfate Soils and / or Potential Acid Sulfate Soils are to be managed in accordance with the ESCP (see Appendix L).		Pre-construction / Ongoing	SWMP Section 6
Erosion and Sediment Control			
Sediment and erosion control measures shall be installed in accordance with the approved Construction Certificate and to ensure compliance with the Protection of the Environment Operations Act 1997. The erosion and sediment control measures shall remain in place and be maintained until all disturbed areas have been rehabilitated and stabilised.	Goodman / Qanstruct	Prior to construction / Construction	DA 22/0546
The Primary ESCP, prepared by the Soil Conservationist (CPESC) includes arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in wet weather. The ESCP is to be referred to and considered when preparing progressive erosion and sediment control plans.	Qanstruct / Project Soil Conservationist	Pre-construction / Ongoing	SSD 7348 Condition D80(a) SWMP Section 6 (SW5) ESCP Appendix L

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared and implemented in advance of construction. PESCPs will be updated as required.	Qanstruct / Project Soil Conservationist	Pre-construction / Ongoing	SSD 7348 Condition D81 SWMP Section 6 (SW6) ESCP Section 7.4 and 7.5 ESCP Appendix L
Harstand material, rumble grids, wheel wash facilities or similar will be provided at exit points from construction areas onto public roads to minimise the tracking soil and particulates onto public roads	Qanstruct	Pre-construction/Construction	SWMP Section 6 (SW6)
Prior to the commencement of any construction or other surface disturbance for the development, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction – Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan (Appendix L) included in the CEMP required by condition C2.	Goodman / Qanstruct	Prior to construction / Construction	SWMP Section 6 (SW7)
Erosion and sediment controls for the site will be implemented in accordance with Section 6 of the SWMP (SW8-SW14).	Qanstruct	Pre-construction / Ongoing	SSD 7348 Condition D80(c) SWMP Section 6
Key management strategies to mitigate potential erosion and sediment impacts will be followed in accordance with Section 7.4 of the ESCP.	Qanstruct	Ongoing	ESCP Section 7.4
A structured erosion and sediment control training program will be implemented for all relevant site personnel in the form of inductions, toolbox talks and workshops / training presentations.	Qanstruct	Ongoing	ESCP Section 7.4 and Section 7.6
A thorough inspection and maintenance program will be developed to monitor, record and schedule actions for maintenance and upgrades of controls, rectification works, and sediment removal and handling.	Qanstruct	Ongoing	ESCP Section 7.4 and Section 7.7

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
A procedure will be established to monitor forecast weather events and implementing response plans for significant wind or rainfall events and flooding.	Qanstruct	Ongoing	
Timely and progressive stabilisation will be undertaken of disturbed areas prior to final landscaping.	Qanstruct	Ongoing	ESCP Section 7.4 and Section 9
Stabilisation measures will be monitored, and prompt and effective revegetation and permanent stabilisation promoted. The erosion and sediment control measures required for Project areas during the various construction areas will be determined by reference to the guidance and measures detailed in Appendix D of the 'Blue Book' Volume 2D: Main Road Construction 2007. Commonly employed methods and techniques that may be likely to be utilised on the Project are detailed in Table 9 of the ESCP.	Qanstruct	Ongoing	ESCP Section 7.4 and Section 9
The ESCP is based on the assumption that controls will generally be installed in the progression outlined in Section 8 of the ESCP	Qanstruct	Ongoing	ESCP Section 8
Sediment and Pollution Controls for soil and water management activities will be managed as per Table 9 in the ESCP.	Qanstruct	Pre-construction / Ongoing	ESCP Section 9
Stockpiles			
Stockpiles will be managed in accordance with Section 6 of the SWMP.	Qanstruct	Pre-construction / Ongoing	SSD 7348 Condition D80(c) SWMP Section 6 (SW15)
Clearing, site establishment, topsoil stripping and stockpiling will be managed as per Table 9 in the ESCP	Qanstruct	Pre-construction / Ongoing	ESCP Section 9
Sediment Basins			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Construction sediment basins will be designed and constructed in accordance with the requirements and procedures detailed in the Blue Book Volume's 1 and 2D. The construction sediment basin design/s, restoration and revegetation methodology will be formulated and/or reviewed by the Project Soil Conservationist.	Qanstruct	Prior to construction / Construction	SWMP Section 6 (SW15)
Sediment basins will be designed and managed in accordance with Section 6 of the SWMP (SW16-SW28).	Qanstruct	Pre-construction / Ongoing	SSD 7348 Condition D81 & D82 SWMP Section 6
A sediment basin management register will be maintained for each sediment basin that records; <ul style="list-style-type: none"> • personnel approving the dewatering activities; • time & date; • water quality test results and estimated volumes for each discharge. 	Qanstruct	Ongoing	SWMP Section 6 ESCP Appendix L
The Sediment Basin Management and Dewatering Procedure will be referred to for actions to be taken for site dewatering in general and specific measures for the construction and maintenance of sediment basins including steps to be taken prior to any discharge.	Qanstruct	Ongoing	ESCP Appendix L
Dewatering			
Personnel responsible for approval and/or carrying out dewatering activities will be adequately trained and inducted on the dewatering procedures and requirements.	Qanstruct	Ongoing	SWMP Section 6 (SW24)
Dewatering activities will be managed in accordance with Section 6 of the SWMP (SW25-SW28).	Qanstruct	Ongoing	SSD 7348 Condition D81 & D82 SWMP Section 6 ESCP Appendix L
Drainage and water management will be managed as per Table 9 in the ESCP.	Qanstruct	Ongoing	ESCP Section 9
Site stabilisation and restoration			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Site stabilisation and restoration activities will be managed in accordance with Section 6 of the SWMP (SW29-SW31).	Qanstruct	Ongoing / Post Construction	SSD 7348 Condition D80(c) SWMP Section 6
Spill prevention and response			
Spill prevention and response will be managed in accordance with Section 6 of the SWMP (SW32-SW33).	Qanstruct	Ongoing	SSD 7348 Condition D82 and D109-D110 SWMP Section 6

4.7 Waste

Construction waste will be managed in accordance with the Waste Management Plan (WMP) (SLR 2022d) prepared to support the EIS and attached as **Appendix M**.

The environmental management controls in **Table 17** will be implemented to minimise the potential for adverse waste impacts from the construction of Buildings 5A and 5B.

Table 17 Environmental Management Controls for Waste

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
All construction waste materials stored on-site are to be contained within a designated area such as a waste bay or bin to ensure that no waste materials are allowed to enter the stormwater system or neighbouring properties. The designated waste storage areas are to be fully enclosed when the site is unattended.	Qanstruct	Ongoing	DA 22/0546 Condition 18
Waste materials associated with the constructions phase of the development are to be classified and disposed of at a lawful waste facility, or, if suitable, re-used or recycled in accordance with the approved WMP. All receipts and supporting documentation must be retained in order to verify lawful disposal of materials and are to be made available to Penrith City Council on request.			DA 22/0546 Condition 19
Waste avoidance and minimisation measures from the WMP will be implemented to meet construction waste recycling and landfill reduction targets.			WMP Section 5
Suitable measures will be implemented to manage pests, vermin and declared noxious weeds on the Site.			Best Practice

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
The Site will be inspected on a regular basis to ensure that the pest/weed/vermin measures are working effectively, and that they are not present on Site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.			
Waste Avoidance In accordance with Council's Development Control Plan (DCP) and better practice waste management waste avoidance measures listed in the WMP should be followed.			WMP Section 5.5
Reuse, Recycling and Disposal In accordance with Council's DCP and better practice waste management waste reuse, recycling and disposal measures listed in the WMP should be followed.			WMP Section 5.6
Waste Storage and Servicing In accordance with Council's DCP and better practice waste management waste reuse, recycling and disposal measures listed in the WMP should be followed.			WMP Section 5.7
All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Project must undergo induction training regarding waste management for the Site.	Qanstruct	Ongoing	WMP Section 5.8
Standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.			WMP Section 5.9
All personnel will be made aware of their role and responsibilities to comply with the WMP.	Qanstruct	Ongoing	WMP Section 5.11

4.8 Flora and Fauna

A Flora and Fauna Management Plan (FFMP) has been prepared by Ecologique (2022) and is attached as **Appendix N**. The FFMP outlines mitigation measures relevant to manage potential impacts to biodiversity during both construction and operation.

Table 18 outlines the mitigation measures to be implemented during construction to manage the impacts to flora and fauna.

Table 18 Environmental Management Controls for Flora and Fauna

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
All contractors will be made aware of potential direct and indirect impacts to native vegetation, fauna and fauna habitat in the site and beyond.	Management / Contractors	Prior to construction and Ongoing	FFMP Section 3.1
Wildlife Protection			
All personnel including contractors will be made aware of the potential to encounter wildlife; through the site induction process.	Management / Contractors	Prior to Construction	FFMP Section 3.2 (FF1)
Vehicle and mobile plant operators shall remain vigilant when entering and exiting the works area, particularly at dusk and dawn;		Ongoing	FFMP Section 3.2 (FF2)
Should kangaroos be observed transiting across the entrance/exit to the works area, vehicle/mobile plant is to stop until animals have moved to a safe distance to ensure vehicle/mobile plant strike is prevented; and			
All on site personnel including contractors are to report any injured or near miss incidents with wildlife.			
Should unexpected fauna be encountered within the works site, the stop works procedure provided in Section 4 of FFMP will be followed.	Management / Contractors	Ongoing	FFMP Section 3.2 (FF3)
Aquatic Ecosystem Protection			
All vehicles, plant and machinery will be kept in good condition and regularly maintained to avoid chemical leaks and/or spills.	Qanstruct	Ongoing	FFMP Section 3.2 (FF5)
A spill kit should be provided in an easily accessible location in the event that fuel or other contaminant spills occur.			FFMP Section 3.2 (FF6)
Weed, Pest Species and Pathogen Management			
The following hygiene procedures are to be implemented to avoid the introduction and/or spread of soil borne pathogens and weeds: <ul style="list-style-type: none"> • Minimise work during wet/rainy periods; • Vehicles, plant and machinery are to be clean and free of soil on arrival to the works area; • Truck wash down, rumble grids to be installed and operated to ensure mud, weeds or pathogens are not transported around the region or onto roads; • Mud spilt on roads to be immediately removed by a road sweeper. 	Management / Contractors / Employees	Ongoing	FFMP Section 3.2 (FF7)

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Future tenants are to install rodent (electronic or sonar) repellents to minimise prey for snakes	Management / Future tenants	Post construction	FFMP Section 3.2 (FF8)
Waste management shall ensure the following: <ul style="list-style-type: none"> All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site; Lids on skips or bins are to be kept closed at all times; and Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation 	Management / Contractors / Future Tenants	Ongoing	FFMP Section 3.2 (FF9)
All personnel working on the Project will be inducted on the potential to encounter wildlife within the wider Estate area and also within the works area.	Management / Contractors	Prior to construction / Ongoing	FFMP Section 4

4.9 Hazardous Goods and Contamination

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 19**. This includes an Unexpected Finds Protocol - Contamination (AECOM 2022), which has been prepared for Oakdale West to ensure that potentially contaminated material is appropriately managed, attached as **Appendix O**.

Table 19 Environmental Management Controls for Dangerous Goods

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Hazardous Goods			
Contaminated or Hazardous Waste Management will be managed in accordance with Section 5.7.4 of the WMP.	Qanstruct	Ongoing	WMP Section 5.7.4
Any material identified as contaminated will be disposed off site, with the disposal location and results recorded prior to its removal from the site.	Qanstruct / Environmental Consultant	As required	Best practice
The Contractor's Project Manager and the Environmental Consultant will be notified of any suspected or potential contamination exposed during construction activities, and cease all work activities within the vicinity of actual or suspected contaminated land.	Qanstruct	Immediately	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Adequate quantities of suitable material will be kept on site to counteract spillage readily available i.e. Emergency spill kits.		Prior to commencing construction and ongoing	
Emergency spill kits will be kept on site at all points of transfer for fuels and hydrocarbons, and at all other locations deemed necessary.		Prior to commencing construction and ongoing	
Safety Data Sheets (SDS) will be kept in the Site office and/or safety system for any potentially hazardous goods stored and/or used on site.		Ongoing	
The actions specified on the respective SDS will be implemented in the event of a minor chemical or fuel spill.			
Appropriate signage and spill kits will be maintained at key locations according to the construction schedule.			
All employees and contractors required to use potentially dangerous goods will be appropriately trained in the proper storage, use and handling.	Qanstruct	Ongoing	Best practice
Any liquid wastes or dangerous goods waste generated by the construction activities (e.g. due to damage or leakage of containment) will be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.	Qanstruct	Ongoing	Best practice
Unexpected Finds - Contamination			
Where the contamination is known or an unexpected contamination find has been identified, a Remediation Action Plan (RAP) will be prepared (as required) in accordance with G36 and the UCP (AECOM 2019).	Qanstruct / Project Manager / AECOM	As required	UCP Section 3.1
In the event that unexpected contamination finds are encountered: <ul style="list-style-type: none"> Qanstruct will immediately inform the Project Manager and AECOM. The Project Manager will inform Goodman. AECOM will inspect the unexpected find (if required).			UCP Section 3.1
In the event that fragments of Asbestos Containing Materials (ACM) are identified during the earthworks, works will cease and the procedure outlined in Section 3.3 of the UCP will be implemented.			UCP Section 3.3
In the event that burial pits relating to the former grazing activities are exposed, works will cease in that area and the procedure outlined in Section 3.4 of the UCP will be implemented.			UCP Section 3.4
In the event that other contaminated materials are identified during the earthworks, works will cease and the procedure outlined in Section 3.5 of the UCP will be implemented.			UCP Section 3.5

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
A Materials Tracking Plan (MTP) will be developed and implemented in accordance with Section 4 of the UCP.	Qanstruct	Ongoing	UCP Section 4
AECOM will prepare a Validation Report in accordance with the requirements of the NSW OEH (2011) <i>Guidelines for Consultants Reporting on Contaminated Sites</i> and EPA (2017) <i>Guidelines for the NSW Site Auditor Scheme (3rd Edition)</i> .	Qanstruct / AECOM	At the completion of the earthworks and if any unexpected finds were encountered that required remediation	UCP Section 5
Soil Contamination & Acid Sulphate Soils will be managed as per Table 9 in the ESCP.	Qanstruct	Ongoing	ESCP Section 9

4.10 Fire Safety and Emergency

The environmental controls that will be implemented to minimise the potential for environmental incidents relating to fire during the construction of Buildings 5A and 5B are presented in **Table 20**.

Table 20 Environmental Management Controls for Fire Safety and Emergency

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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.	Qanstruct	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 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.		Prior to commencing construction and ongoing	
Emergency vehicle access to and from the Site will be available at all times during construction.		Ongoing	
Fire extinguishers will be located at work locations where hot work is being undertaken or flammable gases are stored.			
Construction plant will be fitted with fire extinguishers, as required/appropriate.			
Waste material will not be burnt on site and no fires of any kind will be lit on site.			

4.11 Community

As required by, community engagement shall be undertaken in accordance with the Community Consultation Strategy (CCS) for Oakdale West, prepared by SLR (2022b) and is attached as **Appendix G**.

The community management controls in **Table 21** will be implemented during the construction of Buildings 5A and 5B.

Table 21 Environmental Management Controls for the Community

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Sensitive receptors will be consulted prior to actions likely to generate noise, vibration, air quality of traffic impacts.	Goodman	No less than 48 hours prior	CCS Section 3.2
Should any works be likely to generate impacts beyond those identified within the approval's documentation, consultation will be undertaken with the applicable managing agency.		As required	
A Communications and Community Liaison Representative will be appointed as a single point of contact responsible for receiving and disseminating information requests and complaints, along with addressing any interface issues		Prior to commencing construction and ongoing	CCS Section 4
Community consultation meetings will be held to provide a project update and act as an opportunity for the community and stakeholders to discuss recent experiences and upcoming construction activities.	Community Consultation Team	Monthly. Frequency to be revised subject to the level of interest and the construction program	CCS Section 5.3
Community workshops will be held to identify the overarching construction program and communications protocols, with the event advertised via local newspaper and letter box drop.		Prior to commencing construction	
A Consultation Register will be maintained and record community and stakeholder interactions, along with associated remedial actions as required.	Communications and Community Liaison Representative	Ongoing	CCS Section 5.3
ERG Meetings will be held with key environmental stakeholders and will be briefed on upcoming project tasks with key environmental implications, along with complaints and enquiries received.	Environmental Representative	As required	
Individual Community Meetings will be held with stakeholders as required to discuss a specific item.	Community Consultation Team		

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Newspaper Advertisements will be published in The Western Weekender and Mt Druitt – St Marys Standard identifying the project hotline number and web page address.		Prior to commencing construction and ongoing	
Notification Letterbox Drop will be provided to specific receivers identified as being potentially affected by construction. This could be undertaken in tandem with door knocking.		As required in accordance with Table 7 of the CCS	
Site Signage will display project information details including the hotline and web page, along with relevant project and safety information.		Prior to commencing construction and ongoing	
Online Feedback Forms will be available on the web page, with feedback provided to be incorporated into the consultation register and actioned as required.			
A 24 hour Project Information and Complaints Number will be available for reporting project feedback.	Communications and Community Liaison Representative	Prior to commencing construction and ongoing	
Staff and Visitor Induction and Training will be undertaken in accordance with Section 3.4.	Qanstruct		
Text Message and Email Alerts will provide important information at short notice to potentially affected receivers. Text message details to be recorded in the consultation register.	Community Consultation Team	As required	
A dedicated web page will be established to provide project updates, along with real time environmental performance monitoring.		Prior to commencing construction and ongoing	
Notification requirements will be undertaken in accordance with Table 6, 7 and 8 of the CCS.		Ongoing	

4.12 Heritage

The environmental management controls in **Table 22** will be implemented to minimise the potential for adverse heritage impacts from the construction of Buildings 5A and 5B.

These controls outline the Unexpected Finds Protocol from Conditions D106, D107 and D108 of SSD 7348 to be followed in the event that unanticipated archaeological items are uncovered.

In addition to this, if any further instruction is required, please refer to the Oakdale West Estate-Wide Unexpected Finds Protocol – Archaeological Items, prepared by Artefact (2022) and attached as **Appendix P**.

Table 22 Environmental Management Controls for Heritage

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
D106. 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.	Qanstruct	Ongoing	SSD 7348 Condition D106
D107. Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the <i>National Parks and Wildlife Act 1974</i> .	Qanstruct	Ongoing	SSD 7348 Condition D107
D109. 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 Department of Premier and Cabinet, Heritage Division.			SSD 7348 Condition D108

4.13 Landscaping

Landscaping will be developed in accordance with the Landscape Plans (Scape Design 2022) prepared to support the DA 22/0546 Application and attached as Appendix R.

The environmental management controls in **Table 23** will be implemented to minimise the potential for adverse impacts while developing the landscaping during the construction of Buildings 5A and 5B.

Table 23 Environmental Management Controls for Landscaping

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
All landscape works are to be constructed in accordance with the stamped approved plans.	Goodman	During construction	DA 22/0546 Condition 51
All landscape works will meet industry best practice and the following relevant Australian Standards: <ul style="list-style-type: none"> • AS 4419 Soils for Landscaping and Garden Use, • AS 4454 Composts, Soil Conditioners and Mulches, and • AS 4373 Pruning of Amenity Trees. 	Goodman	During construction	DA 22/0546 Condition 53

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Trees will not be removed from within the development without the prior consent of Penrith City Council. Any trees to be removed as part of the engineering work are to be shown on engineering plans submitted for Council's consideration and subsequent approval.	Goodman	During construction	DA 22/0546 Condition 54

4.14 Sustainability

Ecologically sustainable development (ESD) principles will be incorporated into the construction of Building 5A and 5B in accordance with the Sustainability Management Plan (SMP) (SLR 2022c) prepared to support this CEMP and attached as **Appendix R**. These environmental management commitments are outlined in **Table 24** and will be implemented for the construction of Buildings 5A and 5B.

Table 24 Environmental Management Controls for Sustainability

Environmental Management Commitments	Person Responsible	Timing / Frequency	References / Notes
This warehouse will comply with all the façade performance requirements specified within the SMP during construction stage.	Qanstruct	Ongoing	SMP Section 4.1
More than 70% of the predicted construction waste arising from development can be reused (on-site or at another development) or recycled offsite. Refer to Waste Management Plan.	Qanstruct	Ongoing	SMP Section 4.1
Construction will be undertaken in accordance with the ESD principles, as applicable to construction, outlined in Table 3 of the SMP.	Qanstruct	Ongoing	SMP Section 4.1

Environmental Management Commitments	Person Responsible	Timing / Frequency	References / Notes
<p>The following will be required to be submitted with the application for a Construction Certificate:</p> <p>Details or NCC Section J5 certification demonstrating compliance with air-conditioning energy efficiency requirements.</p> <p>A Project Section J report to demonstrate building fabric compliance.</p>	Qanstruct	With submission of construction certificate	SMP Section 4.5 and 4.6

5 Monitoring and Reporting

5.1 Environmental Monitoring and Inspections

Table 25 summarises the monitoring requirements for the construction of Buildings 5A and 5B at Oakdale West as set out in and relevant management plans.

Table 25 Monitoring and Inspection Requirements

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
General			
Inspection and maintenance of all plant and equipment items to ensure optimal operating condition.	Qanstruct	As specified by the manufacturer / supplier	Best practise
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.	Qanstruct	Weekly	Best practice
Noise			
Attended noise measurements will be undertaken at the start of noise intensive works in the vicinity of sensitive receivers to verify the levels are as predicted and to check the effectiveness of mitigation and management measures used to minimise the impacts	Qanstruct	Prior to commencing noise intensive works	CNVMP Section 8.1

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
Attended monitoring will also be undertaken in response to any complaints regarding construction noise and will take place during the expected noisiest construction periods and be representative / indicative of any impact across all potentially affected sensitive receivers.	Qanstruct	Following a noise-related complaint	CNVMP Section 8.1
All items of acoustic instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.	Qanstruct	Ongoing	CNVMP Section 8.1
Vibration			
Vibration will be monitored continuously within the minimum working distances where vibration intensive works (such as vibratory rolling and plate compacting) are proposed to be undertaken within the minimum working distances of sensitive receivers or structures.	Qanstruct	Continuously	CNVMP Section 8.2
Attended vibration measurements will be undertaken at the commencement of vibration intensive works within the minimum working distances to confirm the levels of vibration are below the applicable vibration limits.		Prior to commencing vibration intensive works	
Geophones 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.		Prior to commencing construction and ongoing	
The monitoring equipment will have visible and audible alarms in accordance with Section 8.2 of the CNVMP.		Ongoing	
Air Quality			
The parameters identified in Table 14 will be used to assess the effectiveness of air quality control measures	Qanstruct	Ongoing	CAQMP Section 8
Visual inspections will be undertaken to assess 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	Qanstruct	Daily	CAQMP Section 8
Meteorological data recorded at Horsley Park AWS will be monitored and reviewed on a daily basis.			

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
The air quality monitoring program currently in place at Oakdale West will continue to be implemented throughout the construction of Buildings 5A and 5B.	Goodman	Ongoing	CAQMP Section 10
Traffic			
Delivery volumes will be monitored against the volumes outlined within the Traffic Impact Assessment report, including registration and time of entry	Qanstruct	Ongoing	CTMP Section 7.1
Monitoring of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved	Qanstruct	Fortnightly	CTMP Section 6.2
Monitor parking and access to identify shortfalls and issues.	Qanstruct	Ongoing	CTMP Section 7.1
Monitor TGSs (if necessary) to ensure they are consistent with set-up on site.	Qanstruct	Ongoing	CTMP Section 6.2 and 7.1
Regular checks will be undertaken to ensure all loads are entering and leaving site covered.	Qanstruct	Ongoing	CTMP Section 7.1
A Dilapidation report shall be undertaken to assess the condition of the road and note whether there has been any reduction in quality of the road as result of construction vehicles.	Qanstruct	Monthly	CTMP Section 7.1
Monitor designated heavy vehicle routes being used on site, and parking and access issues.	Qanstruct	Ongoing	CTMP Section 5.4 and 7.1
A program will be developed to monitor the effectiveness of the CTMP.	Qanstruct	Ongoing	CTMP Section 7.1
Soil and Water			
Any material transported onto road surfaces to be removed.	Qanstruct	Daily and before rainfall	Best practice
Monitoring and Inspections will occur in accordance with Section 6 of the SWMP (SW38-SW41).	Qanstruct	Ongoing	SWMP Section 6
Environmental Site Inspection to evaluate the effectiveness of erosion and sediment control measures in accordance with Table 6-1 of SWMP.	Environmental Site Representative	Weekly	SWMP Section 7.3

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
Rainfall Inspection (10mm or greater rainfall) to evaluate the effectiveness of erosion and sediment control measures in accordance with Table 6-1 of SWMP. A rain gauge is to be installed in the main compound as per Section 7.5 of SWMP.		Prior to rainfall event, during event, within 24 hours after the event.	
Establish a thorough inspection and maintenance program to monitor, record and schedule actions for maintenance and upgrades of controls, rectification works, and sediment removal and handling.	Qanstruct	Ongoing	ESCP Section 7.4
Monitor forecast weather events and implement response plans for significant wind or rainfall events and flooding.	Qanstruct	Ongoing	ESCP Section 7.4
Stabilisation measures will be monitored, and prompt and effective revegetation and permanent stabilisation promoted.	Qanstruct	Ongoing	ESCP Section 7.4
Waste			
As per Council's DCP, records of waste volumes recycled, reused or contractor removed are to be maintained.	Qanstruct	Daily	WMP Section 5.10
Visual inspections of waste storage areas will be undertaken.			
Visual Amenity			
The Site will be inspected to ensure 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.	Qanstruct / ER	During Environmental Consultant inspections	Best practice
Community			
The following will be monitored: <ul style="list-style-type: none"> Total number of complaints Number of complaints relating to lack of consultation / misinformation / confusion Number of enquiries relating to information previously disseminated Number of complaints / enquiries within defined categories based on theme or subject Response timeframes 	Communications and Community Liaison Representative	Monthly	CCS Section 6.1

5.2 Reporting

Table 26 summarises the reporting requirements for the construction of Buildings 5A and 5B at Oakdale West as set out in and relevant management plans.

Table 26 Reporting Requirements

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
General Environmental Performance			
The Qanstruct will report environmental performance during regular management meetings and/or 'toolbox talks'. Items to be discussed include: <ul style="list-style-type: none"> Results of any monitoring activities undertaken Any environmental incidents that have occurred during the previous period, including the management / corrective actions taken Any complaints that have been received during the previous period, including any management / corrective actions taken 	Qanstruct	Weekly	Section 3.4
A copy of all environmental records will be maintained, including: <ul style="list-style-type: none"> Site environmental inspection reports Environmental monitoring data Internal and external audit reports Reports of environmental incidents, environmental, associated actions taken, and follow-up actions Minutes of management review meetings Induction and training records 	Qanstruct	For at least 5 years after completion	Best practice
Meteorological data including rainfall will be recorded.		Daily	
Incident / Non-Compliance Reporting			
A register of all complaints and non-compliances will be kept.	Qanstruct	For at least 5 years after completion	Best practice
Noise			
Monitoring reports will be produced following each monitoring survey and provided to Goodman for review.	Qanstruct	Following each monitoring survey	CNVMP Section 8.1
Vibration			

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
<p>Vibration monitoring reports will be prepared at the following stages:</p> <ul style="list-style-type: none"> • Prior to commencement of works (baseline report) • Monthly during works (at a minimum) • Within one week of an exceedance of the vibration limit alarm level (15 mm/s PPV) • Upon completion of construction 	Qanstruct	Monthly at minimum	CNVMP Section 8.2
Traffic			
Reporting of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved.	Qanstruct	Fortnightly	CTMP Section 6.2
Soil and Water			
<p>A site dewatering register will be maintained for site areas (other than sediment basins) that require treatment, dewatering and discharge to off-site areas. The register will record;</p> <ul style="list-style-type: none"> • dewatering procedure; • date and time for each discharge at each location; • water quality test results for each discharge; • personnel approving the dewatering activities; • evidence of discharge monitoring, or risk assessment and mitigation; and • measures used to eliminate the risks of pollution or erosion. 	Qanstruct	Ongoing	SSD 7348 Condition D81 & D82 SWMP Section 6 (SW27)
Waste			
Waste Record Keeping will occur in accordance with Section 5.7.3 of the WMP.	Qanstruct	Ongoing	WMP Section 5.7.3
Hazardous Goods and Contamination			
Any material identified as contaminated will be disposed off site, with the disposal location and results of testing recorded prior to its removal from the site.	Qanstruct / Environmental Consultant	As required	Best practice

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Where the contamination is known or an unexpected contamination find has been identified, a Remediation Action Plan (RAP) will be prepared (as required) in accordance with G36 and the UCP (AECOM 2019).	Qanstruct	As required	UCP Section 3.1
AECOM will prepare a Validation Report in accordance with the requirements of the NSW OEH (2011) <i>Guidelines for Consultants Reporting on Contaminated Sites</i> and EPA (2017) <i>Guidelines for the NSW Site Auditor Scheme (3rd Edition)</i> .	Qanstruct / AECOM	At the completion of the earthworks and if any unexpected finds were encountered that required remediation	UCP Section 5
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"> A summary of community consultation activities undertaken within the preceding month A summary of community consultation activities proposed within the following month <p>A summary of all enquiries and complaints received within the preceding month, including details of response and/or remediation activities</p>	Communications and Community Liaison Representative	Monthly	CCS Section 6.2

5.3 Auditing

Table 27 summarises the auditing requirements for Buildings 5A and 5B works and relevant management plans.

Table 27 Audit Requirements

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
General			
A project audit will be undertaken to ensure all aspects of the project are implemented.	Environmental Consultant	Within 6 months of the commencement of construction	Environmental Consultant recommendation
Soil and Water			

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
An audit program will be developed: <ul style="list-style-type: none"> Noting the condition of installed erosion and sediment controls onsite Detailing maintenance requirements (if any) for installed erosion and sediment controls Recording the volumes of sediment removed from sediment controls and sediment traps, where applicable Recording the location to where extracted sediments are disposed. 	Qanstruct	Weekly, before extended shut-down and after rainfall events over 10 mm	ESCP Section 7.7
Audits (both internal and external) will be undertaken to assess the effectiveness of environmental mitigation and management measures.	Qanstruct	As required	SWMP Section 7.6

5.4 Contingency Management Plan

Table 28 lists the actions to be implemented if inspections, monitoring and/or auditing indicate that the mitigation measures listed in **Section 4** and the specialist management plans are not effective in managing environmental impacts.

All Condition Amber and Condition Red occurrences will be recorded in Oakdale West's Environmental Representative Monthly Report and discussed during the toolbox talks.

Table 28 Contingency Plan

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Noise impacts at sensitive receiver locations	Trigger	Noise levels do not exceed applicable NMLs	Noise levels exceed applicable NMLs	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)	Undertake all feasible and reasonable mitigation and management measures to ensure noise levels are below Highly Noise Affected criteria. If noise levels cannot be kept below Highly Noise Affected criteria then a different construction method or equipment must be utilised.
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.

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 there is visible dust leaving the site multiple times 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"> Deployment of additional water sprays, water trucks etc 	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities
Dust deposition reading of >4g/m ² /month	Trigger	Dust deposition rates are less than 4 g/m ² /month at all the dust gauges.	Dust deposition rate greater than 4 g/m ² /month is recorded by any of the dust gauges	Dust deposition rates greater than 4 g/m ² /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"> OWE Project Manager to analyse data to try to identify the source(s) of dust. Qanstruct to review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering. 	<ul style="list-style-type: none"> OWE Project Manager to review and investigate construction activities and respective control measures for the monitoring period. If it is concluded that construction activities at Buildings 5A and 5B 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), Qanstruct 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.	<ul style="list-style-type: none"> Report the complaint to the regulator, in line with complaints handling procedure (See Section 3.6.3). Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate. 	Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing.
Real-time suspended particulate matter monitoring (TSP and PM ₁₀)	Trigger	Running 24-hour average PM ₁₀ concentrations < 40 µg/m ³	Running 24-hour average PM ₁₀ concentrations >40 µg/m ³ but <50 µg/m ³	Running 24-hour average PM ₁₀ concentrations >50 µg/m ³

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
	Response	Continue monitoring program as normal.	OWE Project Manager to review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as: <ul style="list-style-type: none"> • Deployment of additional water sprays, water trucks etc • Relocation or modification of dust-generating sources • Record findings of investigations and actions taken to reduce dust levels • Continue to closely monitor dust levels to ensure they are decreasing If elevated dust levels are due to regional dust event (fire, dust storm etc) – still take action to minimise dust from the Buildings 5A and 5B to minimise cumulative impacts, but also record details of the cause of the elevated background levels.	<ul style="list-style-type: none"> • OWE Project Manager to review and investigate construction activities and respective control measures for the monitoring period, in an air pollution incident report. If it is concluded that construction activities at Buildings 5A and 5B 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), Qanstruct to submit an incident report to government agencies.
Traffic Construction movements	Trigger	Construction traffic does not exceed the permissible volume and time constraints.	Construction traffic just exceeds the permissible volume and time constraints.	Construction traffic far exceeds the permissible volume and time constraints.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
	Response	No response required.	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: <ul style="list-style-type: none"> Review CTMP and update where necessary Provide additional training 	As with Condition Amber, plus; <ul style="list-style-type: none"> If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Stop all transportation into and out of the site.
Traffic Queuing	Trigger	No queuing identified.	Queuing identified within site.	Queuing identified on the public road.
	Response	No response required. Continue monitoring program.	Review the delivery schedule prepared by the builder. 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 .	Review and investigate construction activities. If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Where appropriate, implement additional remediation measures such as: <ul style="list-style-type: none"> Temporary halting of activities and resuming when conditions have improved Stop all transportation into and out of the site Review CTMP and update where necessary Provide additional training
Traffic Noise	Trigger	Noise levels do not exceed imposed noise constraints.	Noise levels in minor excess of imposed noise constraints.	Noise levels greatly in excess of imposed noise constraints.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
	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.	Minor inconsistencies with TGS to onsite operations.	Near miss or incident occurring regardless of / as a result of the TGS being implemented.
	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 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 Dust	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 activities and respective control measures, where appropriate. Implement additional remedial measures, such as: <ul style="list-style-type: none"> • Deployment of additional water sprays • Relocation or modification of dust-generating sources • Check condition of vibrating grids to ensure they are functioning correctly • Temporary halting of activities and resuming when conditions have improved 	As with Condition Amber. <ul style="list-style-type: none"> • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Implement relevant responses and undertake immediate review to avoid such occurrence in future.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
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 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 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.
Waste	Trigger	Weekly Environmental Consultant inspections identified no waste outside of dedicated bins and stockpiles.	Weekly Environmental Consultant inspections identified minimal waste outside of dedicated bins and stockpiles.	Weekly Environmental Consultant inspections identified large quantities of waste outside of dedicated bins and stockpiles. Complaints received regarding waste.
	Response	Continue CEMP implementation.	The Project Manager is notified and the waste is cleaned up immediately.	The Project Manager is notified and the waste is cleaned up immediately. The Communications and Community Liaison Representative is also notified and the complaints handling process outlined in Section 3.6 and the CCS is implemented.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
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 assess the contamination according to the UCP (Aecom 2022).	Stop work immediately and a RAP is to be prepared. A validation report is to be prepared following remediation. Refer to UCP (Aecom 2022).
Heritage Find	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 follow unexpected finds protocol as outlined in. Refer to UFP (Artefact 2019).	Stop work and follow unexpected finds protocol, Heritage item to be salvaged and removed from site by a qualified archaeologist. Refer to UFP (Artefact 2019).
Feedback/Complaints	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 consultation register. No further response required.	Acknowledge receipt and record in consultation register. Direct enquiry to relevant person for actioning and response within 5 days.	Acknowledge receipt and record in consultation 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 Element	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 consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman 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 consultation register. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response immediately. Acknowledge in consultation 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 Goodman Project Team to prepare and provide response or assign response task to relevant staff member for comment. Record in consultation register.	Community consultation team in conjunction with Goodman Project Team to prepare and provide response within 48 hours. Record in consultation register.	Community consultation team in conjunction with Goodman Project Team to prepare and provide response within 24 hours. Record in consultation register.

6 Review and Improvement of Environmental Performance against CEMP

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

- Identification of areas of opportunity for improved environmental performance;
- Analysis of the causes of 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 CEMP 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; and/or
- At the request of a relevant regulatory authority.

7 References

Aecom (2022) Unexpected Finds Protocol Archaeological

Ason (2023) *Construction Traffic Management Plan*

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

Ecologique (2023) *Flora and Fauna Management Plan*

Environmental Protection Authority (2005) *Assessing Vibration: a technical guideline*

Environmental Protection Authority (2017) *Guidelines for the NSW Site Auditor Scheme*

Keylan Consulting (2021) *SSD7348 MOD 10, Oakdale West Stage – S.4.55(1a) Application to Modify Architecture Plans*

Keylan Consulting (2022) *SSD7348 MOD 11, Oakdale West Stage – S.4.55(1a) Application to Modify Architecture Plans*

Landcom (2004) *Volume 1: Blue Book*

Office of Environment and Heritage (2011) *Guidelines for Consultants Reporting on Contaminated Sites*

Rubicon (2022) *Soil and Water Management Plan*

Rubicon (2022) *Erosion and Sediment Control Plan*

Rubicon (2019) *Unexpected Finds Protocol Contamination*

SLR (2020) *Oakdale West Industrial Estate Construction Environmental Management Plan (CEMP) SSD 7348*

SLR (2022) *Construction Air Quality Management Plan*

SLR (2022a) *Construction Noise and Vibration Management Plan*

SLR (2022b) *Oakdale West Community Consultation Strategy*

SLR (2022c) *Sustainability Management Plan*

SLR (2022d) *Waste Management Plan*

Urbis (2017) *Environmental Impact Statement, Oakdale West Estate – State Significant Development Application*

Urbis (2019) *Oakdale West Industrial Estate (SSD 7348) Modification 1*

APPENDIX A

Development Consent SSD 7348

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 11 October 2017, 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.

Anthea Sargeant
Executive Director
Compliance, Industry and Key Sites

Sydney

2019

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 7348
Applicant:	Goodman Property Services (Aust) Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site:	Lot 26 DP 1269741 Lot 105 DP 1262310 Lot 107 DP 1262310
Development:	<p>A Concept Proposal including:</p> <ul style="list-style-type: none">• concept layout of 1819 warehouse buildings inclusive of dock offices and ancillary offices providing 556,824 square metres of gross lettable area, built over seven development stages;• concept layout of development lots, internal roads, drainage, landscaping, noise walls, basins and biodiversity offsets; and• development controls. <p>A Stage 1 Development including:</p> <ul style="list-style-type: none">• bulk earthworks across all five stages including retaining walls and noise walls;• lead in services including but not limited to drainage, power, sewer, water and telecommunications;• service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications;• construction and operation of three warehouse buildings inclusive of dock offices and ancillary offices in Precinct 1 (1A, 1B and 1C) providing 88,867 square metres of gross lettable area;• Western North-South Link Road and associated subdivision, basins and drainage;• estate roads 1, 2, and 6 and 8 and eastern part of road 7;• landscaping of Stage 1, the western boundary, Western North-South Link Road, estate roads 1, 2, and 6 and 8 and the eastern part of road 7, detention basins and the amenity lot• subdivision of Stage 1 lots and road infrastructure including the services (substation) lot;• stormwater drainage infrastructure for Lots 2A and 2B and all basins;• temporary works to facilitate construction including but not limited to swales, haul road (construction access), landscaping and basins; and

CONSOLIDATED CONSENT

- works including construction of traffic signals at Lenore Drive/Grady Crescent/WNSLR intersection; **and**
- **works within Lot 9 DP1157476 including reconfiguration of car park, relocation of car park access on Lockwood Road, infrastructure, landscaping and all works associated with the WNSLR.**

SSD 7348 – Mod 1

SSD 7348 – Mod 2

SSD 7348 – Mod 3

SSD 7348 – Mod 4

SSD 7348 – Mod 5

SSD 7348 – Mod 6

SSD 7348 – Mod 7

SSD 7348 – Mod 8

SSD 7348 – Mod 9

SSD 7348 – Mod 10

CONSOLIDATED CONSENT

SUMMARY OF MODIFICATIONS

Application Number	Determination Date	Decider	Modification Description
SSD-7348-Mod-1	27 March 2020	Department	Changes to pad levels across the Concept Proposal, amendments to bio-retention basins and changes to the biodiversity offset strategy
SSD-7348-Mod-2	21 April 2020	Department	Changes to Stage 1 pad levels, building layouts and the height of Building 1A
SSD-7348-Mod-3	3 April 2020	Department	Changes to the Concept Proposal layout, Stage 2 area and height of Building 2
SSD-7348-Mod-4	24 March 2020	Department	Include an additional lot for construction works for the WNSLR
SSD-7348-Mod-5	5 November 2020	Department	Increase in SLR road reserve and associated reduction in building and landscaping setbacks, amendments to Precinct 1A layout and car parking spaces, quantities of dangerous goods to be stored in Building 1A, setting up an alternative biodiversity offset site, and extension to required completion date for the noise barrier
SSD-7348-Mod-6	10 March 2021	Department	Changes to Concept for Precincts 1 and 2, Increase height of Building 2A, Reduce floor area and amend design of Buildings 1B and 1C, Remove speed limits, Construct Road 8 in Stage 1, Increase Ropes Creek vegetation management area
SSD-7348-Mod-7	7 October 2021	Director	Changes to Precincts 3 and 4 including earthworks, retaining walls, building layouts in Precinct 4 and estate road 7
SSD-7348-Mod-8	10 September 2021	Department	Amendments to architectural plans for Stage 1 Buildings 1A, 1B and 1C.
SSD-7348-Mod-9	8 December 2021	Department	Amendments to the layout of Buildings 2A, 2C and 2D and increased height of Building 2C
SSD-7348-Mod-10	August 2022	Department	Modification to: <ul style="list-style-type: none"> • update Precinct 1 signage plans, including façade signage.
SSD-7348-Mod-11	December 2022	Department	Amendment to concept plan

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CONSOLIDATED CONSENT

DEFINITIONS

Applicant	Goodman Property Services (Aust) Pty Ltd, or any person carrying out any development to which this consent applies
Biodiversity Covenant	A restriction on the use of land forming part of the Erskine Park Biodiversity Corridor, as shown on Figure in Appendix 6
Building 1A	Warehouse building 1A including high-bay (39 metres) and low-bay (27 metres) components, located on Lot 1A as described in the EIS and RtS for MOD 2
Bulk earthworks	As described in the EIS and RtS
Certifying Authority	A person who is authorised by or under section 6.17 of the EP&A Act to issue Part 6 certificates
CEMP	Construction Environmental Management Plan
CAQMP	Construction Air Quality Management Plan
Concept Proposal	Concept layout of 22 warehouse buildings and ancillary offices built over five development stages, as described in the EIS and RtS
Conditions of this consent	Conditions contained in Schedules B to D of this document
Consent Authority	The relevant consent authority for development in accordance with the EP&A Act
Construction	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
Council	Penrith City Council
CTMP	Construction Traffic Management Plan
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Demolition	The deconstruction and removal of buildings, sheds and other structures on the site
Department	NSW Department of Planning, Industry and Environment
Development	The development described in the EIS and RtS, including construction and operation of 18 warehouse buildings, offices and associated infrastructure, as modified by the conditions of this consent and shown on the plans in Appendix 1, Appendix 2 and Appendix 3 and as modified by SSD 7348 MOD 1, SSD 7348 MOD 2, SSD 7348 MOD 3, SSD 7348 MOD 4, SSD 7348 MOD 5, SSD 7348 MOD 6, SSD 7348 MOD 8, SSD-7348-MOD-9, SSD-7348-MOD-10 and SSD-7348-MOD-11.
DA	Development Application submitted in accordance with the EP&A Act
EIS	The Environmental Impact Statement titled <i>Oakdale West Estate</i> , prepared by Urbis dated November 2017, submitted with the application for consent for the development, including any additional information provided by the Applicant in support of the application
ENM	Excavated Natural Material
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
Environmental Representative Protocol	The document of the same title published by the Department
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)

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EPL	Environment Protection Licence under the POEO Act
Erskine Park Biodiversity Corridor	The land described in the <i>Biodiversity Management Plan Erskine Park Employment Area</i> , HLA-Envirosciences, 2006 and shown on Figure in Appendix 6
Evening	The period from 6 pm to 10 pm
Feasible	Feasible relates to engineering considerations and what is practical to build
FFMP	Flora and Fauna Management Plan
Fibre ready facility	As defined in Section 372W of the <i>Telecommunications Act 1997</i>
GLA	Gross lettable area
GFA	Gross floor area
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage item	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
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 <i>Note: "material harm" is defined in this consent</i>
Land	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
Landscape Bund	Landscaping along the western boundary of the Site, included as part of Stage 1 works as described in the EIS and RTS and shown on Error! Reference source not found.4 in Appendix 2
LMP	Landscape Management Plan
Material harm	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)
Minister	NSW Minister for Planning and Public Spaces (or delegate)
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Monitoring	Any monitoring required under this consent must be undertaken in accordance with section 9.40 of the EP&A Act
NCC	National Construction Code
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
NRAR	NSW Natural Resources Asset Regulator
OEH	(former) NSW Office of Environment and Heritage (now Biodiversity and Conservation of the Department)
OEMP	Operational Environmental Management Plan

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Operation	The use of warehouse buildings for storage and distribution of goods upon completion of construction
Penrith DCP	Penrith Development Control Plan 2014
Planning Agreement	Planning Agreement titled <i>Oakdale West Estate Planning Agreement</i> , between the Minister for Planning and Public Spaces, Goodman Property Services (Aust) Pty Ltd and BGMG 11 Pty Limited as trustee for the BGMG 1 Oakdale West Trust, executed on 5 August 2019 and included in Appendix 4
PCA	Principal Certifying Authority in accordance with the EP&A Act
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NSW)
Roads Authority	As defined in Dictionary of the <i>Roads Act 1993</i> (NSW)
Reasonable	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.
Registered Aboriginal Parties	Means the Aboriginal persons identified in accordance with the document entitled <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> (DECCW)
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Relevant Roads Authority	The authority responsible for ownership and maintenance of the applicable road
RMS	(former) NSW Roads and Maritime Services (now TfNSW)
RtS	The Response to Submissions titled <i>Oakdale West Estate SSDA 15_7348 Response to Submissions</i> prepared by Urbis dated 8 May 2018 and document titled <i>Oakdale West Estate SSDA 15_7348 Response to Matters Raised by the Department of Planning</i> , prepared by Urbis dated 12 October 2018
Sensitive receivers	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area
Site	The land defined in Appendix 1
SLR	(proposed) Southern Link Road as shown in the WSEA SEPP and the Broader WSEA SLRN Options Refinement Report prepared by AECOM, 2014
SSD 7348 MOD 1	The section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd titled 'Section 4.55(1A) Modification Application (SSD 7348 MOD 1) Oakdale West Estate – Amendments to Concept Plan and Stage 1 development', dated 16 December 2019.
SSD 7348 MOD 2	The section 4.55(2) modification application prepared by Goodman Property Services (Aust) Pty Ltd titled 'Section 4.55(2) Modification Application (SSD 7348 MOD 2) Oakdale West Estate – Amendments to Concept Plan and Stage 1 development', dated 12 December 2019.
SSD 7348 MOD 3	The section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd titled 'Oakdale West Industrial Estate Concept Plan and Stage 1 Modification (SSD 7348 MOD 1), dated January 2020.
SSD 7348 MOD 4	The section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd titled 'mod 4, SSD 7348 – S4.55(1A) Application to Modify the Consent to Include Works on Lot 9 DP 1157476, dated 17 February 2020.
SSD 7348 MOD 5	The section 4.55(1A) modification application prepared by Urbis, titled Oakdale West Estate SSD 7348, Section 4.55(1A) Modification No. 5 Environmental Assessment Report, dated 23 July 2020

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SSD 7348 MOD 6	The section 4.55(1A) modification application prepared by Keylan Consulting Pty Ltd, titled 'Assessment Report Section 4.55(1A) Modification, SSD 7348 Modification 6', dated 10 February 2021.
SSD 7348 MOD 7	The Section 4.55(1A) modification application prepared by Keylan Consulting Pty Ltd, titled 'Assessment Report Section 4.55(1A) Modification, SSD 7348 Modification 7', dated July 2021
SSD 7348 MOD 8	The section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd, titled 'SSD 7348 MOD 8 Oakdale West Stage – S.4.55(1A) Application to Modify Architecture Plans', dated 9 July 2021.
SSD 7348 MOD 9	The Section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd, titled 'Oakdale West Industrial Estate SSD 7348 – Modification Application 9', dated 11 November 2021
SSD 7348 MOD 10	The Section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd, titled 'SSD7348 MOD 10, Oakdale West Stage – s.4.55(1A) Application to Modify Architecture Plans', dated 4 July 2022
SSD 7348 MOD 11	The Section 4.55(1A) modification application prepared by Keylan Consulting Pty Ltd, titled 'Oakdale West Industrial Estate SSD 7348 Modification Application 11 Compass Drive, Kemps Creek', dated 3 november 2022
Stage	Each component or Stage of works to deliver the Concept Proposal, as shown on Figure 2 in Appendix 1 , or as amended by an approved Staging Plan under this consent
Stage 1	Bulk earthworks across the Site, construction and operation of three warehouse buildings (1A, 1B and 1C), the WNSLR and associated infrastructure and construction of the landscape bund along the western boundary of the Site, as described in the EIS and RTS and shown on the plans in Appendix 2 and Appendix 3
TfNSW	Transport for New South Wales
VENM	Virgin Excavated Natural Material
Vicinity of the site	Bakers Lane, Kemps Creek
WAD	Works Authorisation Deed issued by TfNSW (former RMS)
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
Water Pipelines	Two Sydney drinking water pipelines located on land owned by Water NSW along the northern boundary of the Site
WMP	Waste Management Plan
WNSLR	Western North-South Link Road as shown in the WSEA SEPP and the plans in Appendix 3
WSEA	Western Sydney Employment Area
WSEA SEPP	State Environmental Planning Policy (Western Sydney Employment Area) 2009
WSFL	Western Sydney Freight Line corridor as shown in TfNSW Western Sydney Freight Line Corridor Identification – Consultation, March 2018
Year	A period of 12 consecutive months

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SCHEDULE B CONDITIONS FOR THE CONCEPT PROPOSAL

FUTURE DEVELOPMENT APPLICATIONS

- B1. In accordance with section 4.22 of the EP&A Act, each stage of the Concept Proposal (excluding Stage 1) is to be subject to future development applications (DAs). Future DAs are to be consistent with this development consent.
- B2. To avoid any doubt, this Concept Proposal consent does not permit the construction or operation of any Development, except for the Stage 1 DA covered by **Schedule D**.
- B3. This Concept Proposal consent does not approve the building layouts shown on **Lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A** on **Figure 1** in **Appendix 1**. The location of the buildings on these lots must be assessed by separate DAs, and must satisfy the interface requirements of Conditions C3 and C4.

STATUTORY REQUIREMENTS

- B4. The Applicant shall ensure that all licences, permits, and approvals/consents are obtained as required by law and maintained as required throughout the life of the Concept Proposal. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals/consents.

TERMS OF CONSENT

- B5. The Applicant shall carry out the Concept Proposal in accordance with the:
- (a) EIS and RtS;
 - (b) the plans in **Appendix 1** and **Appendix 2**;
 - (c) **SSD 7348 MOD 1**;
 - (d) the Applicant's Management and Mitigation Measures in **Appendix 7**; and
 - (e) **modifications to this consent**.
- B6. If there is any inconsistency between the plans and documents referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.
- B7. The Applicant shall comply with any reasonable requirement(s) of the Planning Secretary arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
 - (b) the implementation of any actions or measures contained within these reports, plans or correspondence.

LIMITS OF CONSENT

- B8. This consent lapses five (5) years after the date from which it operates, unless any Stage of the Development has physically commenced on the land to which the consent applies before that date.
- B9. The following limits apply to the Concept Proposal:
- (a) the maximum GLA for the land uses in the Development shall not exceed the limits in **Table 1**;
 - (b) a minimum 60 metre (m) wide corridor along the northern Site boundary shall not be developed and shall be maintained and preserved for the future WSFL corridor, in accordance with the requirements of TfNSW;
 - (c) the building layouts and footprints shown on **Lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A** on **Figure 1** in **Appendix 1**, are not approved. The position, layouts and footprints of the buildings on these lots must be assessed by separate DAs, and must satisfy the interface requirements of Conditions C3 and C4;
 - (d) **any rooftop mechanical plant on buildings on Lots 2C, 2D, 2E, 3A, 3B, 3C, 3D, 3E, 4A, 4B and 4E are not to be operated during the night-time period**;

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- (e) forklifts are not to operate during the night-time period on Lots 2C, 2D, ~~2E~~, 3B, ~~3C~~, ~~3D~~, ~~3E~~, 4A and ~~5A~~; and
- (f) ~~vehicles associated with the Development shall adhere to the following speed limits when using estate roads within the Development:~~
- ~~(i) 25 kilometres per hour for heavy vehicles; and~~
- ~~(ii) 40 kilometres per hour for light vehicles.~~
- (g) all traffic associate with operation of the Development shall use the West North South Link Road, and the future SLR, to access the site and shall not use Bakers Lane or Aldington Road

Table 1: GLA Maximum for Concept Proposal

Land Use	Maximum GLA square metres (m ²)
Total Warehousing	529,625
Total Office	22,770
Other	4,429
Total GLA	556,824

Notes: Other includes but is not limited to the skybridge, gatehouse, dangerous goods store and energy complex in Building 1A.

- B10. The Applicant shall ensure the Concept Proposal is consistent with the development controls in **Table 2:**

Table 2: Development Controls

Development Aspect	Control
Minimum building setbacks from:	
• Southern Link Road	17.15 m
• Western North-South Link Road	20 m (excluding the Amenity Precinct)
• Local estate Roads	7.5 m
• Western site boundary	40 m
• Southern site boundary	20 m (excluding parking areas)
Rear boundary setbacks within the estate	5 m
Side boundary setbacks within the estate	0 m, subject to compliance with fire rating requirements
Height	15 m
- Building 1A	39 m
- Building 2A	18 m
- Building 2B	28 m
- Building 2C	22.2 m
Minimum lot size	5,000 m ²
Minimum frontage	40 m (excluding cul-de-sacs) 35 m minimum lot width at the building line
Site coverage	Maximum of 65 per cent (excluding awnings)

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Note: Development controls (such as height limits and setbacks) for Lot 3C will be set by Council on a case-by-case basis for each DA in the Oakdale West Estate

B11. Notwithstanding the controls listed in **Table 2** in Condition B10, no warehouse building in the Concept Proposal, except **Building 1A in Precinct 1** and Buildings 2A, 2B and 2C in **Precinct 2**, shall exceed a ridgeline height of 13.7 m, excluding roof mounted mechanical plant and solar panels.

Note: Development controls, including ridgeline heights for Lot 3C will be set by Council on a case-by-case basis for each DA in the Oakdale West Estate

B12. The Applicant shall lodge the proposed revisions to the *Penrith Development Control Plan 2014* (Penrith DCP), in accordance with **Table 2** in Condition B10, with Council within 6 months of the date of this consent.

B13. The Applicant shall ensure the Concept Proposal provides car parking in accordance with the following rates:

- (a) 1 space per 300 m² of warehouse GFA;
- (h) 1 space per 40 m² of office GFA; and
- (i) 2 spaces for disability parking for every 100 car parking spaces.

B14. The Applicant shall provide bicycle racks, and amenity and change room facilities for cyclists in accordance with *Planning Guidelines for Walking and Cycling* (December 2004, NSW Department of Infrastructure, Planning and Natural Resources and the Roads and Traffic Authority).

STAGING PLAN

B15. 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:

- (a) be prepared in consultation with Council, utility and service providers and other relevant stakeholders;
- (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 on adjacent sensitive receivers;
- (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;
- (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
- (e) include conceptual design for the provision of services, utilities and infrastructure to the Site.

B16. The Applicant must:

- (a) not commence construction of any stage of the Development until the Staging Plan required by Condition B15 is approved by the Planning Secretary; and
- (b) implement the most recent version of the Staging Plan approved by the Planning Secretary.

B17. 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.*

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- 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.

NOISE LIMITS

B18. The Applicant shall ensure the Development does not exceed the noise limits in **Table 3** at the receiver locations N1, N2, N3, N4 and N5 shown on the plan in **Appendix 5**.

Table 3: Noise Limits dB(A)

Location	Day	Evening	Night	L _{AMax}
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{AMax}
N1 Emmaus Village Residential	44	43	41	52
N3 Kemps Creek – nearest residential property	39	39	37	52
N4 & N5 Kemps Creek – other residences	39	39	37	52
N9 to N14	47	42	42	52
N2 Emmaus Catholic College (school)	When in use: 45 Leq (1h)			

Notes:

1. **Noise generated by the development is to be measured in accordance with the relevant procedures and modifications, including certain meteorological conditions, of the Noise Policy for Industry (EPA, 2017). Refer to the plan in Appendix 2 for the location of residential sensitive receivers.**
2. ~~or background + 5 dB, whichever is higher.~~

B19. The noise limits in **Table 3** do not apply to receiver N3, **N4 and N5** if the Applicant has a Noise Agreement with the relevant landowner to exceed the noise limits, and the Applicant has provided written evidence to the Planning Secretary that an agreement is in place.

BUSHFIRE PROTECTION

B20. The Applicant shall ensure the Development complies with:

- (a) **the relevant provisions of Planning for Bushfire Protection 2019;**
- (b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016 **and updated 13 January 2020, and the SSD-7348 (MOD 6) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 12 November 2020 and SSD-7348 (MOD 7) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 27 May 2021;** and
- (c) *AS2419.1 – 2005 Fire Hydrant Installations* for firefighting water supply.

TRANSGRID EASEMENT

B21. The Applicant must:

- (a) provide safe and unobstructed access for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week;
- (b) comply with the requirements of TransGrid for any works in the TransGrid easement; and
- (c) advise TransGrid of any proposed amended or modified encroachment into the easement.

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ENDEAVOUR ENERGY

B22. The Applicant must comply with the requirements of Endeavour Energy for the provision of land for a new zone substation as shown on the plans in the RtS.

WATER NSW

B23. The Applicant must:

- (a) provide safe and unobstructed access for Water NSW plant and personnel to access the water pipelines corridor adjacent the Site, 24 hours a day, 7 days a week;
- (b) comply with the requirements of Water NSW for any works adjacent to or over, the water pipelines corridor; and
- (c) advise Water NSW of any proposed amended or modified encroachment into the water pipelines corridor.

AMENITIES LOT

B24. The amenities lot located north of Estate Road 1, as shown on the plans in **Appendix 1**, must only provide for small-scale local services such as commercial, retail, community facilities and landscaping that service or support the needs of local employment-generating uses.

SCHEDULE C CONDITIONS FOR FUTURE DEVELOPMENT APPLICATIONS

DEVELOPMENT CONTRIBUTIONS

- C1. Future DAs shall identify whether any Development Contributions Plan made by Council (under Section 7.11 of the EP&A Act) applies to that stage of the Concept Proposal (excluding Stage 1).
- C2. Prior to the issue of a Construction Certificate for any stage of the Development, the Applicant shall pay contributions to Council in accordance with the relevant Development Contributions Plan identified in accordance with Condition C1.

INTERFACE WITH RESIDENTIAL AREAS

- C3. Future DAs for warehouses on lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A shall be accompanied by an Urban Design Assessment. The assessment must:
 - (a) be prepared by an independent urban design consultant;
 - (b) be prepared in consultation with Council and the Emmaus Catholic College;
 - (c) detail the key objectives for the interface with the sensitive receivers on the western and southern Site boundaries, including consideration of optimal uses and operational hours;
 - (d) determine the optimal building location and setbacks on the western and southern boundaries, noting the design controls in Condition B10 are the minimum setback requirements;
 - (e) present the optimal design for the building layouts along the western and southern site boundaries with detailed justification for the preferred option;
 - (f) identify appropriate orientations and architectural treatments for the facades facing sensitive receivers; and
 - (g) incorporate noise mitigation into the layout and design of buildings, internal roads, loading docks and parking areas to ensure the Development can meet the noise limits in Condition **Error! Reference source not found.**
- C4. Prior to the commencement of construction of warehouses or office buildings on lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A, the Applicant must obtain approval from the Consent Authority for the preferred design option, including uses, building and loading dock layouts, setbacks, façade treatments and colours.

VISUAL AMENITY

Landscaping

- C5. Future DAs shall be accompanied by a Landscape Assessment. The assessment must:
 - (a) be prepared by a qualified landscape design consultant;
 - (b) be prepared in consultation with Council;
 - (c) describe how the landscaping for the relevant Stage of the Development is consistent with the Staging Plan approved in accordance with Condition B15;
 - (d) describes the landscaping works to be completed as part of the relevant Stage of the Development and details a program for monitoring the success of landscaping works over time;
 - (e) assesses the condition of and adequacy of landscaping completed as part of earlier Stages of the Development, in providing visual screening for adjacent sensitive receivers; and
 - (f) details any additional landscaping or rehabilitation works required to ensure the visual impacts of the Development are minimised for the adjacent sensitive receivers.

Outdoor Lighting

- C6. Future DAs must ensure compliance with *AS/NZS 1158.3.1:2005 Pedestrian Area (Category P) Lighting* and *AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting*.

Signage

- C7. Future DAs must ensure illuminated signage is oriented away from the sensitive receivers on the western and southern Site boundaries.

Reflectivity

- C8. The visible light reflectivity from materials used on the façades and roofs of the warehouses and office buildings shall be designed to minimise glare. A report demonstrating compliance with these requirements must be submitted to the satisfaction of the Certifying Authority for each future warehouse and office building prior to the issue of the relevant Construction Certificate.

TRANSPORT, ACCESS AND PARKING

- C9. Future DAs shall be accompanied by a transport, access and parking assessment. The assessment 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;
 - (b) demonstrate internal roads and car parking complies with relevant Australian Standards and the car parking rates in Condition B13;
 - (c) detail the scope and timing of any required road upgrades to service the relevant Stage; and
 - (d) 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.

NOISE AND VIBRATION

- C10. Future DAs shall 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 **Error! Reference source not found.**;
 - (c) provide an analysis of all external plant and equipment, including but not limited to, forklifts, air conditioners and refrigeration systems;
 - (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 B18 can be achieved;
 - (e) detail the timing to construct the noise walls shown in **Appendix 5**, to ensure noise from operation of the Development does not exceed the noise limits in Condition B18**Error! Reference source not found.**; and
 - (f) recommend mitigation and management measures to be implemented to minimise noise during construction.

STORMWATER MANAGEMENT

- C11. Future DAs shall demonstrate the design of the warehouses, offices and hardstand areas are consistent with (or the latest revision of) the:
- (a) *Civil, Stormwater and Infrastructure Services Report*, prepared by At&L, dated October 2018; and
 - (b) *Flood Impact Assessment: Oakdale West Estate*, prepared by Cardno, dated 27 March 2017.

BUSHFIRE PROTECTION

- C12. The Applicant shall ensure future DAs comply with:
- (a) the relevant provisions of *Planning for Bushfire Protection 2019*;
 - (b) the construction standards and asset protection zone requirements recommended in the *Oakdale Industrial Estate - West Bushfire Protection Assessment*, prepared by Australian

Bushfire Protection Planners Pty Ltd, dated September 2016 **and updated 13 January 2020, and the SSD-7348 (MOD 6) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 12 November 2020 and SSD-7348 (MOD 7) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 27 May 2021;** and

- (c) *AS2419.1 – 2005 Fire Hydrant Installations* for firefighting water supply.

TRANSGRID EASEMENT

- C13. The Applicant must consult with TransGrid, prior to lodging DAs for Stages 4 and 5 of the Development as shown on **Figure 2** in **Appendix 1**, and any other Stage or road infrastructure that may affect the TransGrid easement. The Applicant must design, construct and operate each Stage of the development in accordance with the reasonable requirements of TransGrid relating to their use of the TransGrid easement.
- C14. The Applicant must consult with TransGrid, prior to lodging DAs for buildings in Stage 5 adjacent to Ropes Creek, to identify and implement any required flood management measures within the transmission line easement.

ENDEAVOUR ENERGY

- C15. The Applicant must obtain relevant approvals from Endeavour Energy, prior to the construction of any utility works to service each Stage of the Development.

WATER NSW

- C16. The Applicant must consult with Water NSW, prior to lodging DAs for works on Lot 2A adjoining the water pipelines corridor, to identify and implement any requirements of Water NSW for protection of the water pipelines corridor.

WASTE

- C17. Future DAs shall include a Waste Management Plan prepared in accordance with the *NSW Waste Classification Guidelines* (DECCW, 2009).

CONSTRUCTION MANAGEMENT

- C18. A Construction Environmental Management Plan (CEMP) shall be submitted to the Consent Authority for each stage of the Concept Proposal prior to the commencement of construction of the relevant stage. The CEMP must:
- (a) be prepared by a suitably qualified and experienced environmental consultant, or the Environmental Representative appointed for Stage 1 of the Development;
 - (b) be prepared in consultation with relevant Government agencies, infrastructure and utility providers, including but not limited to, TransGrid, Endeavour Energy, Water NSW and TfNSW, where relevant for each stage;
 - (c) detail the construction activities to be undertaken in the relevant Stage of the Development;
 - (d) include detailed procedures for managing the environmental impacts of construction, including stormwater, erosion and sediment controls, dust, noise and traffic management; and
 - (e) detail the roles and responsibilities for environmental management on the Site.

COMMUNITY COMMUNICATION STRATEGY

- C19. No later than one month before the commencement of construction of any stage of the Development, a Community Communication Strategy (CCS) must be prepared and submitted to the Planning Secretary for approval.

The CCS is to provide mechanisms to facilitate communication between the Applicant, Council and the community (including adjoining affected landowners, schools, businesses, and others directly impacted by Stage 1), during design, construction and operation. The CCS must:

- (a) assign a central contact person to keep the nearby sensitive receivers regularly informed throughout the Development;
- (b) detail the mechanisms for regularly consulting with the local community throughout the Development, such as holding regular meetings to inform the community of the progress of the development and report on environmental monitoring results;
- (c) detail a procedure for consulting with nearby sensitive receivers to schedule high noise generating works, vibration intensive activities or manage traffic disruptions;
- (d) include contact details for key community groups, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders; and
- (e) include a complaints procedure for recording, responding to and managing complaints, including:
 - (i) email, contact telephone number and postal addresses for receiving complaints;
 - (ii) advertising the contact details for complaints before and during operation, via the local newspaper and through onsite signage;
 - (iii) a complaints register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and
 - (iv) procedures for the resolution of any disputes that may arise during the course of the Development.

C20. The Applicant must:

- (a) not commence construction of the relevant stage of the Concept Proposal until the CCS required under Condition C19 has been approved by the Planning Secretary; and
- (b) implement the CCS for each stage of the Concept Proposal and following the completion of operation of the Development.

SCHEDULE D CONDITIONS FOR STAGE 1 DA

PART 1 – GENERAL CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

D1. 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 Stage 1 development, and any rehabilitation required under this consent.

TERMS OF CONSENT

- D2. Stage 1 of 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 plans in **Appendix 2** and **Appendix 3**;
 - (e) **in accordance with SSD 7348 MOD 1**;
 - (f) in accordance with the Applicant's Management and Mitigation Measures in **Appendix 7**; and
 - (g) **in accordance with modifications to this consent.**
- D3. 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 D3(a).
- D4. 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 D2(c). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in Condition D2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

LIMITS OF CONSENT

- D5. This consent lapses five (5) years after the date from which it operates, unless Stage 1 has physically commenced on the land to which the consent applies before that date.
- D6. The following limits apply to Stage 1:
- (a) the maximum GLA for the land uses shall not exceed the limits in **Table 4**; and
 - (b) a minimum 60 m wide corridor along the northern Site boundary shall not be developed and shall be maintained and preserved for the future WSFL corridor, in accordance with the requirements of TfNSW.
 - (c) **all construction traffic associated with the Stage 1 warehouse buildings (Buildings 1A, 1B and 1C) must use the West North South Link Road to access the site.**

Table 4: GLA Maximum for Stage 1

Land Use	Maximum GLA (m ²)
Total Warehousing	81,286
Total Office	4,151

Other	4,004
Total GLA	89,440

Note: Other includes, but is not limited to, the skybridge, gatehouse, dangerous goods store and energy complex in Building 1A

- D7. The Applicant shall ensure Stage 1 is consistent with the development controls in **Table 2: Development Controls** in Condition B10.

NOTIFICATION OF COMMENCEMENT

- D8. The date of commencement of each of the following phases of Stage 1 must be notified to the Department in writing, at least one month before that date, or otherwise agreed with the Planning Secretary:
- (a) construction; and
 - (b) operation.
- D9. If the construction or operation of Stage 1 is to be delivered in sub-stages, the Department must be notified in writing at least one month before the commencement of each sub-stage, of the date of commencement and the works to be carried out in that sub-stage.

EVIDENCE OF CONSULTATION

- D10. 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

- D11. 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).
- D12. 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.
- D13. 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

- D14. Before the commencement of construction of Stage 1, the Applicant must:
- (a) consult with the relevant owner and provider of services that are likely to be affected, 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 Council.
- D15. 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 Stage 1; and
 - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of Stage 1.

PROTECTION OF WATER NSW INFRASTRUCTURE

- D16. Before the commencement of construction of Stage 1, the Applicant must:
- (a) prepare a dilapidation report identifying the condition of all infrastructure within the water pipelines corridor, in the vicinity of the WNSLR bridge crossing;
 - (b) implement all practical measures to protect this infrastructure, as required by Water NSW; and
 - (c) repair, or pay the full costs associated with repairing, any water supply infrastructure that is damaged by carrying out Stage 1.

DEMOLITION

- D17. All demolition must be carried out in accordance with *Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).

STRUCTURAL ADEQUACY

- D18. 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 National Construction Code (NCC).

Notes:

- *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.*

COMPLIANCE

- D19. 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 Stage 1.

DEVELOPER CONTRIBUTIONS

Planning Agreement

- D20. The Applicant shall provide all monetary contributions and/or works-in-kind contributions under Subdivision 2 of Division 7.1 of Part 7 of the EP&A Act, in accordance with the Planning Agreement entered into between the Minister for Planning, Goodman Property Services (Aust) Pty Ltd (the developer) and BGMG 11 Pty Limited as trustee for the BGMG 1 Oakdale West Trust (the landowner) executed on 5 August 2019 and as attached in **Appendix 4**.

OPERATION OF PLANT AND EQUIPMENT

- D21. All plant and equipment used on site, or to monitor the performance of Stage 1 must be:
- (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

EASEMENTS

- D22. Within 12 months of commencing operation of Stage 1, or a timing otherwise agreed with Council, an easement under section 88A and/or restriction or public positive covenant under section 88E

of the *Conveyancing Act 1919* (NSW) naming the Council as the prescribed authority, which can only be revoked, varied or modified with the consent of the Council, and provides for a drainage outlet swale from bio-retention basin 1, must be registered on title of Lot 19 DP 1250578.

EXTERNAL WALLS AND CLADDING

- D23. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the NCC.
- D24. Before the issue of a Construction Certificate and an Occupation Certificate, the Applicant must provide the Certifying Authority 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 NCC.
- D25. The Applicant must provide a copy of the documentation given to the Certifying Authority to the Planning Secretary within seven days after the Certifying Authority accepts it.

UTILITIES AND SERVICES

- D26. Before the construction of any utility works associated with Stage 1, the Applicant must obtain relevant approvals from service providers.
- D27. Before the commencement of operation of Stage 1, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing Stage 1, under section 73 of the *Sydney Water Act 1994* (NSW).
- D28. Before the issue of a Subdivision or Construction Certificate for Stage 1, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifying Authority, that arrangements have been made for the provision of communication facilities to Stage 1.
- D29. The Applicant must demonstrate that the carrier has confirmed in writing they are satisfied that the fibre ready facilities are fit for purpose.

TRANSGRID EASEMENT

- D30. The Applicant must:
- (a) provide safe and unobstructed access for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week;
 - (b) comply with the requirements of TransGrid for any works in the TransGrid easement on the Site; and
 - (c) advise TransGrid of any proposed amended or modified encroachment into the easement.

WATER NSW

- D31. The Applicant must:
- (a) comply with the requirements of Water NSW for any works adjacent to, or over, the water pipelines corridor;
 - (b) consult with Water NSW during detailed design of Stage 1 works near the corridor including:
 - (i) design of drainage upgrade works within the corridor;
 - (ii) batters and access tracks;
 - (iii) final bridge design for the WNSLR;
 - (c) obtain from Water NSW, an access consent and construction licence to work within the water pipelines corridor, prior to the commencement of construction;
 - (d) consult with Water NSW during preparation of the CEMP, in accordance with Condition D119, and attend a site visit with Water NSW personnel, prior to finalising the CEMP, to mark the exact works area for the WNSLR bridge crossing; and
 - (e) notify any incidents that affect or could affect the water pipelines corridor to Water NSW on the 24-hour Incident Notification Number **1800 061 069**, as a matter of urgency.

WORKS-AS-EXECUTED PLANS

D32. Before the issue of the final Occupation Certificate for Stage 1, 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 PCA.

APPLICABILITY OF GUIDELINES

D33. 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.

D34. 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 Stage 1. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

PART 2 – ENVIRONMENTAL PERFORMANCE CONDITIONS

VISUAL AMENITY

Landscape Management Plan

- D35. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Landscape Management Plan (LMP), to the satisfaction of the Planning Secretary. The plan must form part of the CEMP in accordance with Condition D119 and the OEMP in accordance with Condition D130 and must:
- (a) be prepared in consultation with Council;
 - (b) detail procedures for the retention of existing native vegetation in the north-western corner of the Site and protection of this vegetation from construction impacts;
 - (c) include visual impact mitigation measures for construction including but not limited to:
 - (i) the location of site sheds, compounds and machinery parking areas, avoiding the western and southern site boundaries, or other locations highly visible from adjacent residential properties;
 - (ii) ~~procedures for progressive grassing of exposed soil, as soon as reasonably practicable after disturbance, focusing on areas where building construction will occur at a later stage;~~ *The contractor shall employ the use of a dust suppressing polymer agent ideally with a green tint to reduce the visual impact of the exposed building pads & to assist in reducing the dust generated on site.*
 - (d) detail the works required to construct the landscape bund along the western boundary of the Site, as shown on Error! Reference source not found.4 in **Appendix 2**, including provision for the landscaping to incorporate mature trees (no less than 75 litre pot size);
 - (e) include a schedule of works which prioritises the construction of the landscape bund along the western boundary of the Site, as shown on **Figure 4** in **Appendix 2**.
 - (f) include a program for implementing the landscape bund as soon as reasonably practicable, and no later than prior to operation of Stage 1;
 - (g) describe the integration of landscaping with fixed elements, including retaining walls and noise walls;
 - (h) describe the monitoring and maintenance procedures to ensure the success of the landscaping works over the life of the Development; and
 - (i) **update the LEMP to include modifications to the western bund, bio-retention basin 2/3 and the noise wall approved under MOD 3.**
- D36. The Applicant must:
- (a) not commence construction of Stage 1 until the LMP is approved by the Planning Secretary.
 - (b) must implement the most recent version of the LMP approved by the Planning Secretary; and
 - (c) include the monitoring and maintenance procedures contained in the LMP within the OEMP required in accordance with Condition D130.

Landscaping

- D37. The Applicant must complete the landscape bund along the western boundary of the Site as shown on **Figure 4** in **Appendix 2** within six months of commencing any construction including bulk earthworks.
- D38. The Applicant must maintain all landscaping implemented as part of Stage 1, as shown on Error! Reference source not found.4 in **Appendix 2**, for the duration of the Development. If the monitoring carried out as part of Condition D35 indicates that any aspect of the landscaping has not been successful, the Applicant must undertake re-planting and rehabilitation works, as soon as reasonably practicable.

Setbacks

- D39. The Applicant must ensure building services including tanks are integrated into the building design and landscaped areas to reduce visibility from public areas, unless otherwise required by an authority or Australian Standard, to be located within the front boundary setback.

Lighting and Security Cameras

- D40. The Applicant must ensure the lighting associated with Stage 1:
- complies with the latest version of AS 4282-1997 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); and
 - is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.
- D41. The Applicant must ensure any security cameras installed as part of Stage 1 are directed away from adjacent private properties.

Reflectivity

- D42. The visible light reflectivity from building materials used in the facades and roofs of the warehouses and offices must be designed to minimise glare. A report demonstrating compliance with these requirements is to be submitted to the satisfaction of the Certifying Authority prior to the issue of the relevant Construction Certificate.

Signage and Fencing

- D43. All signage and fencing must be erected in accordance with the plans at Appendix 1 and Appendix 2, as modified.**

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

- D43A. Prior to construction of any signage for Stage 1, the Applicant must consult with Council on the final signage strategy.**

- D44. All fencing along building frontages must be located behind the landscape setbacks and not along the front boundary. The fencing must be a maximum height of 2.1 metre and be an open style.

- D44A. Notwithstanding the controls listed in Condition D44, the Applicant may construct a 2.4 m high boundary fence between Lots 1A and 1B/1C.**

- D45. The Applicant must:
- remove existing rural fencing along the water pipelines corridor adjacent the site and dispose to an appropriate waste facility licensed to accept the waste;
 - install and maintain temporary security fencing along the water pipelines corridor adjacent the site, for the duration of construction, or until a permanent fence is installed;
 - install permanent 2.4-metre-high fencing along the water pipelines corridor adjacent the site, including the approaches to the WNSLR bridge over the water pipelines corridor and above retaining walls, unless otherwise agreed with Water NSW;
 - install concrete barriers or barrier guard rails (including barriers leading up to bridge structure) to the WNSLR where there is potential for large vehicles to drive over retaining walls and into the water pipelines corridor. Barriers must be rated to withstand impact from B-Double size vehicles; and
 - install cranked throw screens on both sides of the WNSLR bridge crossing the Water NSW water pipeline corridor.

- D45A. Prior to construction of Building 1A, the Applicant must submit a final architectural design for Building 1A detailing building articulation, colour schemes and signage. The Applicant must not commence construction of Building 1A until the final architectural design is approved by the Planning Secretary.**

WESTERN NORTH-SOUTH LINK ROAD (WNSLR)

General Requirements

- D46. The Applicant must design and construct the WNSLR in accordance with the requirements of:
- Council, the PCA and any approval issued under section 138 of the *Roads Act 1993* including the Works Authorisation Deed (WAD);
 - TfNSW for the bridge crossing of the future WSFL; and
 - Water NSW for the bridge crossing of the water pipelines corridor.
- D47. The Applicant must design and construct the intersections of the WNSLR with Estate Road 1 and Lockwood Road to the satisfaction of the relevant roads authority.

D47A. Prior to the commencement of construction of car park access for Lot 9, DP1157476 (57-87 Lockwood Road, Erskine Park NSW 2759), the Applicant must submit a Section 138 Application (including payment of fees together with any applicable bonds) to Penrith City Council for obtaining a *Roads Act 1993* approval. The Section 138 Application may include but is not limited to the following works:

- vehicular crossings (including kerb reinstatement of redundant vehicular crossings);
- road opening for utilities and stormwater (including stormwater connection to Council infrastructure); and
- road occupancy or road closures.

All works shall be carried out in accordance with the *Roads Act 1993* approval, the development consent including the stamped approved plans, and Penrith City Council's specifications.

Note: contact Penrith City Council's City Works Department on (02) 4732 7777 for further information regarding the application process.

Works at Lenore Drive/Grady Crescent/WNSLR Intersection

- D48. Prior to the commencement of construction of the Lenore Drive/Grady Crescent/WNSLR intersection (the intersection), the Applicant must finalise the detailed design, including a Traffic Signal Plan, for the intersection works. The detailed design must:
- cut back the median further with a taper in Grady Crescent to accommodate the dual B-Double swept paths turning from WNSLR onto Lenore Drive; and
 - include an angled pedestrian crossing on the south-eastern corner of the intersection so that pedestrians are not confused by the pedestrian lantern on the opposite side of the intersection.
- D49. The Applicant must enter into a WAD for works at the intersection with TfNSW (former RMS). The WAD must be executed prior to the submission of the detailed design required under condition D48 to TfNSW for approval.
- D50. The Applicant must design the proposed traffic control light at the intersection in accordance with Austroads guidelines, RMS Signal Design Manual and Australian Codes of Practice. The traffic control light design must be endorsed by a suitably qualified practitioner whose qualification has been approved by TfNSW (former RMS).
- D51. The Applicant must submit the certified copies of the traffic signal design plans to TfNSW (former RMS) for approval prior to the issue of a Construction Certificate.
- D52. The Applicant must submit a request to TfNSW (former RMS) Network Operations Team to obtain relevant approvals to remove the signalised pedestrian crossing on the eastern leg of the intersection.
- D53. The Applicant must carry out all public utility adjustment/relocation works necessary for the intersection works as required by relevant public utility authorities and/or their agents.
- D54. The Applicant must make a ten (10) year maintenance contribution for the intersection to TfNSW (former RMS).

D55. The intersection works must be carried out at no cost to TfNSW (former RMS).

Pre-Construction

D56. Prior to the commencement of construction of the WNSLR, the Applicant must:

- (a) obtain the written consent of the Minister for Planning and Public Spaces under the Biodiversity Covenant, to construct the WNSLR over the Erskine Park Biodiversity Corridor; and
- (b) provide evidence to the satisfaction of the Planning Secretary, demonstrating the design of the WNSLR and bridge crossings have been agreed with the relevant roads authority, Council, TfNSW and Water NSW.

Consultation

D57. The Applicant must develop a schedule for consultation with and approval by TfNSW for the construction of the bridge foundations over the future WSFL, including geotechnical and structural certification as required by TfNSW. The schedule must form part of the CEMP required by Condition D119.

D58. The Applicant must develop a schedule for consultation with and approval by Water NSW for the construction of the bridge over the water pipelines corridor. This schedule must form part of the CEMP required by Condition D119.

Pre-Operation

D59. Prior to operation of any Stage of the Development, the Applicant must complete construction of the WNSLR to the satisfaction of the relevant roads authority and the PCA.

D60. Prior to the commencement of operation of the WNSLR, the Applicant must provide works-as-executed drawings to Water NSW for the WNSLR bridge. The drawings must clearly show any changes to the bridge design or the works adjacent to the water pipelines corridor.

D61. Prior to the commencement of operation of the WNSLR, the Applicant must design and construct a stormwater management system for the WNSLR. The system must:

- (a) be designed by a suitably qualified and experienced person(s);
- (b) be generally in accordance with the conceptual design in the RtS;
- (c) ensure that the system capacity has been designed in accordance with AUSTRROADS guidelines;
- (d) achieve the pollutant reduction targets specified in RMS's *Water Sensitive Urban Design (WSUD) Guidelines* (March 2016) and Council's *Water Sensitive Urban Design (WSUD) Policy* (December 2013); and
- (e) ensure the outlet structures are designed in accordance with NRAR's *Guidelines for Controlled Activities on Waterfront Land* (May 2018).

Dedication of Infrastructure and Land

D62. Prior to the completion of construction of the WNSLR, the Applicant must consult with Water NSW regarding land subdivision and stratum arrangements for the acquisition and dedication of Water NSW land to Council for the WNSLR bridge.

D63. Following completion of construction of the WNSLR to the satisfaction of the relevant roads authority, the Applicant must dedicate the WNSLR and its associated land owned by Water NSW and BGMG 11 Pty Limited as trustee for the BGMG 1 Oakdale West Trust, to the relevant roads authority in accordance with the requirements of the Planning Agreement.

D64. The Applicant shall retain care, control and ownership of bio-retention basin no. 1 associated with the WNSLR.

TRANSPORT, ACCESS AND PARKING

Construction Traffic Management Plan

- D65. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Construction Traffic Management Plan (CTMP) to the satisfaction of the Planning Secretary. The CTMP must form part of the CEMP required by Condition D119 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
 - (b) be prepared in consultation with Council, Mamre Anglican School, Emmaus Catholic College, Emmaus Catholic Care Village and Trinity Catholic Primary School;
 - (c) detail specific measures to manage construction traffic to avoid school drop off and pick up times (Monday to Friday 8 am – 9.30 am and 2.30 pm – 4 pm) and Higher School Certificate exam periods, including any temporary infrastructure arrangements and traffic safety measures;
 - (d) detail the measures to be implemented to ensure road safety and network efficiency during construction, including scheduling deliveries of heavy plant and equipment outside of peak periods, or during school holidays where possible;
 - (e) detail heavy vehicle routes, access and parking arrangements;
 - (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 including the students, staff, visitors and residents of the neighbouring schools and aged care village;
 - iii. minimise road traffic noise, both on Bakers Lane and from construction vehicles on Site; and
 - iv. ensure truck drivers use specified routes and adhere to the speed restrictions on Bakers Lane;
 - (g) include a program to monitor the effectiveness of these measures;
 - (h) detail procedures for early notification to residents and the community (including local schools), of any potential disruptions to routes; and
 - (i) **update the CTMP to include modifications to construction traffic management approved under MOD 2 and MOD 3.**
- D66. The Applicant must:
- (a) not commence construction of Stage 1 until the CTMP required by Condition D65 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.

Estate Roads and Intersections

- D67. The Applicant must design and construct the internal estate roads and intersections to accommodate the turning path of a B-Double, to the satisfaction of the Relevant Roads Authority.
- D68. Following the issue of a Subdivision Certificate, the estate roads shall be dedicated to the Relevant Roads Authority. Prior to any dedication, the Applicant shall ensure construction of the estate roads has been completed to the satisfaction of the Relevant Roads Authority and measures (such as a performance bond) are in place for any prescribed maintenance period, to the satisfaction of the Relevant Roads Authority.

Operating Conditions

- D69. 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) 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) **parking for Stage 1 is provided in accordance with the EIS and RtS for MOD 5;**
- (c) 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;
- (d) Stage 1 does not result in any vehicles queuing on the public road network;
- (e) heavy vehicles associated with Stage 1 are not parked on local roads or footpaths in the vicinity of the Site;
- (f) all vehicles are wholly contained on site before being required to stop;
- (g) all loading and unloading of materials are carried out on Site;
- (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 parks are kept clear of any obstacles, including parked cars, at all times.

Operational Traffic Management Plan

D69A The Applicant must prepare an Operational Traffic Management Plan (OTMP) for Stage 1. The OTMP must form part of the OEMP required by condition D130 and must:

- (a) **be prepared by a suitably qualified and experienced expert, in consultation with Council and TfNSW;**
- (b) **detail the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;**
- (c) **include measures to maintain road safety and network efficiency;**
- (d) **detail measures to minimise traffic noise, including procedures for receiving and addressing complaints from the community about Stage 1 related traffic and noise;**
- (e) **include a Driver's Code of Conduct that addresses:**
 - (i) **travelling speeds and adherence to site-specific speed limits;**
 - (ii) **procedures to ensure drivers adhere to designated heavy vehicle routes; and**
 - (iii) **procedures to ensure drivers implement safe driving practices.**

D69B The Applicant must:

- (a) **not commence operation of Stage 1 until the OTMP required by condition D69A is approved by the Planning Secretary; and**
- (b) **implement the most recent version of the OTMP approved by the Planning Secretary for the duration of operation.**

NOISE

Hours of Work

D70. The Applicant must comply with the hours detailed in **Table 5**, unless otherwise agreed in writing by the Planning Secretary.

Table 5: Hours of Work

Activity	Day	Time
Construction	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
Operation	Monday – Sunday (including public holidays)	24 hours

- D71. Works outside of the hours identified in Condition D70 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

- D72. Stage 1 must be constructed with the aim of achieving 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 required by Condition D73.

Construction Noise and Vibration Management Plan

- D73. The Applicant must prepare a Construction Noise and Vibration Management Plan (CNVMP) for Stage 1, to the satisfaction of the Planning Secretary. The CNVMP must form part of a CEMP in accordance with Condition D119 and must:
- (a) be prepared by a suitably qualified and experienced noise expert;
 - (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 to minimise impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;
 - (e) include strategies that have been developed with the sensitive receivers identified in **Appendix 5** for managing high noise generating works;
 - (f) describe the community consultation undertaken to develop the strategies in Condition D73(e);
 - (g) include a monitoring program that:
 - (i) includes a protocol for determining exceedances of the relevant conditions in this approval;
 - (ii) evaluates and reports on the effectiveness of the noise and vibration management measures;
 - (iii) include procedures to relocate, modify, mitigate or stop work to ensure compliance with relevant criteria; and
 - (h) include a complaints management system that would be implemented for the duration of Stage 1.
- D74. The Applicant must:
- (a) not commence construction of Stage 1 until the CNVMP required by Condition D73 is approved by the Planning Secretary; and
 - (b) implement the most recent version of the CNVMP approved by the Planning Secretary for the duration of construction.

Operational Noise Limits

D75. The Applicant shall undertake operation of Stage 1 in a manner that ensures the Development complies with the noise limits for the Concept Proposal in Condition **Error! Reference source not found.** of this consent.

Noise Barrier

D75A The Applicant must install the noise barriers located on the western boundary, as shown on Figure 6 in Appendix 5, to the satisfaction of the Planning Secretary. The noise barriers must be completed no later than 30 November 2020, unless otherwise agreed by the Planning Secretary.

Noise Verification

D75(b). A Noise Verification Report must be prepared by a suitably qualified and experienced acoustic consultant and submitted to the satisfaction of the Planning Secretary at the following stages of the development:

- (a) within three months of commencing operation of any buildings on the site; and
- (b) two years after commencing operation of any buildings on the site.

D75(c). The Noise Verification Reports required by Condition D75(b) must include:

- (a) an analysis of compliance with the noise limits in Condition B18, undertaken in accordance with the *NSW Noise Policy for Industry* (EPA 2017) and Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Australian Standards 2018);
- (b) a detailed maximum noise level event assessment undertaken in accordance with the *NSW Noise Policy for Industry* (EPA 2017);
- (c) an assessment of the performance and effectiveness of applied noise mitigation measures, including the noise barrier; and
- (d) identification of additional noise control measures to be implemented to address any exceedances of the limits in Condition B18 and details of when these measures would be implemented and how their effectiveness would be measured and reported to the Planning Secretary.

VIBRATION

Vibration Criteria

D76. Vibration caused by construction works on the site, as measured at any residence or structure outside the site, must be limited to:

- (e) for structural damage, the latest version of *DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures* (German Institute for Standardisation, 1999); and
- (f) 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).

D77. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in Condition D76.

D78. The limits in Conditions D76 and D77 apply unless otherwise outlined in a CNVMP, approved as part of the CEMP required by Condition D119 of this consent.

SOILS & WATER

Imported Soil

D79. The Applicant must prepare a Fill Importation Protocol for Stage 1. The protocol must form part of the CEMP required by Condition D119 and must detail the measures to:

- (a) ensure 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 Department upon request.

Erosion and Sediment Control

- D80. The Applicant must prepare an Erosion and Sediment Control Plan for Stage 1, including the WNSLR, to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition D119 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
 - (b) be generally consistent with the Erosion and Sediment Control Plans in the RTS and those prepared by the contractor for each sequence of the works, as approved by the PCA;
 - (c) include detailed erosion and sediment controls developed in accordance with the relevant requirements of *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline; and
 - (d) include procedures for maintaining erosion and sediment controls in efficient working order for the duration of construction, to ensure Stage 1 complies with Condition D82.
- D81. Prior to the commencement of bulk earthworks as part of Stage 1, the Applicant must implement erosion and sediment controls identified by Condition D80 and maintain those controls throughout bulk earthworks and construction, to ensure stormwater flows do not increase in any downstream areas. The Environmental Representative, appointed in accordance with Condition D123, shall make a written statement to the Planning Secretary confirming the erosion and sediment controls are operational, prior to the commencement of bulk earthworks and other construction activities required for Stage 1.

Discharge Limits

- D82. Stage 1 must comply with section 120 of the POEO Act, which prohibits the pollution of waters.

Stormwater Management System

- D83. The Applicant must design, construct and operate a stormwater management system for Stage 1 that:
- (a) is designed by a suitably qualified and experienced person(s);
 - (b) is generally in accordance with the conceptual design in the RtS;
 - (c) is in accordance with applicable Australian Standards;
 - (d) ensures the system capacity is designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016), *Managing Urban Stormwater: Council Handbook* (EPA, 1997) and *Stormwater Drainage Specifications for Building Development* (Penrith Council, May 2018);
 - (e) ensures peak stormwater flows from the Site do not exceed pre-development flows in any downstream areas for all rainfall events up to and including the 1 in 100-year average recurrence interval (ARI);
 - (f) ensures peak stormwater flows from the Site do not exceed existing flows in the Water NSW drainage lines and water pipelines corridor; and
 - (g) achieves the pollutant reduction targets specified in Council's *Water Sensitive Urban Design (WSUD) Policy*, (December 2013).
- D84. All stormwater drainage infrastructure on the Site, including bio-retention basins, shall remain under the care, control and ownership of the registered proprietor of the lots.
- D85. The Applicant shall create a drainage easement for the outlet swales from the bio-retention basins on the site, in accordance with the requirements of Council and Condition D22.

Groundwater

- D86. If groundwater is intersected during construction of Stage 1, the Applicant must:
- (a) obtain the necessary water licences or approvals from NRAR; and
 - (b) develop a Groundwater Management Plan (GMP) for the testing, dewatering, storage, movement and treatment of groundwater, to the satisfaction of NRAR.

Waterfront Land

D87. The Applicant must carry out all works on or adjacent to waterfront land in accordance with the Department of Industry *Guidelines for Controlled Activities on Waterfront Lands 2012*.

BIODIVERSITY

Flora and Fauna Management Plan

D88. The Applicant must prepare a **Terrestrial and Aquatic** Flora and Fauna Management Plan (FFMP) for Stage 1, to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition D119 and must:

- (a) be prepared by a suitably qualified and experienced person(s);
- (b) describe procedures to manage impacts on biodiversity values during earthworks, clearing and dam decommissioning;
- (c) include procedures for clearing marking and protecting the areas of vegetation to be retained on the Site, including the mature vegetation in the north-western corner and the **Biodiversity Offset Area, established in accordance with Condition D91 adjacent to Ropes Creek; and Riparian Corridor adjacent to Ropes Creek in accordance with the Vegetation Management Plan (VMP) prepared under Condition D91;**
- (d) detail the specific erosion and sediment controls to protect the retained vegetation.

D89. The Applicant must:

- (a) not commence bulk earthworks until the FFMP required by Condition D88 is approved by the Planning Secretary; and
- (b) implement the most recent version of the FFMP approved by the Planning Secretary for the duration of bulk earthworks and construction.

Offsets for Stage 1

D90. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must retire **472 173** ecosystem credits to offset the removal of **4.41 4.36** hectares of native vegetation on the Site.

Note: *If the Applicant seeks a variation to the offset rules, the Applicant must demonstrate that reasonable steps have been taken to find like-for-like offsets in accordance with Section 10.5.4.2 of the FBA and Appendix A of the OEH's NSW Biodiversity Offsets Policy for Major Projects 2014.*

In accordance with Principle 3 of the OEH's NSW Biodiversity Offsets Policy for Major Projects 2014, the Policy does not allow variations to the offset rules to be applied to 'threatened species and ecological communities that are considered nationally significant (listed under the Environmental Protection and Biodiversity Conservation Act 1999)'. These must be offset in a like for like manner.

~~D91. The Applicant shall establish a Biodiversity Offset Area on the Site, consistent with the area described in the RtS, in accordance with a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust.~~

Vegetation Management Plan

D91. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must prepare and implement a Vegetation Management Plan (VMP) for the restoration and rehabilitation of 4.2 ha of Riparian Corridor adjacent to Ropes Creek to meet the objectives of the *Water Management Act 2000*.

~~Biodiversity Management Action Plan~~

~~D92. The Applicant must maintain the Biodiversity Offset Area on the Site in accordance with a Biodiversity Management Action Plan approved by the Biodiversity Conservation Trust.~~

Offsets for the WNSLR

- D93. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must:
- (a) offset 0.42 ha of vegetation lost in the Erskine Park Biodiversity Corridor as a result of the WNSLR by carrying out planting within the area shown in green edging on **Figure** in **Appendix 6**; and
 - (b) plant the area shown in green edging on **Figure** of **Appendix 6** with species similar to those identified for zone 4a, on the south-eastern side of Ropes Creek, in the Biodiversity Management Plan Erskine Park Employment Area (HLA-Envirosciences, 2 May 2006).
- D94. The Applicant shall monitor and maintain the planting for a period of six months to ensure a minimum 85% survival rate of the planting.
- D95. The Applicant must notify the Planning Ministerial Corporation at least one month before the completion of planting to enable the Planning Ministerial Corporation to arrange ongoing maintenance.

Snake Management Measures

- D96. Prior to construction of Stage 1, the Applicant must implement snake management measures to limit, to the extent practicable, movement of snakes from the Site into the adjacent school and retirement village on the western boundary of the Site. The measures shall be detailed in the CEMP required by Condition D119 and shall include, but not be limited to, provision of alternative snake habitat on Site, fencing along the western boundary and installation of snake deterrents.

BUSHFIRE PROTECTION

- D97. The Applicant shall ensure Stage 1 complies with:
- (a) [the relevant provisions of Planning for Bushfire Protection 2019](#);
 - (b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016, [and updated 13 January 2020](#), [and the SSD-7348 \(MOD 6\) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 12 November 2020](#); and
 - (c) *AS2419.1 – 2005 Fire Hydrant Installations* for firefighting water supply.

AIR QUALITY

Dust Minimisation

- D98. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.
- D99. During construction of Stage 1, 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 Stage 1 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

- D100. Prior to the commencement of construction of Stage 1, 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 D119 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
 - (b) detail and rank all emissions from all construction activities, 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.

D101. The Applicant must:

- (a) not commence construction of Stage 1 until the CAQMP required by Condition D100 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 construction.

Odour Management

D102. The Applicant must ensure Stage 1 does not cause or permit the emission of any offensive odour, as defined in the POEO Act.

ABORIGINAL HERITAGE

Statutory Requirements

D103. Prior to the commencement of construction of Stage 1, the Applicant must register identified Aboriginal items or objects on the OEH's Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register.

Archaeological Test Excavation

D104. Prior to the commencement of construction of Stage 1, the Applicant must undertake archaeological test excavation in the identified area of archaeological sensitivity adjacent to Ropes Creek and the ridgeline immediately to the west, that would be impacted by Stage 1. The test excavation must:

- (a) be undertaken in accordance with a methodology developed in consultation with registered Aboriginal parties;
- (b) be undertaken in accordance with the requirements of the Heritage and Community Engagement, Department of Premier and Cabinet (former NSW OEH Heritage Division); and
- (c) include a report detailing any further work, including archaeological salvage and monitoring, conducted in the presence of Aboriginal stakeholders.

D105. The Applicant must not commence construction of Stage 1 until the Archaeological Test Excavation Report is provided to the Heritage and Community Engagement, Department of Premier and Cabinet (former NSW OEH Heritage Division) and the Planning Secretary.

Unexpected Finds Protocol

D106. 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) the Biodiversity and Conservation Division of the Department must be contacted immediately.

D107. 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

D108. If any archaeological relics are uncovered during construction of Stage 1, then all works in the immediate vicinity of the relic must cease immediately. Unexpected finds must be evaluated and recorded in accordance the requirements of Department of Premier and Cabinet, Heritage (former NSW OEH Heritage Division).

HAZARDS AND RISK

Dangerous Goods

D109. The storage of dangerous goods in Building 1A must not exceed the quantities provided in Table 6.

Table 6: Maximum storage quantities of dangerous goods

Class	Description	Packing Group	Quantity (kg)
1.4	Explosives	n/a	20,000
2.1	Flammable gas (LPG)	n/a	4125 (7,500 L)
2.1	Flammable gas (LPG) – kitchen	n/a	247.5 (450 L)
2.1	Flammable gas (aerosols)	n/a	70,000
2.2	Non-flammable, non-toxic gas (aerosols)	n/a	25,000
3	Flammable liquids	II & III	300,000
4.1	Flammable solids	III	24,000
5.1	Oxidising agents	III	25,000
6.1	Toxic substances	III	45,000
8	Corrosive substances	II & III	60,000
9	Miscellaneous Dangerous Goods	III	105,000

D109A

Pre-Construction

- (a) The Applicant must prepare the studies set out under section (b) and (c) below (the pre-construction studies). Construction, other than of preliminary works that are outside the scope of the hazard studies, must not commence until study recommendations have been considered and, where appropriate, acted upon. The Applicant must submit the studies to the Planning Secretary no later than one month prior to the commencement of construction of Building 1A (other than preliminary works), or within such further period as the Planning Secretary may agree.
- (b) A Fire Safety Study for Building 1A. This study must cover the relevant aspects of the Department of Planning's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study must meet the requirements of Fire and Rescue NSW.
- (c) A Final Hazard Analysis (FHA) of Building 1A, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'. The FHA must report:
 - layout of dangerous goods storage area for specific dangerous goods classes; firewall and fire safety requirement between the dangerous goods storage and Energy Complex 2;
 - implementation of all recommendations of the Preliminary Hazard Analysis prepared by RiskCon Engineering dated 24 October 2019
 - compliance with all relevant standards.

Pre-Commissioning

- (a) Prior to commissioning Building 1A, the Applicant must develop and implement the plans and systems set out under subsection (b) to (c) below. The Applicant must

submit to the Planning Secretary documentation describing the plans and systems no later than two months prior to the commencement of commissioning of Building 1A, or within such further period as the Planning Secretary may agree.

- (b) A comprehensive Emergency Plan and detailed emergency procedures for Building 1A. This plan must include detailed procedures for the safety of all people outside of the project who may be at risk from the project. The plan must be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'.
- (c) A document setting out a comprehensive Safety Management System, covering all on-site operations and associated transport activities involving hazardous materials. The document must clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. The Safety Management System must be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'. Records must be kept on-site and shall be available for inspection by the Planning Secretary upon request.

Pre-startup

Hazard Audit

- (a) Twelve months after the commencement of operation of Building 1A and every five years thereafter, or at such intervals as the Planning Secretary may agree, the Applicant must carry out a comprehensive Hazard Audit of Building 1A and within one month of each audit submit a report to the Planning Secretary.
The audits must be carried out at the Applicant's expense by a qualified person or team, independent of the development, and must be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines'.

D109B The Applicant must not store more than 1.1 million kilograms of combustible liquid commodities at warehouse Building 1A.

Bunding

D110. 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

Waste Storage

D111. 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

D112. The Applicant must implement the Waste Management Plan (WMP) in the EIS for the duration of construction and operation of Stage 1.

Statutory Requirements

D113. 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 facility that may lawfully accept the waste.

D114. Waste generated outside the Site must not be received at the Site for storage, treatment, processing, reprocessing, or disposal.

Pests, Vermin and Noxious Weed Management

D115. 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).

CONTAMINATION

D116. Prior to the commencement of construction of Stage 1, the Applicant must prepare an unexpected finds protocol to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with Condition D119 and must ensure any material identified as contaminated is disposed offsite, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the Site.

COMMUNITY ENGAGEMENT

D117. The Applicant must consult with the community regularly throughout Stage 1, including consultation with the nearby sensitive receivers identified in **Appendix 5**, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy approved in accordance with Condition C19.

PART 3 – ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

MANAGEMENT PLAN REQUIREMENTS

D118. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:

- (a) 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, Stage 1 or any management measures;
- (b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;
- (c) a program to monitor and report on the:
 - (i) impacts and environmental performance of Stage 1; and
 - (ii) effectiveness of the management measures set out pursuant to paragraph (b) above;
- (d) 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;
- (e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;
- (f) 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
- (g) 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

D119. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for Stage 1, including the WNSLR, in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary. The Applicant may prepare separate CEMPs for the Stage 1 works and the WNSLR, addressing all relevant requirements of this consent.

D120. Prior to finalising the CEMP, the Applicant must consult with TfNSW (including the former RMS), Council and Water NSW. The Applicant must also attend a site visit with Water NSW personnel to mark the exact works area for the WNSLR bridge crossing.

D121. As part of the CEMP required under Condition D119 of this consent, the Applicant must include:

- (a) detailed procedures for managing bulk earthworks to avoid adverse water quality impacts on Ropes Creek, including, but not limited to:
 - (i) any staging of earthworks to minimise disturbed areas;
 - (ii) limits on the areal extent of earthworks;
 - (iii) progressive grassing of exposed areas, as soon as reasonably practicable, focusing on areas where building construction will occur at a later stage;
- (b) Landscape Management Plan (LMP) (see Condition D35);

- (c) Construction Traffic Management Plan (CTMP) (see Condition D65);
- (d) Consultation Schedule for TfNSW and Water NSW (see Conditions D57 and D58);
- (e) Construction Noise and Vibration Management Plan (CNVMP) (see Condition D73);
- (f) Fill Importation Protocol (see Condition D79) and Erosion and Sediment Control Plan (see Condition D80);
- (g) Flora and Fauna Management Plan (FFMP) (see Condition D88);
- (h) Snake Management Measures (see Condition D96);
- (i) Construction Air Quality Management Plan (CAQMP) (see Condition D100);
- (j) Unexpected Finds Protocol (see Conditions D106 and D108);
- (k) Unexpected Contamination Protocol (see Condition D116); and
- (l) a Community Consultation and Complaints Handling Procedure.

D122. The Applicant must:

- (a) not commence construction of Stage 1 until the CEMP is approved by the Planning Secretary; and
- (b) carry out the construction of Stage 1 in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

ENVIRONMENTAL REPRESENTATIVE

D123. The Applicant must engage an Environmental Representative (ER) to oversee construction of Stage 1. Construction of Stage 1 must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant.

D124. The Planning Secretary's approval of an ER must be sought no later than one month before the commencement of construction of Stage 1, or within another timeframe agreed with the Planning Secretary.

D125. The proposed ER must be a suitably qualified and experienced person who was not involved in the preparation of the EIS or RtS and is independent from the design and construction personnel for Stage 1.

D126. The Applicant may engage more than one ER for Stage 1, in which case the functions to be exercised by an ER under the terms of this approval may be carried out by any ER that is approved by the Planning Secretary for the purposes of Stage 1.

D127. For the duration of construction of Stage 1, or as agreed with the Planning Secretary, the approved ER must:

- (a) receive and respond to communication from the Planning Secretary in relation to the environmental performance of Stage 1;
- (b) consider and inform the Planning Secretary on matters specified in the terms of this consent;
- (c) 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;
- (d) review the CEMP identified in Condition D119 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);

- (e) regularly monitor the implementation of the CEMP, and any other documents identified by the Planning Secretary, to ensure implementation is being carried out in accordance with the document and the terms of this consent;
- (f) as may be requested by the Planning Secretary, help plan, attend or undertake audits of Stage 1 commissioned by the Department including scoping audits, programming audits, briefings, and site visits;
- (g) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints;
- (h) 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, or as otherwise agreed with the Planning Secretary.

D128. 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 D127 (including preparation of the ER monthly report), as well as:

- (a) the complaints register; 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).

D129. The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under Condition D142. 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.

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

D130. The Applicant must prepare an Operational Environmental Management Plan (OEMP) in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary.

D131. As part of the OEMP required under Condition D130 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 operation of Stage 1;
- (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 Stage 1;
 - (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) Landscape Management Plan (LMP) (see Condition D35);
 - (ii) Flora and Fauna Management Plan (FFMP) (see Condition D88);
 - (iii) Waste Management Plan (WMP) (see Condition D112).

D132. The Applicant must:

- (a) not commence operation until the OEMP is approved by the Planning Secretary; and
- (b) operate Stage 1 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

D133. Within three months of:

- (a) the submission of a Compliance Report under Condition D141;
- (b) the submission of an Environmental Representative Monthly Report under Condition D127;
- (c) the submission of an incident report under Condition D135;
- (d) the approval of any modification of the conditions of this consent; or
- (e) the issue of a direction of the Planning Secretary under Condition D2(b) which requires a review,

the strategies, plans and programs required under this consent must be reviewed.

D134. If necessary, to either improve the environmental performance of Stage 1, 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 Stage 1.

REPORTING AND AUDITING

Incident Notification, Reporting and Response

D135. The Department must be notified in writing to compliance@planning.nsw.gov.au 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 8**.

Non-Compliance Notification

D136. The Department must be notified in writing to compliance@planning.nsw.gov.au within seven (7) days after the Applicant becomes aware of any non-compliance.

D137. 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.

D138. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Compliance Reporting

D139. No later than 6 weeks before the date notified for the commencement of construction, a Compliance Monitoring and Reporting Program prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2018) must be submitted to the Department.

D140. Compliance Reports of the Development must be carried out in accordance with the Compliance Reporting Post Approval Requirements (Department 2018).

D141. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Department and notify the Department in writing at least 7 days before this is done.

Monitoring and Environmental Audits

D142. 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

D143. 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 D2 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 monitoring or environmental 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 7: Schedule of Approved Plans – Concept Proposal

Architectural Plans prepared by SBA Architects			
Drawing	Title	Issue	Date
OAK MP 02	Estate Masterplan	E	28 October 2022
OAK MP 03	Western North South Link Road	B	30 July 2020
OAK MP 05	Precinct 1 Plan	F	30 July 2020
OAK MP 06	Precinct Plan	C	24 November 2020
OAK MP 07	Indicative Ultimate Lot Layout	C	2 June 2021
OAK MP 08	Site Analysis Plan	B	30 July 2020
OAK MP 11	Building Staging Plan (Indicative)	B	2 June 2021
OAK MP 12	Signage Precinct 1 Plan	F	2 August 2022
OAK MP 13	Fire Protection Plan	F	25 November 2020

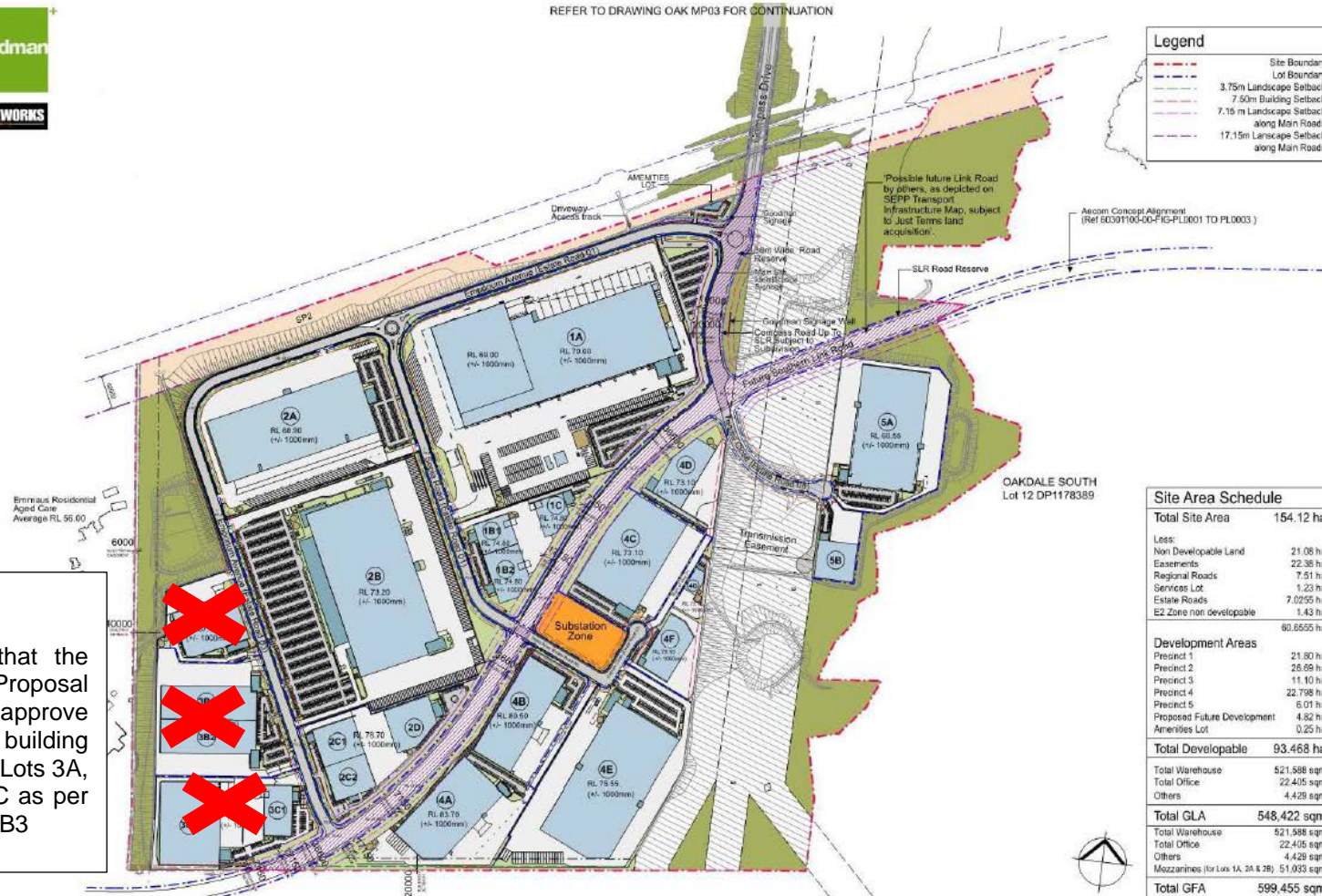
Landscape Plans prepared by Scape Design Landscape Architecture			
Drawing	Title	Issue	Date
L.SK.000	Cover Sheet	B	8/01/21
L.SK.100	Landscape Master Plan – OWE MOD 6	B	8/01/21
L.SK.101	Street Trees & Planting Masterplan	B	8/01/21
L.SK.102	Planting Schedule – OWE MOD 5	B	8/01/21
L.SK.200	Landscape Sections – OWE MOD 5	A	26/10/20
L.SK.00 – 07, 105, 106, 200, 201 and 202	Landscape Drawing Set – OWE Lots 2A, 2C and 2D	-	23/11/21

B1. Civil Plans prepared by AT&L			
Drawing	Title	Issue	Date
15-272-C0000	Cover Sheet	A11	4-6-21
15-272-C0001	General Arrangement Master Plan	A15	4-6-21
15-272-C0002	Existing Site Plan	A14	4-6-21
15-272-C0003	Precinct Plan	A15	4-6-21
15-272-C0004	Stage 1 SSD Approval Extents Sheet 1 of 2	A18	4-6-21
15-272-C0005	Stage 1 SSD Approval Extents Sheet 2 of 2	A13	4-6-21
15-272-C0006	Cut/Fill Plan	A13	4-6-21
15-272-C0007	Stormwater Drainage Catchment Plan (Pre-Developed)	A11	4-6-21
15-272-C0008	Stormwater Drainage Catchment Plan (Developed)	A11	4-6-21
15-272-C0009	Erosion and Sediment Control Master Plan	A14	4-6-21
15-272-C0010	Typical Sections Sheet 1	A13	4-6-21

15-272-C0011	Typical Sections Sheet 2	A11	4-6-21
15-272-C0012	Typical Sections Sheet 3	A12	4-6-21
15-272-C0013	Typical Sections Sheet 4	A10	4-6-21
15-272-C0014	Typical Sections Sheet 5	A1	4-6-21
15-272-C0020	Western North-South Link Road General Arrangement Plan	A12	4-6-21
15-272-C0021	Western North-South Link Road Stormwater Drainage Catchment Plan (Pre-Developed)	A11	4-6-21
15-272-C0022	Western North-South Link Road Stormwater Drainage Catchment Plan (Developed)	A11	4-6-21
15-272-C0023	Western North-South Link Road Proposed Land Acquisition Plan	A15	4-6-21
15-272-C1003	Precinct General Arrangement Plan	A18	4-6-21
15-272-C1004	Typical Site Sections Sheet 1 of 6	A14	4-6-21
15-272-C1005	Typical Site Sections Sheet 2 of 6	A13	4-6-21



REFER TO DRAWING OAK MP03 FOR CONTINUATION



X Denotes that the Concept Proposal does not approve the building layouts of Lots 3A, 3B and 3C as per Condition B3

Figure 1: Concept Proposal Layout (MOD 11)



Figure 2: Staging Plan (MOD 11)

APPENDIX 2 STAGE 1 DA PLANS

Table 8: Schedule of Approved Plans – Stage 1 DA

Architectural Plans prepared by SBA Architects		
Drawing	Title	Date
OAK MP 04 (Z)	SSDA Stage 1 Development – Precinct 1	21 Sept 2018
OAK MP 05 (Z)	Precinct 1 Plan	21 Sept 2018
OAK MP 12 (12)	Signage Precinct 1 Plan	21 Sept 2018
Building 1A plans prepared by SBA Architects		
OAK 1A DA 10 (H)	Site Plan/Floor Plan	04 May 2018
OAK 1A DA 11 (C)	Roof Plan	03 April 2017
OAK 1A DA 12 (C)	Office Plan – Ground Floor	06 Sept 2016
OAK 1A DA 13 (e)	Office Plan – First Floor	06 Sept 2016
OAK 1A DA 14 (C)	Elevations Office	06 Sept 2016
OAK 1A DA 15 (C)	Elevations 1A	03 April 2017
OAK 1A DA 16 (D)	Sections	4 May 2018
Building 1B plans prepared by SBA Architects		
OAK 1B DA 20 (F)	Site Plan/Floor Plan	17 April 2018
OAK 1B DA 21 (C)	Roof Plan	06 Sept 2016
OAK 1B DA 22 (B)	Office Plan	06 Sept 2016
OAK 1B DA 24 (B)	Elevations Office	06 Sept 2016
OAK 1B DA 25(B)	Elevations 1B	06 Sept 2016
OAK 1B DA 26 (B)	Sections	06 Sept 2016
Building 1C plans prepared by SBA Architects		
OAK 1C DA 30 (H)	Site Plan/Floor Plan	17 April 2018
OAK 1C DA 31 (C)	Roof Plan	03 April 2017
OAK 1C DA 32 (B)	Office Plan – Ground Floor	06 Sept 2016
OAK 1C DA 33 (B)	Office Plan – First Floor	06 Sept 2016
OAK 1C DA 34 (B)	Elevations Office	06 Sept 2016
OAK 1C DA 35 (C)	Elevations Sheet 1	03 April 2017
OAK 1C DA 36 (C)	Elevations Sheet 2	03 Sept 2017
OAK 1C DA 37 (C)	Sections	03 April 2017

Landscape Plans prepared by Site Image Landscape Architects			
Drawing	Title	Issue	Date
ELW-101	-	G	11.10.2018
ELW-102	-	G	11.10.2018
ELW-103	-	G	11.10.2018
ELW-104	-	G	11.10.2018
ELW-105	-	G	11.10.2018
ELW-106	-	G	11.10.2018
ELW-107	-	G	11.10.2018
ELW-108	-	G	11.10.2018
ELW-109	-	G	11.10.2018
ELW-110	-	G	11.10.2018
ELW-111	-	G	11.10.2018
ELW-112	-	G	11.10.2018
ELW-113	-	G	11.10.2018
ELW-114	-	G	11.10.2018
WNSLR-101	-	G	11.10.2018
WNSLR-102	-	G	11.10.2018
ELW-502	Plant Schedule	G	11.10.2018
OLW-001	Precinct 1 Landscape Plan	G	11.10.2018
OLW-501	Planting Palette	G	11-10-2018

Civil Plans prepared by AT&L			
Drawing	Title	Issue	Date
15-272-C0004	Stage 1 SSD Approval Extents Sheet 1 of 2	A5 A7	11-10-18 24-07-19
15-272-C0005	Stage 1 SSD Approval Extents Sheet 2 of 2	A4 A6	21-09-18 24-07-19
15-272-C0020	Western North-South Link Road General Arrangement Plan	A3 A5	21-09-18 24-07-19
15-272-C0021	Western North-South Link Road Stormwater Drainage Catchment Plan (Pre-Developed)	A5	24-07-19
15-272-C0022	Western North-South Link Road Stormwater Drainage Catchment Plan (Developed)	A3 A5	21-09-18 19-07-19
15-272-C0023	Western North-South Link Road Proposed Land Acquisition Plan	A8	24-07-19
15-272-C1000	Cover Sheet	A6	24-07-19
15-272-C1001	Drawing List	A6	24-07-19
15-272-C1002	General Notes	A6	24-07-19
15-272-C1003	Precinct General Arrangement Plan	A8	24-07-19
15-272-C1004	Typical Site Sections Sheet 1 of 6	A4 A8	21-09-18 20-03-20
15-272-C1005	Typical Site Sections Sheet 2 of 6	A4 A6	21-09-18 24-07-19
15-272-C1006	Typical Site Sections Sheet 3 of 6	A4 A8	21-09-18 20-03-20
15-272-C1007	Typical Site Sections Sheet 4 of 6	A3 A5	21-09-18 24-07-19
15-272-C1008	Typical Site Sections Sheet 5 of 6	A3 A6	11-10-18 20-03-20
15-272-C1009	Typical Site Sections Sheet 6 of 6	A4 A6	28-09-18 20-03-20
15-272-C1010	Typical Road Sections	A3 A5	21-09-18 24-07-19
15-272-C1011	Contour Plan	A5	20-03-20
15-272-C1014	Bulk Earthworks Cut/Fill Plan	A6	20-03-20
15-272-C1015	Earthworks and Stormwater Drainage Plan Sheet 1 of 20	A3 A5	21-09-18 24-07-19
15-272-C1016	Earthworks and Stormwater Drainage Plan Sheet 2 of 20	A3 A5	21-09-18 24-07-19
15-272-C1017	Earthworks and Stormwater Drainage Plan Sheet 3 of 20	A3 A5	21-09-18 24-07-19
15-272-C1018	Earthworks and Stormwater Drainage Plan Sheet 4 of 20	A3 A5	21-09-18 24-07-19
15-272-C1019	Earthworks and Stormwater Drainage Plan Sheet 5 of 20	A3 A5	21-09-18 24-07-19
15-272-C1020	Earthworks and Stormwater Drainage Plan Sheet 6 of 20	A3 A5	21-09-18 24-07-19
15-272-C1021	Earthworks and Stormwater Drainage Plan Sheet 7 of 20	A3 A5	21-09-18 24-07-19
15-272-C1022	Earthworks and Stormwater Drainage Plan Sheet 8 of 20	A3 A5	21-09-18 24-07-19
15-272-C1023	Earthworks and Stormwater Drainage Plan Sheet 9 of 20	A3 A5	21-09-18 24-07-19
15-272-C1024	Earthworks and Stormwater Drainage Plan Sheet 10 of 20	A3 A5	21-09-18 24-07-19
15-272-C1025	Earthworks and Stormwater Drainage Plan Sheet 11 of 20	A3 A5	21-09-18 24-07-19
15-272-C1026	Earthworks and Stormwater Drainage Plan Sheet 12 of 20	A3 A5	21-09-18 24-07-19

15-272-C1027	Earthworks and Stormwater Drainage Plan Sheet 13 of 20	A3 A5	21-09-18 24-07-19
15-272-C1028	Earthworks and Stormwater Drainage Plan Sheet 14 of 20	A3 A5	21-09-18 24-07-19
15-272-C1029	Earthworks and Stormwater Drainage Plan Sheet 15 of 20	A4 A6	04-10-18 24-07-19
15-272-C1030	Earthworks and Stormwater Drainage Plan Sheet 16 of 20	A3 A5	21-09-18 24-07-19
15-272-C1031	Earthworks and Stormwater Drainage Plan Sheet 17 of 20	A3 A5	21-09-18 24-07-19
15-272-C1032	Earthworks and Stormwater Drainage Plan Sheet 18 of 20	A3 A5	21-09-18 24-07-19
15-272-C1033	Earthworks and Stormwater Drainage Plan Sheet 19 of 20	A3 A5	21-09-18 24-07-19
15-272-C1034	Earthworks and Stormwater Drainage Plan Sheet 20 of 20	A3 A5	21-09-18 24-07-19
15-272-C1040	Roadworks and Stormwater Drainage Plan Sheet 1 of 10	A3 A5	21-09-18 24-07-19
15-272-C1041	Roadworks and Stormwater Drainage Plan Sheet 2 of 10	A3 A5	21-09-18 24-07-19
15-272-C1042	Roadworks and Stormwater Drainage Plan Sheet 3 of 10	A3 A5	21-09-18 24-07-19
15-272-C1043	Roadworks and Stormwater Drainage Plan Sheet 4 of 10	A3 A5	21-09-18 24-07-19
15-272-C1044	Roadworks and Stormwater Drainage Plan Sheet 5 of 10	A3 A5	21-09-18 24-07-19
15-272-C1045	Roadworks and Stormwater Drainage Plan Sheet 6 of 10	A3 A5	21-09-18 24-07-19
15-272-C1046	Roadworks and Stormwater Drainage Plan Sheet 7 of 10	A3 A5	21-09-18 24-07-19
15-272-C1047	Roadworks and Stormwater Drainage Plan Sheet 8 of 10	A3 A5	21-09-18 24-07-19
15-272-C1048	Roadworks and Stormwater Drainage Plan Sheet 9 of 10	A2 A4	21-09-18 24-07-19
15-272-C1049	Roadworks and Stormwater Drainage Plan Sheet 10 of 10	A2 A4	21-09-18 24-07-19
15-272-C1050	Road and Longitudinal Sections Sheet 1 of 5	A3 A5	21-09-18 24-07-19
15-272-C1051	Road and Longitudinal Sections Sheet 2 of 5	A3 A5	21-09-18 24-07-19
15-272-C1052	Road and Longitudinal Sections Sheet 3 of 5	A3 A5	21-09-18 24-07-19
15-272-C1053	Road and Longitudinal Sections Sheet 4 of 5	A3 A5	21-09-18 24-07-19
15-272-C1054	Road and Longitudinal Sections Sheet 5 of 5	A3 A5	21-09-18 24-07-19
15-272-C1058	Western Boundary Layout and Sections	A4	24-07-19
15-272-C1059	Southern Boundary Layout and Sections	A4	24-07-19
15-272-C1062	Bio-Retention Basin No. 3 Detail Plan Sheet 1 of 2 Bio-Retention Basin 2 and 3 Detail Plan Sheet 1 of 2	A3 A5	21-09-18 24-07-19
15-272-C1063	Bio-Retention Basin No. 3 Detail Plan Sheet 2 of 2 Bio-Retention Basin 2 and 3 Detail Plan Sheet 2 of 2	A2 A4	21-09-18 24-07-19
15-272-C1064	Bio-Retention Basin No. 5 Detail Plan Sheet 1 of 2 Bio-Retention Basin 4 Detail Plan Sheet 1 of 2	A1 A3	21-09-18 24-07-19
15-272-C1065	Bio-Retention Basin No. 5 Detail Plan Sheet 2 of 2 Bio-Retention Basin 4 Detail Plan Sheet 2 of 2	A3 A5	21-09-18 24-07-19
15-272-C1066	Bio-Retention Basin No. 6 Detail Plan Bio-Retention Basin 5 Detail Plan	A3 A5	21-09-18 24-07-19

15-272-C1068	Stormwater Drainage Catchment Plan (Pre-developed)	A4	24-07-19
15-272-C1069	Stormwater Drainage Catchment Plan (Post-developed)	A4	24-07-19
15-272-C1070	Retaining Wall General Arrangement Plan	A4 A6	11-10-18 24-07-19
15-272-C1071	Retaining Wall Profiles Sheet 1 of 7	A3 A5	21-09-18 24-07-19
15-272-C1072	Retaining Wall Profiles Sheet 2 of 7	A3 A5	21-09-18 24-07-19
15-272-C1073	Retaining Wall Profiles Sheet 3 of 7	A3 A5	21-09-18 24-07-19
15-272-C1074	Retaining Wall Profiles Sheet 4 of 7	A3 A5	21-09-18 24-07-19
15-272-C1075	Retaining Wall Profiles Sheet 5 of 7	A3 A5	21-09-18 24-07-19
15-272-C1076	Retaining Wall Profiles Sheet 6 of 7	A3 A5	21-09-18 24-07-19
15-272-C1077	Retaining Wall Profiles Sheet 7 of 7	A2 A4	21-09-18 24-07-19
12-272-C1080	Stage 1 Services and Utilities Coordination Plan Sheet 1 of 6	A3 A5	21-09-18 24-07-19
12-272-C1081	Stage 1 Services and Utilities Coordination Plan Sheet 2 of 6	A3 A5	21-09-18 24-07-19
12-272-C1082	Stage 1 Services and Utilities Coordination Plan Sheet 3 of 6	A3 A5	21-09-18 24-07-19
12-272-C1083	Stage 1 Services and Utilities Coordination Plan Sheet 4 of 6	A3 A5	21-09-18 24-07-19
12-272-C1084	Stage 1 Services and Utilities Coordination Plan Sheet 5 of 6	A3 A5	21-09-18 24-07-19
12-272-C1085	Stage 1 Services and Utilities Coordination Plan Sheet 6 of 6	A3 A5	21-09-18 24-07-19
12-272-C1086	Existing Transgrid Overhead Electrical Cables Plan	A5	24-07-19
12-272-C1087	Existing Transgrid Overhead Electrical Cables and Longitudinal Sections	A5	24-07-19
12-272-C1088	Existing Transgrid Overhead Electrical Cables Typical Sections Sheet 1 of 2	A5	24-07-19
12-272-C1089	Existing Transgrid Overhead Electrical Cables Typical Sections Sheet 2 of 2	A5	24-07-19
12-272-C1090	Erosion and Sediment Control Plan Sheet 1 of 7	A3 A5	21-09-18 24-07-19
12-272-C1091	Erosion and Sediment Control Plan Sheet 2 of 7	A3 A5	21-09-18 24-07-19
12-272-C1092	Erosion and Sediment Control Plan Sheet 3 of 7	A3 A5	21-09-18 24-07-19
12-272-C1093	Erosion and Sediment Control Plan Sheet 4 of 7	A3 A5	21-09-18 24-07-19
12-272-C1094	Erosion and Sediment Control Plan Sheet 5 of 7	A3 A5	21-09-18 24-07-19
12-272-C1095	Erosion and Sediment Control Plan Sheet 6 of 7	A3 A5	21-09-18 24-07-19
12-272-C1096	Erosion and Sediment Control Plan Sheet 7 of 7	A3 A5	21-09-18 24-07-19
12-272-C1097	Erosion and Sediment Control Details	A1 A4	21-09-18 24-07-19
15-272-C2003	General Arrangement Plan	A3	21-09-18
15-272-C2010	Siteworks and Stormwater Drainage Plan Sheet 1 of 15	A3	21-09-18
15-272-C2011	Siteworks and Stormwater Drainage Plan Sheet 2 of 15	A3	21-09-18
15-272-C2012	Siteworks and Stormwater Drainage Plan Sheet 3 of 15	A3	21-09-18
15-272-C2013	Siteworks and Stormwater Drainage Plan Sheet 4 of 15	A3	21-09-18
15-272-C2014	Siteworks and Stormwater Drainage Plan Sheet 5 of 15	A3	21-09-18

15-272-C2015	Siteworks and Stormwater Drainage Plan Sheet 6 of 15	A3	21-09-18
15-272-C2016	Siteworks and Stormwater Drainage Plan Sheet 7 of 15	A3	21-09-18
15-272-C2017	Siteworks and Stormwater Drainage Plan Sheet 8 of 15	A3	21-09-18
15-272-C2018	Siteworks and Stormwater Drainage Plan Sheet 9 of 15	A3	21-09-18
15-272-C2019	Siteworks and Stormwater Drainage Plan Sheet 10 of 15	A3	21-09-18
15-272-C2020	Siteworks and Stormwater Drainage Plan Sheet 11 of 15	A3	21-09-18
15-272-C2021	Siteworks and Stormwater Drainage Plan Sheet 12 of 15	A3	21-09-18
15-272-C2022	Siteworks and Stormwater Drainage Plan Sheet 13 of 15	A3	21-09-18
15-272-C2023	Siteworks and Stormwater Drainage Plan Sheet 14 of 15	A3	21-09-18
15-272-C2024	Siteworks and Stormwater Drainage Plan Sheet 15 of 15	A3	21-09-18
15-272-C2030	Pavement Plan	A3	21-09-18
15-272-C3003	General Arrangement Plan	A3	21-09-18
15-272-C3010	Typical Road Sections	A3	21-09-18
15-272-C3020	Roadworks Plan and Longitudinal Section Sheet 1 of 5	A3	21-09-18
15-272-C3021	Roadworks Plan and Longitudinal Section Sheet 2 of 5	A3	21-09-18
15-272-C3022	Roadworks Plan and Longitudinal Section Sheet 3 of 5	A3	21-09-18
15-272-C3023	Roadworks Plan and Longitudinal Section Sheet 4 of 5	A3	21-09-18
15-272-C3024	Roadworks Plan and Longitudinal Section Sheet 5 of 5	A3	21-09-18
15-272-C3030	Road Longitudinal Sections	A3	21-09-18
15-272-C3040	Bridge Elevation and Typical Section	A4	04-10-18
15-272-C3050	Stormwater Drainage Plan Sheet 1 of 5	A3	21-09-18
15-272-C3051	Stormwater Drainage Plan Sheet 2 of 5	A3	21-09-18
15-272-C3052	Stormwater Drainage Plan Sheet 3 of 5	A3	21-09-18
15-272-C3053	Stormwater Drainage Plan Sheet 4 of 5	A3	21-09-18
15-272-C3054	Stormwater Drainage Plan Sheet 5 of 5	A3	21-09-18
15-272-C3058	Stormwater Drainage Catchment Plan (Post-Developed)	A2	21-09-18
15-272-C3060	Bio-Retention Basin NO. 1 Detail Plan	A3	21-09-18
15-272-C3070	Pavement Plan Sheet 1 of 5	A3	21-09-18
15-272-C3071	Pavement Plan Sheet 2 of 5	A3	21-09-18
15-272-C3072	Pavement Plan Sheet 3 of 5	A3	21-09-18
15-272-C3073	Pavement Plan Sheet 4 of 5	A3	21-09-18
15-272-C3074	Pavement Plan Sheet 5 of 5	A2	21-09-18
15-272-C3080	Retaining Wall Plan and Elevation	A1	21-09-18
15-272-C3081	Retaining Wall Sections Sheet 1 of 4	A1	21-09-18
15-272-C3082	Retaining Wall Sections Sheet 2 of 4	A1	21-09-18
15-272-C3083	Retaining Wall Sections Sheet 3 of 4	A1	21-09-18
15-272-C3084	Retaining Wall Sections Sheet 4 of 4	A1	21-09-18

Civil Plans prepared by AT&L			
Drawing	Title	Issue	Date
15-272-C5006	Typical Road Sections Sheet 1	3	31-01-20
15-272-C5018	Bulk Earthworks Cut/Fill Plan Sheet 1	2	31-01-20
15-272-C5021	Roadworks Plan Sheet 1	4	06-02-20
15-272-C5022	Roadworks Plan Sheet 2	4	31-01-20
15-272-C5033	Carpark Adjustment Siteworks Plans	4	31-01-20
15-272-C5057	Stormwater Drainage Plan Sheet 1	2	31-01-20
15-272-C5063	Subsurface Drainage Plan Sheet 1	2	31-01-20
15-272-C5101	Pavement Plan Sheet 1	3	31-01-20
15-272-C5121	Services and Utilities Coordination Plan Sheet 1	3	06-02-20
15-272-C5122	Services and Utilities Coordination Plan Sheet 2	4	06-02-20
15-272-C5131	Road Furniture Plan Sheet 1	3	31-01-20

Landscape Plans prepared by Scape Design Landscape Architecture			
Drawing	Title	Issue	Date
L.CD.101	Western North South Link Road Landscape Plan Sheet 1	S	14/2/20

L.CD.301	Western North South Link Road Planting & Revegetation Schedule	Q	31/1/20
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Table 8A: Schedule of Approved Plans – Stage 1 Development

Architectural Plans prepared by SBA Architects			
Drawing	Title	Issue	Date
OAK-1A-DA-10	Proposed Industrial Facility – Building 1A Site Plan	F	23 June 2021
OAK-1A-DA-11	Proposed Industrial Facility – Building 1A Roof Plan	A	13 July 2020
OAK-1A-DA-12	Proposed Industrial Facility – Building 1A Office Ground Floor Plan	Q	23 June 2021
OAK-1A-DA-13	Proposed Industrial Facility – Building 1A Office First Floor Plan	Q	23 June 2021
OAK-1A-DA-13A	Proposed Industrial Facility – Building 1A Office Second Floor Plan	L	23 June 2021
OAK-1A-DA-14	Proposed Industrial Facility – Building 1A Office Elevations	R	1 February 2022
OAK-1A-DA-15	Proposed Industrial Facility – Building 1A Warehouse Elevations	S	1 February 2022
OAK-1A-DA-18	Proposed Industrial Facility – Building 1A Warehouse Plan	B	28 July 2020
OAK-1A-DA-18A	Proposed Industrial Facility – Building 1A Mezzanine Plan – 1	B	28 July 2020
OAK-1A-DA-18B	Proposed Industrial Facility – Building 1A Mezzanine Plan – 2	B	28 July 2020
OAK-1A-DA-18C	Proposed Industrial Facility – Building 1A Mezzanine Plan – 3	B	28 July 2020
OAK-1A-DA-18D	Proposed Industrial Facility – Building 1A Mezzanine Plan – 4	B	28 July 2020
OAK-1A-DA-18E	Proposed Industrial Facility – Building 1A Mezzanine Plan – 5	B	28 July 2020
OAK-1A-DA-18F	Proposed Industrial Facility – Building 1A Mezzanine Plan – 6	B	28 July 2020
OAK-1A-DA-19	Skybridge Sections & Elevations – Building 1A	M	1 February 2022
OAK-1A-DA-25	Proposed Industrial Facility – Building 1A Energy Complex – 1	A	13 July 2020
OAK-1A-DA-28	Proposed Industrial Facility – Building 1A Stage 2 – Site Plan	E	29 July 2020
OAK-1A-DA-29	Proposed Industrial Facility – Building 1A – Stage 2 - Elevations	M	1 February 2022
OAK-DA-DA00	Proposed Industrial Facility - Building 1B/1C - Cover page	C	9 June 2021
OAK-DA-DA01	Proposed Industrial Facility - Building 1B/1C – Perspectives – 1B1/1B2	C	9 June 2021
OAK-DA-DA02	Proposed Industrial Facility - Building 1B/1C – Perspectives – Office 1C	C	9 June 2021
OAK-DA-DA30	Proposed Industrial Facility - Building 1B/1C – Site Plan	F	9 June 2021
OAK-DA-DA31	Proposed Industrial Facility - Building 1B/1C – Roof Plan	F	9 June 2021
OAK-DA-DA32	Proposed Industrial Facility - Building 1B/1C – Office Plans 1B1	E	9 June 2021

OAK-DA-DA33	Proposed Industrial Facility - Building 1B/1C – Office Plans 1B2	F	9 June 2021
OAK-DA-DA33A	Proposed Industrial Facility - Building 1B/1C – Office Plans 1C	F	9 June 2021
OAK-DA-DA34	Proposed Industrial Facility - Building 1B/1C – Elevations – Office 1B	E	9 June 2021
OAK-DA-D34A	Proposed Industrial Facility - Building 1B/1C – Elevations – Office 1C	E	9 June 2021
OAK-DA-DA35	Proposed Industrial Facility - Building 1B/1C – Elevations – Warehouse 1B	E	9 June 2021
OAK-DA-DA36	Proposed Industrial Facility - Building 1B/1C – Elevations – Warehouse 1C	E	9 June 2021
OAK-DA-DA37	Proposed Industrial Facility - Building 1B/1C – Sections - Warehouse	E	9 June 2021
OAK 1B1C DA 40	Proposed Industrial Facility – Proposed 1B & 1C – Signage Plan	D	9 June 2021

Landscape Plans prepared by Scape Design Landscape Architecture			
Drawing	Title	Revision	Date
L.SK.00	Cover Sheet	S	17/7/20
L.SK.01	Landscape Master Plan	P	17/7/20
L.SK.02	Planting Plan	M	17/7/20
L.SK.03	Planting Schedule	M	8/7/20
L.SK.04	Character & Materials	N	8/7/20
L.SK.100	Landscape – Plan – Sheet 1	N	17/7/20
L.SK.101	Landscape – Plan – Sheet 2	N	17/7/20
L.SK.102	Landscape – Plan – Sheet 3	O	17/7/20
L.SK.103	Landscape – Plan – Sheet 4	O	17/7/20
L.SK.104	Landscape – Plan – Sheet 5	O	17/7/20
L.SK.105	Landscape – Detailed Plan – Sheet 1	M	17/7/20
L.SK.106	Landscape – Detailed Plan – Sheet 2	M	17/7/20
L.SK.200	Landscape – Sections – Sheet 1	K	8/7/20
L.SK.201	Landscape – Sections – Sheet 2	K	8/7/20
L.SK.202	Landscape – Sections – Sheet 3	K	17/7/20
L.SK.203	Landscape – Sections – Sheet 4	L	17/7/20
L.SK.204	Carpark Details	H	17/7/20

Civil Plans prepared by AT&L			
Drawing	Title	Revision	Date
15-272-C1000	Cover Sheet	A10	20-10-20
15-272-C1001	Drawing List	A10	20-10-20
15-272-C1002	General Notes	A10	20-10-20
15-272-C1003	Precinct General Arrangement Plan	A16	20-10-20
15-272-C1004	Typical Site Sections Sheet 1 of 6	A12	20-10-20
15-272-C1005	Typical Site Sections Sheet 2 of 6	A11	20-10-20
15-272-C1006	Typical Site Sections Sheet 3 of 6	A11	20-10-20
15-272-C1007	Typical Site Sections Sheet 4 of 6	A9	20-10-20
15-272-C1008	Typical Site Sections Sheet 5 of 6	A9	20-10-20
15-272-C1009	Typical Site Sections Sheet 6 of 6	A11	20-10-20
15-272-C1010	Typical Road Sections	A9	20-10-20
15-272-C1011	Contour Plan	A12	20-10-20
15-272-C1014	Bulk Earthworks Cut/Fill Plan	A13	20-10-20

15-272-C1015	Earthworks and Stormwater Drainage Plan Sheet 1 of 20	A10	20-10-20
15-272-C1016	Earthworks and Stormwater Drainage Plan Sheet 2 of 20	A10	20-10-20
15-272-C1017	Earthworks and Stormwater Drainage Plan Sheet 3 of 20	A10	20-10-20
15-272-C1018	Earthworks and Stormwater Drainage Plan Sheet 4 of 20	A10	20-10-20
15-272-C1019	Earthworks and Stormwater Drainage Plan Sheet 5 of 20	A10	20-10-20
15-272-C1020	Earthworks and Stormwater Drainage Plan Sheet 6 of 20	A10	20-10-20
15-272-C1021	Earthworks and Stormwater Drainage Plan Sheet 7 of 20	A10	20-10-20
15-272-C1022	Earthworks and Stormwater Drainage Plan Sheet 8 of 20	A10	20-10-20
15-272-C1023	Earthworks and Stormwater Drainage Plan Sheet 9 of 20	A12	20-10-20
15-272-C1024	Earthworks and Stormwater Drainage Plan Sheet 10 of 20	A12	20-10-20
15-272-C1025	Earthworks and Stormwater Drainage Plan Sheet 11 of 20	A10	20-10-20
15-272-C1026	Earthworks and Stormwater Drainage Plan Sheet 12 of 20	A10	20-10-20
15-272-C1027	Earthworks and Stormwater Drainage Plan Sheet 13 of 20	A10	20-10-20
15-272-C1028	Earthworks and Stormwater Drainage Plan Sheet 14 of 20	A10	20-10-20
15-272-C1029	Earthworks and Stormwater Drainage Plan Sheet 15 of 20	A12	20-10-20
15-272-C1030	Earthworks and Stormwater Drainage Plan Sheet 16 of 20	A12	20-10-20
15-272-C1031	Earthworks and Stormwater Drainage Plan Sheet 17 of 20	A10	20-10-20
15-272-C1032	Earthworks and Stormwater Drainage Plan Sheet 18 of 20	A10	20-10-20
15-272-C1033	Earthworks and Stormwater Drainage Plan Sheet 19 of 20	A10	20-10-20
15-272-C1034	Earthworks and Stormwater Drainage Plan Sheet 20 of 20	A10	20-10-20
15-272-C1040	Roadworks and Stormwater Drainage Plan Sheet 1 of 18	A11	20-10-20
15-272-C1041	Roadworks and Stormwater Drainage Plan Sheet 2 of 18	A12	20-10-20
15-272-C1042	Roadworks and Stormwater Drainage Plan Sheet 3 of 18	A11	20-10-20
15-272-C1043	Roadworks and Stormwater Drainage Plan Sheet 4 of 18	A10	20-10-20
15-272-C1044	Roadworks and Stormwater Drainage Plan Sheet 5 of 18	A10	20-10-20
15-272-C1045	Roadworks and Stormwater Drainage Plan Sheet 6 of 18	A10	20-10-20
15-272-C1046	Roadworks and Stormwater Drainage Plan Sheet 7 of 18	A10	20-10-20
15-272-C1047	Roadworks and Stormwater Drainage Plan Sheet 8 of 18	A10	20-10-20
15-272-C1048	Roadworks and Stormwater Drainage Plan Sheet 9 of 18	A9	20-10-20
15-272-C1049	Roadworks and Stormwater Drainage Plan Sheet 10 of 18	A4	20-10-20
15-272-C1050	Roadworks and Stormwater Drainage Plan Sheet 11 of 18	A4	20-10-20
15-272-C1051	Roadworks and Stormwater Drainage Plan Sheet 12 of 18	A4	20-10-20
15-272-C1052	Roadworks and Stormwater Drainage Plan Sheet 13 of 18	A4	20-10-20
15-272-C1053	Roadworks and Stormwater Drainage Plan Sheet 14 of 18	A4	20-10-20
15-272-C1054	Roadworks and Stormwater Drainage Plan Sheet 15 of 18	A4	20-10-20
15-272-C1055	Roadworks and Stormwater Drainage Plan Sheet 16 of 18	A4	20-10-20
15-272-C1056	Roadworks and Stormwater Drainage Plan Sheet 17 of 18	A1	20-10-20
15-272-C1057	Roadworks and Stormwater Drainage Plan Sheet 18 of 18	A1	20-10-20
15-272-C1060	Road Longitudinal Sections Sheet 1 of 7	A10	20-10-20
15-272-C1061	Road Longitudinal Sections Sheet 2 of 7	A10	20-10-20
15-272-C1062	Road Longitudinal Sections Sheet 3 of 7	A10	20-10-20
15-272-C1063	Road Longitudinal Sections Sheet 4 of 7	A10	20-10-20
15-272-C1064	Road Longitudinal Sections Sheet 5 of 7	A10	20-10-20
15-272-C1065	Road Longitudinal Sections Sheet 6 of 7	A4	20-10-20
15-272-C1066	Road Longitudinal Sections Sheet 7 of 7	A1	20-10-20
15-272-C1070	Western Boundary Layout and Sections	A11	20-10-20
15-272-C1071	Southern Boundary Layout and Sections	A9	20-10-20
15-272-C1080	Bio-Retention Basin 2 and 3 Detail Plan Sheet 1 of 2	A10	20-10-20
15-272-C1081	Bio-Retention Basin 2 and 3 Detail Plan Sheet 2 of 2	A9	20-10-20
15-272-C1082	Bio-Retention Basin 4 Detail Plan Sheet 1 of 2	A8	20-10-20
15-272-C1083	Bio-Retention Basin 4 Detail Plan Sheet 2 of 2	A10	20-10-20
15-272-C1084	Bio-Retention Basin 5 Detail Plan	A10	20-10-20
15-272-C1086	Stormwater Drainage Catchment Plan (Pre-developed)	A9	20-10-20
15-272-C1087	Stormwater Drainage Catchment Plan (Post-developed)	A9	20-10-20
15-272-C1090	Retaining Wall General Arrangement Plan	A13	20-10-20
15-272-C1091	Retaining Wall Profiles Sheet 1 of 9	A11	20-10-20
15-272-C1092	Retaining Wall Profiles Sheet 2 of 9	A10	20-10-20
15-272-C1093	Retaining Wall Profiles Sheet 3 of 9	A10	20-10-20

15-272-C1094	Retaining Wall Profiles Sheet 4 of 9	A10	20-10-20
15-272-C1095	Retaining Wall Profiles Sheet 5 of 9	A12	20-10-20
15-272-C1096	Retaining Wall Profiles Sheet 6 of 9	A11	20-10-20
15-272-C1097	Retaining Wall Profiles Sheet 7 of 9	A9	20-10-20
15-272-C1098	Retaining Wall Profiles Sheet 8 of 9	A9	20-10-20
15-272-C1099	Retaining Wall Profiles Sheet 9 of 9	A1	20-10-20
15-272-C1110	Stage 1 Services and Utilities Coordination Plan Sheet 1 of 6	A9	20-10-20
15-272-C1111	Stage 1 Services and Utilities Coordination Plan Sheet 2 of 6	A10	20-10-20
15-272-C1112	Stage 1 Services and Utilities Coordination Plan Sheet 3 of 6	A10	20-10-20
15-272-C1113	Stage 1 Services and Utilities Coordination Plan Sheet 4 of 6	A12	20-10-20
15-272-C1114	Stage 1 Services and Utilities Coordination Plan Sheet 5 of 6	A10	20-10-20
15-272-C1115	Stage 1 Services and Utilities Coordination Plan Sheet 6 of 6	A9	20-10-20
15-272-C1120	Existing Transgrid Overhead Electrical Cables Plan	A10	20-10-20
15-272-C1121	Existing Transgrid Overhead Electrical Cables and Longitudinal Sections	A9	20-10-20
15-272-C1122	Existing Transgrid Overhead Electrical Cables Typical Sections Sheet 1 of 2	A9	20-10-20
15-272-C1123	Existing Transgrid Overhead Electrical Cables Typical Sections Sheet 2 of 2	A9	20-10-20
15-272-C1130	Erosion and Sediment Control Plan Sheet 1 of 7	A10	20-10-20
15-272-C1131	Erosion and Sediment Control Plan Sheet 2 of 7	A10	20-10-20
15-272-C1132	Erosion and Sediment Control Plan Sheet 3 of 7	A10	20-10-20
15-272-C1133	Erosion and Sediment Control Plan Sheet 4 of 7	A11	20-10-20
15-272-C1134	Erosion and Sediment Control Plan Sheet 5 of 7	A10	20-10-20
15-272-C1135	Erosion and Sediment Control Plan Sheet 6 of 7	A9	20-10-20
15-272-C1136	Erosion and Sediment Control Plan Sheet 7 of 7	A9	20-10-20
15-272-C1137	Erosion and Sediment Control Details	A7	20-10-20
15-272-C2000	Cover Sheet	A9	20-07-20
15-272-C2001	Drawing List	A9	20-07-20
15-272-C2002	General Notes	A9	20-07-20
15-272-C2003	General Arrangement Plan	A14	05-01-21
15-272-C2010	Siteworks and Stormwater Drainage Plan Sheet 1 of 14	A10	20-07-20
15-272-C2011	Siteworks and Stormwater Drainage Plan Sheet 2 of 14	A10	20-07-20
15-272-C2012	Siteworks and Stormwater Drainage Plan Sheet 3 of 14	A11	20-07-20
15-272-C2013	Siteworks and Stormwater Drainage Plan Sheet 4 of 14	A11	20-07-20
15-272-C2014	Siteworks and Stormwater Drainage Plan Sheet 5 of 14	A10	20-07-20
15-272-C2015	Siteworks and Stormwater Drainage Plan Sheet 6 of 14	A10	20-07-20
15-272-C2016	Siteworks and Stormwater Drainage Plan Sheet 7 of 14	A11	20-07-20
15-272-C2017	Siteworks and Stormwater Drainage Plan Sheet 8 of 14	A11	20-07-20
15-272-C2018	Siteworks and Stormwater Drainage Plan Sheet 9 of 14	A11	20-07-20
15-272-C2019	Siteworks and Stormwater Drainage Plan Sheet 10 of 14	A11	20-07-20
15-272-C2020	Siteworks and Stormwater Drainage Plan Sheet 11 of 14	A12	20-07-20
15-272-C2021	Siteworks and Stormwater Drainage Plan Sheet 12 of 14	A13	05-01-21
15-272-C2022	Siteworks and Stormwater Drainage Plan Sheet 13 of 14	A13	05-01-21
15-272-C2023	Siteworks and Stormwater Drainage Plan Sheet 14 of 14	A12	04-11-20
15-272-C2030	Pavement Plan	A14	05-01-21

FOR INFORMATION

Development Area Schedule	
Total Site Area	218,050 sqm
Total Warehouse	81,286 sqm
Total Office	4,151 sqm
Offices (incl. ME)	4,054 sqm
Mezzanines (incl. ME)	36,331 sqm
Total GFA	125,772 sqm
(includes all Mezzanines)	
Total GLA	89,440 sqm
(includes all Mezzanines)	
Carparking (total)	555
Lot 1A	
Site Area	187,010 sqm
Warehouse	68,160 sqm
(includes Stage 2 Volume expansion 2,510 sqm)	
Office (3 level)	2,646 sqm
Offices	4,004 sqm
(includes dock office, trailer workshop, office with storage, energy control & 2,000 sqm area, battery storage, workshop & ME)	
Mezzanines	36,331 sqm
(includes Stage 2 Mezzanine 3,258 sqm)	
Total GFA	111,141 sqm
(includes all Mezzanines)	
Total GLA	74,810 sqm
(includes all Mezzanines)	
Awning	8,820 sqm
Site Cover (exc. awning)	59 %
Floor Space Ratio	0.59 : 1
Hardstand Area	84,500 sqm
Light Duty Area	16,425 sqm
Prime Mover Parking	111
Trailer Parking	121
Carparking	472
Carparking (motorcycles)	8
Lot 1B & 1C	
Site Area	31,038 sqm
Warehouse 1B1	3,854 sqm
Warehouse 1B2	5,686 sqm
Warehouse 1C	3,686 sqm
Office 1B1 (2 level)	900 sqm
Office 1B2 (2 level)	509 sqm
Office 1C (1 level)	436 sqm
Total GFA	14,631 sqm
Awning	1,400 sqm
Site Cover (exc. awning)	47 %
Floor Space Ratio	0.47 : 1
Hardstand Area	6,445 sqm
Light Duty Area	2,365 sqm
Carparking	83

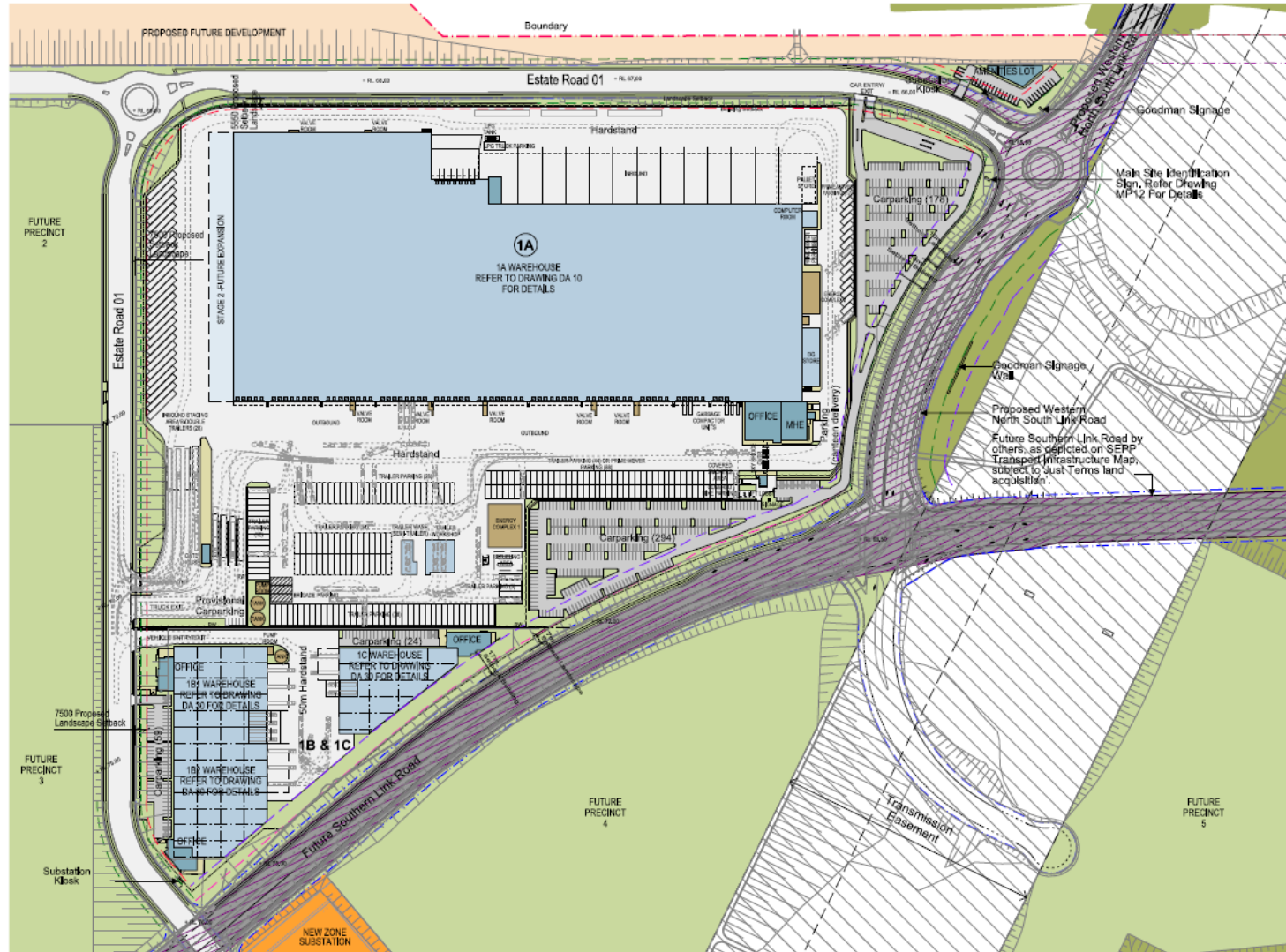


Figure 3: Stage 1 DA Layout



Figure 4: Stage 1 Landscape Plan

APPENDIX 3 WNSLR PLANS



Figure 5: WNSLR

FOR INFORMATION

APPENDIX 5 NOISE RECEIVER LOCATIONS

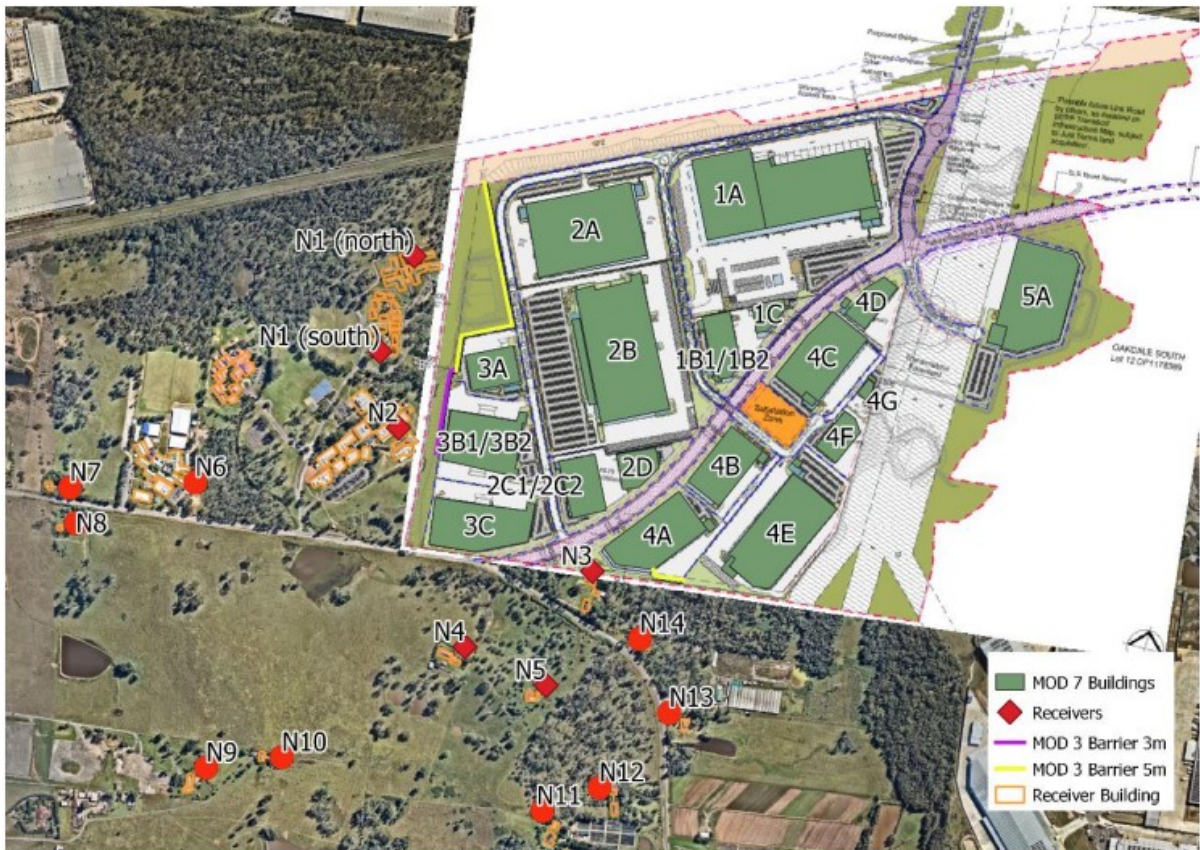


Figure 6: Sensitive Noise Receivers and Noise Wall Locations

APPENDIX 6 BIODIVERSITY

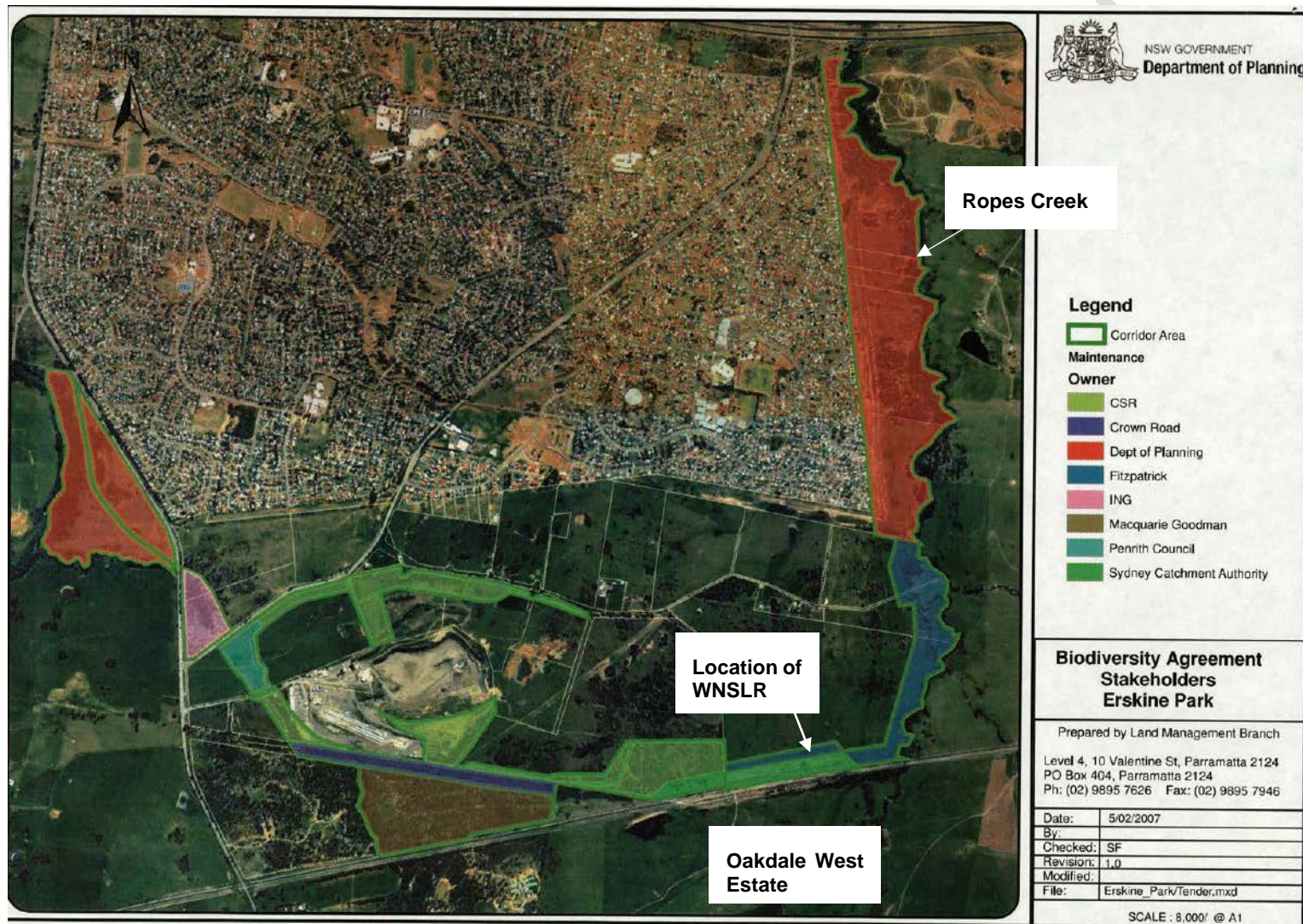


Figure 7: Erskine Park Biodiversity Corridor Land

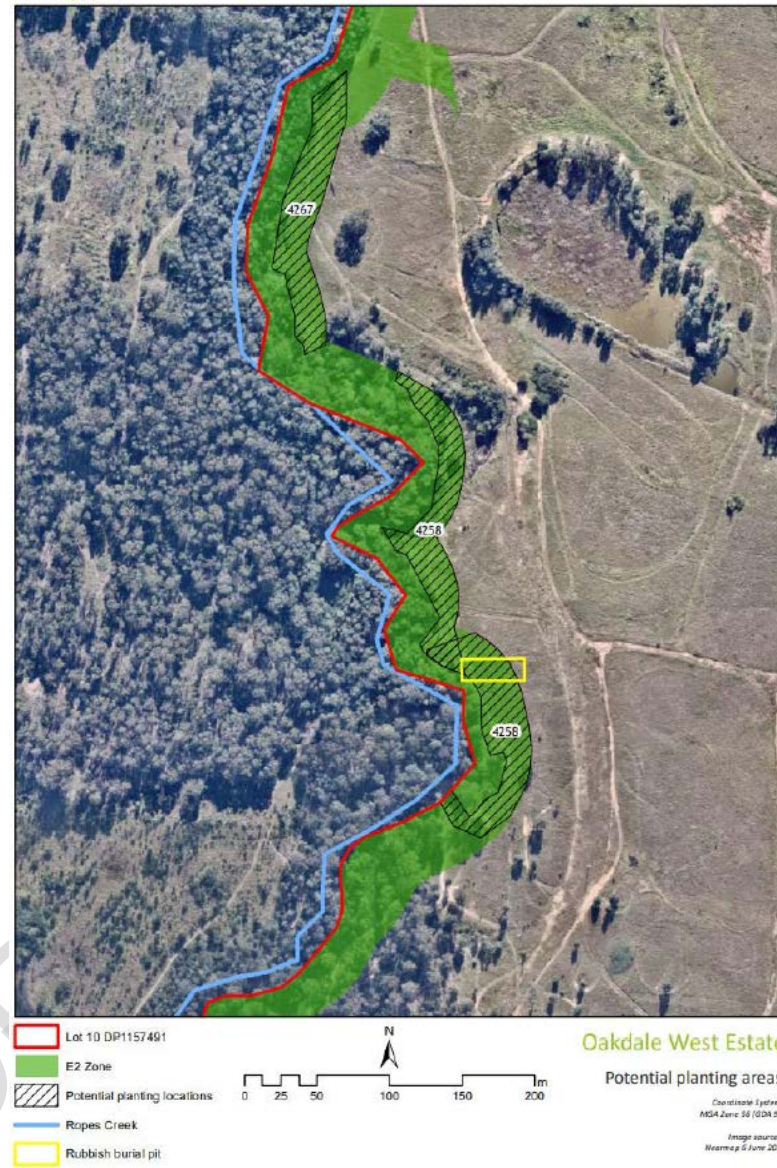


Figure 8: Offsets for WNSLR – Planting Area

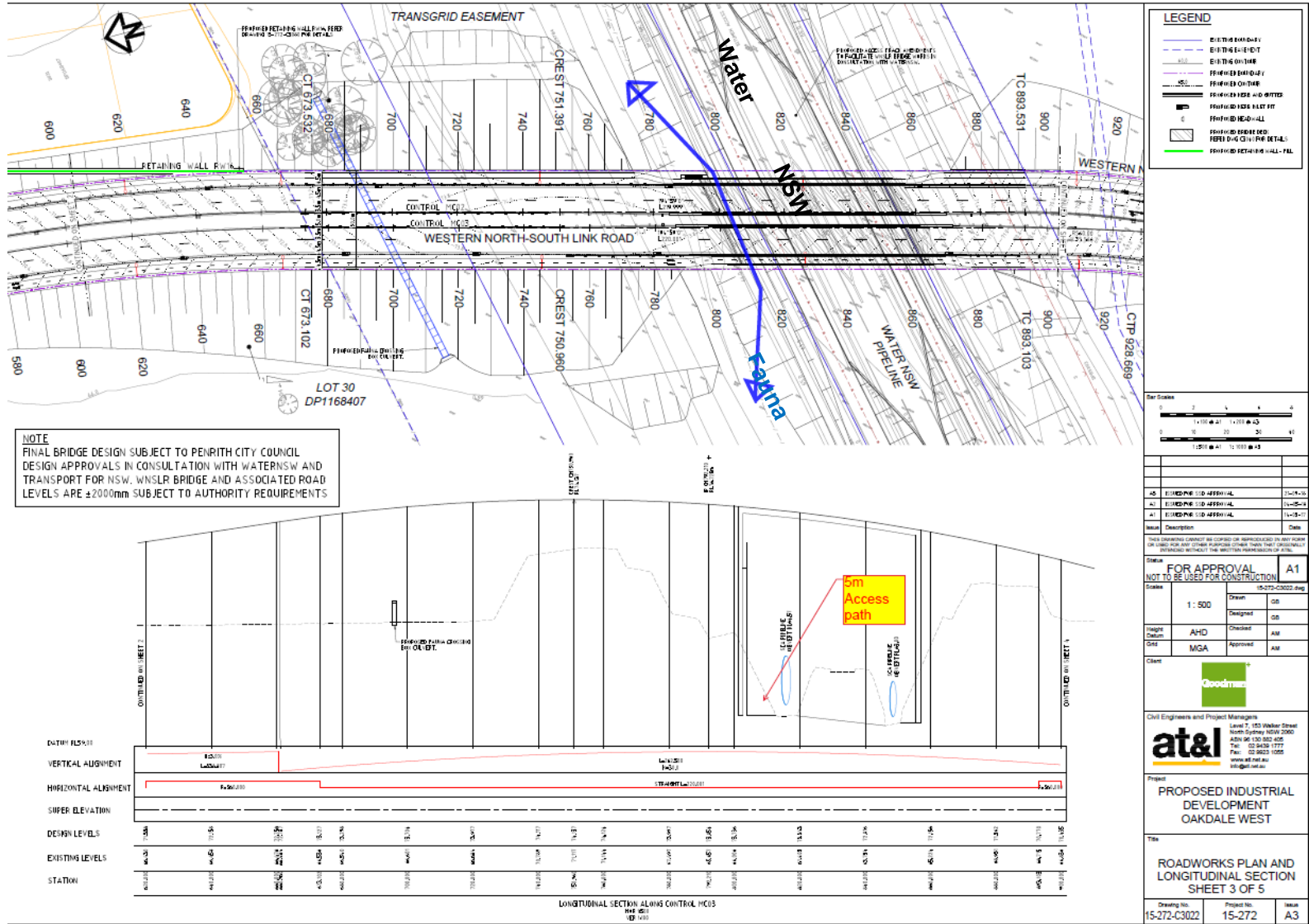


Figure 9: Fauna Passage under WNSLR



Figure 50: Offsets for Stage 1 - Biodiversity Offset Area (MOD 6)

SUMMARY OF MITIGATION MEASURES

The collective measures required to mitigate the impacts associated with the proposed works are detailed in the table below.

Table 6: Applicant's Mitigation Measures

Issue	SSDA Component	Mitigation and Management
Construction Management		
General Construction Management	Stage 1 Development	<ul style="list-style-type: none"> A CEMP to be prepared for the OWE Stage 1 Development capturing standard and specific management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
Operational Management		
General Operational Management	Concept Proposal Stage 1 Precinct Development	<ul style="list-style-type: none"> An OEMP to be prepared for the OWE capturing standard and specific operational management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
Transport		
Construction Traffic	Stage 1 Development	<ul style="list-style-type: none"> Preparation of a CTMP to form part of the CEMP addressing issues such as: <ul style="list-style-type: none"> Truck haul routes, delivery schedules and curfews; Protocols for the management of construction traffic moving onto and off the site.
Urban Design and Visual		
Site Layout and Design	Concept Proposal	<ul style="list-style-type: none"> Future development of the OWE to proceed in accordance with the approved Development Concept Proposal and DCP.
Development Controls	Concept Proposal	<ul style="list-style-type: none"> Design and development controls to be established for the OWE in the form of a DCP to guide future development on the site.
Visual Impact	Concept Proposal/Stage 1 Development	<ul style="list-style-type: none"> Design and development controls to be established for the OWE in the form of a DCP to guide future development on the site. Landscaping of key interfaces including the western boundary to minimise visual impact.
Soils and Water		
Water Usage	Stage 1 Development	<ul style="list-style-type: none"> Rainwater tanks to be provided for each development site with size determined in accordance with Penrith Council DCP requirements. Irrigation and toilet flushing for development to be plumbed to rainwater tanks. Consideration to be given to other possible rainwater reuse opportunities such as for truck washing. Measures and considerations for the minimisation of water use during construction and operation to be incorporated into CEMP and OEMP as relevant.

Issue	SSDA Component	Mitigation and Management
Soils	Stage 1 Development	<ul style="list-style-type: none"> Mitigation measures inherent to the civil design of the proposal.
Salinity	Stage 1 Development	<ul style="list-style-type: none"> Sedimentation and erosion control measures are proposed as detailed in the Civil Design and Infrastructure Package and Traffic and Transport Impact Assessment. A Salinity Management Plan has been prepared for the proposed development. Management measures described in the Salinity Management Plan to be adopted in the CEMP and OEMP as relevant.
Contamination	Stage 1 Development	<ul style="list-style-type: none"> Identified areas of potential contamination to be subject to further investigation prior to the development of affected land.
Earthworks	Stage 1 Development	<ul style="list-style-type: none"> Civil design achieves appropriate site levels with minimal impact upon hydrology. Import of fill to be managed in accordance with CEMP. Erosion and sediment controls included in the SSDA package.
Mineral Resources	Concept Proposal	<ul style="list-style-type: none"> No mitigation required provided that mining activities under the existing mining lease applying to land to the east of the site (ref. ML1636) would not be constrained by the OWE development.
Surface Water	Stage 1 Development	<ul style="list-style-type: none"> Stormwater issues addressed through design measures incorporated into proposed development. Stormwater management system designed to meet the requirements of Penrith Council's Engineering Works and WSUD guidelines and relevant NOW guidelines. Detailed on-lot stormwater for future stages of the OWE to be designed and assessed under future applications.
Groundwater	Stage 1 Development	<ul style="list-style-type: none"> Methods and management of any required dewatering required during construction works to be detailed in the CEMP.
Flooding	Stage 1 Development	<ul style="list-style-type: none"> 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. OSD designed to mitigate post-development flows to pre-development flows for peak ARI events. Finished floor levels to have minimum 500mm freeboard to 100-year overland flows. Flood impacts on TransGrid easement would be mitigated through minor compensatory earthworks on the floodplain to convey locally diverted flows. These works are detailed in the civil drawings included in the SSDA package.
Water Quality	Stage 1 Development	<ul style="list-style-type: none"> Erosion and sediment controls as detailed in SSDA package to be implemented through CEMP. Stormwater to be treated to compliant levels prior to discharge. Gross Pollutant Trap (GPT) to be installed within each development site on the final downstream stormwater pit prior to discharge.

Issue	SSDA Component	Mitigation and Management
Infrastructure		
Capacity and Upgrades	Concept Proposal	<ul style="list-style-type: none"> • WSUD measures adopted to achieve target reductions for the OWE: <ul style="list-style-type: none"> <input type="checkbox"/> 85% Total Suspended Solids <input type="checkbox"/> 60% Total Phosphorus <input type="checkbox"/> 45% Total Nitrogen <input type="checkbox"/> 90% Gross Pollutants
Delivery and Staging	Concept Proposal/Stage 1 Development	<ul style="list-style-type: none"> • Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in Section 4.0 of the EIS. • Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in Section 4.0 of the EIS. • Staging of development of the OWE would be aligned with infrastructure and services delivery.
TransGrid Easement	Concept Proposal/Stage 1 Development	<ul style="list-style-type: none"> • Further consultation would be undertaken with TransGrid in relation to potential impacts and required mitigation.
Other Environmental Issues		
Flora and Fauna	Concept Proposal Stage 1 Development	<ul style="list-style-type: none"> • Preparation of a Flora and Fauna Management Plan for the site to inform the CEMP and OEMP as relevant to manage potential impacts to biodiversity during construction and operation. • Retained areas of native vegetation, including the Ropes Creek riparian corridor, will be rehabilitated and/or restored in accordance with the Vegetation Management Plan. • Other areas of the site including road batters, embankments and bio-retention basins will be planted with native plant species and turf species as specified in the Landscape Planting Schedule. • Ongoing maintenance and management of these areas in accordance with the provisions of both the Vegetation Management Plan and Landscape Management Plan.
Waterways and Riparian Lands		<ul style="list-style-type: none"> • Restoration and ongoing management of Ropes riparian corridor to be in accordance with the Vegetation Biodiversity Management Action Plan

APPENDIX 8 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

1. A written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au 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 D135 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

Development Consent DA 22/0546

PENRITH CITY COUNCIL

NOTICE OF DETERMINATION

DESCRIPTION OF DEVELOPMENT

SWCPP Ref. No.:	PPSSWC-253
Application number:	DA22/0546
Description of development:	Construction and Operation of a Warehouse (5A & B) and Distribution Centre, Signage and Associated Landscape and Civil Works and 2 Lot Torrens Title Subdivision
Classification of development:	Class 7b , Class 5

DETAILS OF THE LAND TO BE DEVELOPED

Legal description:	Lot 111 DP 1262310
Property address:	2 Cuprum Close, KEMPS CREEK NSW 2178

DETAILS OF THE APPLICANT

Name & Address:	Goodman Property Services (Aust) Pty Ltd 1-11 Hayes Road ROSEBERY NSW 2018
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DECISION OF CONSENT AUTHORITY

In accordance with Section 2.12 and 4.18(1) (a) of the Environmental Planning and Assessment Act 1979 (as amended), consent is granted subject to the conditions implementation in attachment 1.

Please note that this consent will lapse on the expiry date unless the development has commenced in that time.

Decision:	Approve
Date from which consent operates	16 February 2023
Date the consent expires	16 February 2028
Date of this decision	15 February 2023

POINT OF CONTACT

If you have any questions regarding this determination you should contact:

Assessing Officer:	Jacqueline Klincke
Contact telephone number:	+61247328391

NOTES

Reasons

The conditions in the attached schedule have been imposed in accordance with Section 4.17 of the Environmental Planning and Assessment Act 1979 as amended.

Conditions

Your attention is drawn to the attached conditions of consent in attachment 1.

Certification and advisory notes

You should also check if this type of development requires a construction certificate in addition to this development consent.

It is recommended that you read any Advisory Note enclosed with this notice of determination.

Review of determination

The applicant may request Council to review its determination pursuant to Division 8.2 of the Environmental Planning and Assessment Act 1979 within six months of receiving this Notice of Determination.

These provisions do not apply to designated development, complying development or crown development pursuant to Section 8.2(2) of the Environmental Planning and Assessment Act 1979.

Appeals in the Land and Environment Court

The applicant can appeal against this decision in the Land and Environment Court within six months of receiving this Notice of Determination.

There is no right of appeal to a decision of the Independent Planning Commission or matters relating to a complying development certificate pursuant to clause 8.6(3) of the Environmental Planning and Assessment Act 1979.

Designated development

If the application was for designated development and a written objection was made in respect to the application, the objector can appeal against this decision to the Land and Environment Court within 56 days after the date of this notice.

If the applicant appeals against this decision, objector(s) will be given a notice of the appeal and the objector(s) can apply to the Land and Environment Court within 56 days after the date of this appeal notice to attend the appeal and make submissions at that appeal.

Sydney Western City Planning Panels

If the application was decided by the Sydney Western City Planning Panel, please refer to Section 2.16 of the Environmental Planning and Assessment Act, 1979 (as amended) for any further regulations.

ATTACHMENT 1: CONDITIONS OF CONSENT

General

- 1 The development must be implemented substantially in accordance the following stamped approved plans and supporting information received with the application, except as may be amended in red or by the following conditions within this consent:-

Plan No.	Plan Title	Prepared By	Revision	Date
Architectural Plans				
DA00	Cover Sheet	SBA Architects	B	27/10/22
DA05	Perspectives	SBA Architects	B	27/10/22
DA10	Site & Warehouse Plan	SBA Architects	Q	10/11/22
DA31	Roof Plan	SBA Architects	B	27/10/22
DA32	Office 5A & Gate House 01 Floor Plans	SBA Architects	D	10/11/22
DA33	Office Floor Plans - 5B	SBA Architects	B	27/10/22
DA36	Elevations - Warehouse 5A	SBA Architects	B	27/10/22
DA37	Elevations - Warehouse 5B	SBA Architects	B	27/10/22
DA38	Office Elevations - 5A	SBA Architects	C	28/10/22
DA39	Office Elevations 5B	SBA Architects	B	27/10/22
DA40	5A Dock Office & Gatehouse Floor Plan / Elevation	SBA Architects	B	27/10/22
DA50	Signage Plan	SBA Architects	F	27/10/22
Civil Plans				
C7700	Cover Sheet	AT&L	A	4/11/22
C7701	General Notes	AT&L	A	4/11/22
C7705	General Arrangement Plan	AT&L	A	4/11/22
C7710	Typical Sections Sheet 1	AT&L	A	4/11/22
C7711	Typical Sections Sheet 2	AT&L	A	4/11/22
C7712	Typical Sections Sheet 3	AT&L	A	4/11/22
C7715	Bulk Earthworks Plan	AT&L	A	4/11/22
C7720	Siteworks and Stormwater Drainage Plan Sheet 1	AT&L	B	9/12/22
C7721	Siteworks and Stormwater Drainage Plan Sheet 2	AT&L	A	4/11/22
C7722	Siteworks and Stormwater Drainage Plan Sheet 3	AT&L	A	4/11/22

C7723	Siteworks and Stormwater Drainage Plan Sheet 4	AT&L	A	4/11/22
C7724	Siteworks and Stormwater Drainage Plan Sheet 5	AT&L	A	4/11/22
C7730	Pavement Plan	AT&L	A	4/11/22
C7734	Retaining Wall General Arrangement Plan	AT&L	A	4/11/22
C7735	Retaining Wall Profiles Sheet 1	AT&L	A	4/11/22
C7736	Retaining Wall Profiles Sheet 2	AT&L	A	4/11/22
C7740	Erosion and Sediment Control Plan	AT&L	A	4/11/22
C7741	Erosion and Sediment Details	AT&L	A	4/11/22
Landscape Plans				
00	Cover Sheet	scape design	C	8/11/22
01	Landscape Sketch Plan	scape design	C	8/11/22
02	Planting Plan	scape design	C	8/11/22
03	Planting Schedule	scape design	C	8/11/22
04	Character & Materials	scape design	C	8/11/22
105	Landscape - Detailed Plan & Notes	scape design	C	8/11/22
200	Carpark Design	scape design	C	8/11/22
201	Landscape Sections	scape design	C	8/11/22

- Waste Management Plan, prepared by SLR Consulting, version 6, dated 28 October 2022
- BCA Assessment Report, prepared by Blackett Maguare + Goldsmith, dated 31/10/22
- Noise & Vibration Assessment, prepared by RWDI, version D, dated 2/11/22
- Air Quality Report, prepared by SLR Consulting, dated 30/5/22
- Biodiversity Impact Assessment, prepared by ecologique, dated 27/5/22
- Fire Safety Strategy, prepared by Core Engineering Group, dated 28/10/22
- Bushfire Risk Assessment, prepared by BlackAsh Bushfire Consulting, version 1.2, dated 27/10/22
- Transport Assessment, prepared by ason group, issue III, dated 2/11/22
- Sustainability Management Plan, prepared by SLR Consulting, dated May 2022
- Civil Report, prepared by at&l, dated November 2022

2 The development is required to comply with the conditions and requirements outlined within the approval letter received from Transgrid, dated 19 August 2022.

3 The development shall not be used or occupied until an Occupation Certificate has been issued.

4 The approved operating hours for Warehouse 5A is 24 hours, 7 days a week.

The approved operating hours for Warehouse 5B is 24 hours, 7 days a week.

- 5 The approved use of each tenancy is for Warehouse or Distribution Facilities. No approval is granted for the use of the site as a hazardous or offensive storage establishment or a hazardous or offensive industry, as defined under State Environmental Planning Policy (Resilience and Hazards) 2021.
- 6 **Prior to the issue of an Occupation Certificate**, a lighting system shall be installed for the development to provide uniform lighting across common areas and driveways. Exterior lighting shall be located and directed in such a manner so as not to create a nuisance to surrounding landuses. The lighting shall be the minimum level of illumination necessary for safe operation. The lighting shall be in accordance with AS 4282 "Control of the obtrusive effects of outdoor lighting" (1997).
- 7 The finishes of all structures and buildings are to be maintained at all times and any graffiti or vandalism immediately removed/repaired.
- 8 A **Construction Certificate** shall be obtained prior to commencement of any building works.
- 9 The approved development, the subject of this development consent, is not to contravene the State Significant Development consent 7348 (as modified) or the relevant Planning Agreement. The onus is on the landowner and proponent to ensure that the SSD 7348 (as modified) conditions and Planning Agreement obligations are met.
- 10 **Prior to the issue of an Construction Certificate**, detailed signage plans shall be provided to Penrith City Council for approval. The signage plans shall detail the business identification signage (i.e. tenant signage) and wayfinding pylon signs which is indicative at this stage.
- 11 The installation of the approved signage shall be carried out strictly in accordance with the manufacturer's specifications. Any wiring or installation fixtures associated with the signage or internal illumination shall be contained wholly within the body of the signage and not be visible from the public domain.
- 12 **Prior to the issue of a Construction Certificate**, the relevant construction certificate plans shall demonstrate the installation of a minimum 800 kW solar panel system.

The system shall be operational within 12 months of the issue of any Occupation Certificate.

Written confirmation shall be submitted to the Manager of Development Services at Penrith City Council once the system is installed and operation.

Environmental Matters

- 13 Dust suppression techniques are to be employed during all works to reduce any potential nuisances to surrounding properties.
- 14 Mud and soil from vehicular movements to and from the site must not be deposited on the road.
- 15 No fill material is to be imported to the site without the prior approval of Penrith City Council. No recycling of material for use as fill material shall be carried out on the site without the prior approval of Council.
- 16 An appropriately qualified person/s shall:
- Supervise all filling works.
 - (On completion of filling works) carry out an independent review of all documentation relating to the filling of the site, and submit a review findings report to Council and any Principal Certifying Authority. All fill material documentation is to (at minimum)
 - be prepared by an appropriately qualified person with consideration of all relevant guidelines, standards, planning instruments and legislation (e.g. EPA, NEPM, ANZECC, NH&MRC),
 - clearly state the legal property description of the fill material source site and the total amount of fill tested,
 - provide details of the volume of fill material to be used in the filling operations,
 - provide a classification of the fill material to be imported to the site in accordance with the NSW Environment Protection Authority's "Waste Classification Guidelines" 2014, and
 - (based on the fill classification) determine whether the fill material is suitable for its intended purpose and land use and whether the fill material will or will not pose an unacceptable risk to human health or the environment.
 - Certify by way of a Compliance Certificate or other written documentation that fill materials have been placed on the site in accordance with all conditions of this consent and that the site will not pose an unacceptable risk to human health or the environment. A copy of the Compliance Certificate or other documentation shall be submitted to Council and any Principal Certifying Authority.

The contact details of any appropriately qualified person/s engaged for the works shall be provided with the Notice of Commencement.

If the Principal Certifying Authority or Penrith City Council is not satisfied that suitable fill materials have been used on the site, further site investigations or remediation works may be requested. In these circumstances the works shall be carried out prior to any further approved works.

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

- 17 Where a building is to take place on any land that is to be filled, such filling is to be compacted in accordance with AS3798-1996. Certification is to be submitted to the Principal Certifying Authority by a Geotechnical Engineer verifying that the work has been undertaken prior to the commencement of the construction of any building.

If Penrith City Council is not the Principal Certifying Authority, a copy of the certification is to be submitted to Council for their reference.

- 18 All *construction* waste materials stored on-site are to be contained within a designated area such as a waste bay or bin to ensure that no waste materials are allowed to enter the stormwater system or neighbouring properties. The designated waste storage areas are to be fully enclosed when the site is unattended.

- 19 Waste materials associated with the construction phase of the development are to be classified and disposed of at a lawful waste facility, or, if suitable, re-used or recycled in accordance with the approved Waste Management Plan.

All receipts and supporting documentation must be retained in order to verify lawful disposal of materials and are to be made available to Penrith City Council on request

- 20 Noise levels from the premises (including all associated plant and equipment) shall not exceed the relevant noise criteria detailed in the Noise and Vibration Assessment prepared by Wilkinson Murray and dated 28 April 2022 (RWDI # 2102730), and consent SSD-7348-MOD-11. A certificate is to be obtained from a qualified acoustic consultant certifying that the buildings 5A and 5B, (including all associated mechanical plant and ventilation) have been constructed to meet the noise criteria. This certificate is to be submitted to the Principal Certifying Authority **prior to the issue of an Occupation Certificate**.

The provisions of the Protection of the Environment Operations Act 1997 apply to the development, in terms of regulating offensive noise.

- 21 Prior to the issue of the Construction Certificate, a Construction Environmental Management Plan (CEMP) is to be prepared by a suitably experienced / qualified person and submitted to Penrith City Council. The CEMP is to address the environmental aspects of the construction phase of the development and is to include details on the environmental management practices and controls to be implemented on the site.

All construction activities on the site are to be implemented and carried out in accordance with the CEMP.

BCA Issues

- 22 Access and sanitary facilities for persons with disabilities are to be provided and maintained in accordance with the requirements of the Building Code of Australia and AS 1428 "Design for Access and Mobility". Details of compliance are to be provided in the relevant plans and specifications accompanying the Construction Certificate application.

23 All aspects of the building design shall comply with the applicable performance requirements of the Building Code of Australia so as to achieve and maintain acceptable standards of structural sufficiency, safety (including fire safety), health and amenity for the on-going benefit of the community. Compliance with the performance requirements can only be achieved by:

(a) complying with the deemed to satisfy provisions, or

(b) formulating an alternative solution which:

- complies with the performance requirements, or
- is shown to be at least equivalent to the deemed to satisfy provision, or

(c) a combination of (a) and (b).

It is the owner's responsibility to place on display, in a prominent position within the building at all times, a copy of the latest fire safety schedule and fire safety certificate/ statement for the building.

Health Matters and OSSM installations

24 Any rainwater tank(s) must be maintained so as not to create a nuisance and it must be protected against mosquito infestation.

Utility Services

25 A Section 73 Compliance Certificate under the Sydney Water Act 1994 shall be obtained from Sydney Water. The application must be made through an authorised Water Servicing Coordinator. Please refer to "Your Business" section of Sydney Water's website at www.sydneywater.com.au then the "e-developer" icon, or telephone 13 20 92.

The Section 73 Compliance Certificate must be submitted to the Principal Certifying Authority prior to the issue of a Subdivision Certificate.

26 **Prior to the issue of a Construction Certificate**, a written clearance is to be obtained from Endeavour Energy stating that electrical services have been made available to the development or that arrangements have been entered into for the provision of services to the development.

In the event that a pad mounted substation is necessary to service the development, Penrith City Council shall be consulted over the proposed location of the substation before the Construction Certificate for the development is issued as the location of the substation may impact on other services and building, driveway or landscape design already approved by Council.

27 **Prior to the issue of a Construction Certificate**, the Principal Certifying Authority shall be satisfied that telecommunications infrastructure may be installed to service the premises which complies with the following:

- The requirements of the Telecommunications Act 1997:
- For a fibre ready facility, the NBN Co's standard specifications current at the time of installation; and
- For a line that is to connect a lot to telecommunications infrastructure external to the premises, the line shall be located underground.

Unless otherwise stipulated by telecommunications legislation at the time of construction, the development must be provided with all necessary pits and pipes, and conduits to accommodate the future connection of optic fibre technology telecommunications.

Prior to the issue of an Occupation Certificate, written certification from all relevant service providers that the telecommunications infrastructure is installed in accordance with the requirements above and the applicable legislation at the time of construction, must be submitted to the Principal Certifying Authority.

Construction

28 Stamped plans, specifications, a copy of the development consent, the Construction Certificate and any other Certificates to be relied upon shall be available on site at all times during construction.

The following details are to be displayed in a maximum of 2 signs to be erected on the site:

- the name of the Principal Certifying Authority, their address and telephone number,
- the name of the person in charge of the work site and telephone number at which that person may be contacted during work hours,
- that unauthorised entry to the work site is prohibited,
- the designated waste storage area must be covered when the site is unattended, and
- all sediment and erosion control measures shall be fully maintained until completion of the construction phase.

Signage but no more than 2 signs stating the above details are to be erected:

- at the commencement of, and for the full length of the, construction works onsite, and
- in a prominent position on the work site and in a manner that can be easily read by pedestrian traffic.

All construction signage is to be removed when the Occupation Certificate has been issued for the development.

29 Prior to the commencement of construction works:

(a) Toilet facilities at or in the vicinity of the work site shall be provided at the rate of one toilet for every 20 persons or part of 20 persons employed at the site. Each toilet provided must be:

- a standard flushing toilet connected to a public sewer, or
- if that is not practicable, an accredited sewage management facility approved by the council, or
- alternatively, any other sewage management facility approved by council.

(b) All excavations and back filling associated with the erection or demolition of a building must be executed safely and in accordance with the appropriate professional standards. All excavations associated with the erection or demolition of a building must be properly guarded and protected to prevent them from being dangerous to life or property.

(c) If an excavation associated with the erection or demolition of a building extends below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation to be made:

- must preserve and protect the building from damage, and
- if necessary, must underpin and support the building in an approved manner, and
- must, at least 7 days before excavating below the level of the base of the footings of a building on an adjoining allotment of land, give notice of intention to do so to the owner of the adjoining allotment of land and furnish particulars of the excavation to the owner of the building being erected or demolished. The owner of the adjoining allotment of land is not liable for any part of the cost of work carried out for the purposes of this condition, whether carried out on the allotment of land being excavated or on the adjoining allotment of land, (includes a public road and any other public place).

(d) If the work involved in the erection or demolition of a building is likely to cause pedestrian or vehicular traffic in a public place to be obstructed or rendered inconvenient, or involves the enclosure of a public place, a hoarding or fence must be erected between the work site and the public place:

- if necessary, an awning is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place,
- the work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in the public place, and
- any such hoarding, fence or awning is to be removed when the work has been completed.

30 Any rainwater tank(s) is to be:

- erected on a self-supporting base in the approved location on the property in accordance with the stamped-approved site plans for the development,
- structurally sound and constructed in accordance with AS/NZS 3500 1.2- 1998: National Plumbing and Drainage - Water Supply - Acceptable Solutions,
- fully enclosed and all openings sealed to prevent access by mosquitoes,
- fitted with a first flush device,
- fitted with a trickle system to top up from mains water,
- provided with an air gap, and
- installed by a licensed plumber in accordance with Sydney Water's "Plumbing requirements Information for rainwater tank suppliers and plumbers April 2003" and the NSW Code of Practice: Plumbing and Drainage.

Additionally, the following are to be provided:

- A back flow prevention device shall be provided at the water meter in accordance with Sydney Water

requirements.

- In the event of a power failure, a back up supply of mains water shall be provided to at least one toilet in the dwelling.
- The rainwater tank(s) and associated piping is to be labelled 'Rainwater - Not for Drinking' in accordance with Sydney Water requirements.
- The rainwater tank and pipework is to be painted in colours matching the external finishes of the dwelling and is to be of non-reflective finish.
- The overflow for the rainwater tank is to be connected into the existing stormwater disposal system on the site.

31 Before any rainwater tank(s) can be used, a certificate or suitable document is to be submitted to the Principal Certifying Authority stating that the rainwater tank has been installed in accordance with:

- the Manufacturer's Specifications, and
- Sydney Water and NSW Health requirements.

This certificate or documentation is to be provided by the licensed plumber who installed the rainwater tank on the property, and is to be submitted **prior to the issue of the Occupation Certificate**.

32 The catchment area (for any rainwater tank) includes the parts of the roof of the dwelling(s) from which water is collected and includes gutters. To ensure a safe supply of water:

- roof catchment areas must be kept clear of overhanging vegetation,
- gutters must have sufficient fall to downpipes to prevent pooling of water,
- overflow, discharge from bleed off pipes from roof mounted appliances such as airconditioners, hot water services and solar heaters must not discharge into the rainwater catchment area,
- for roofs containing lead based, tar based or asbestos material the tank supply must not be connected to drinking, bathing and gardening tap water outlets,
- appropriate measures must be installed to prevent foreign materials from contaminating the water which enters the rainwater tank.

33 Any rainwater tank supply must not be connected to drinking and bathing water tap outlets.

34 Any rainwater tank pump must not exceed 5dBA above ambient background noise level at the nearest residential property boundary. The provisions of the Protection of the Environment Operations Act 1997 apply to the development, in terms of regulating offensive noise.

35 Construction works or subdivision works that are carried out in accordance with approved consent that involve the use of heavy vehicles, heavy machinery and other equipment likely to cause offence to adjoining properties shall be restricted to the following hours in accordance with the NSW Environment Protection Authority Noise Control Guidelines:

- Mondays to Fridays, 7am to 6pm
- Saturdays, 7am to 1pm (if inaudible on neighbouring residential premises), otherwise 8am to 1pm
- No work is permitted on Sundays and Public Holidays.

Other construction works carried out inside a building/tenancy and do not involve the use of equipment that emits noise are not restricted to the construction hours stated above.

The provisions of the Protection of the Environment Operations Act 1997 in regulating offensive noise also apply to all construction works.

Engineering

- 36 An Infrastructure Restoration Bond is to be lodged with Penrith City Council for development involving works around Penrith City Council's Public Infrastructure Assets. The bond is to be lodged with Penrith City Council **prior to commencement of any works on site or prior to the issue of any Construction Certificate**, whichever occurs first. The bond and applicable fees are in accordance with Council's adopted Fees and Charges.

An application form together with an information sheet and conditions are available on Council's website.

Contact Penrith City Council's Asset Management Department on 4732 7777 or visit Penrith City Council's website for more information.

37 **Prior to the issue of any Construction Certificate**, a Section 138 Roads Act application, including payment of application and inspection fees together with any applicable bonds, shall be lodged with and approved by Penrith City Council (being the Roads Authority for any works required in a public road). These works may include but are not limited to the following:

- a) Vehicular crossings (including kerb reinstatement of redundant vehicular crossings)
- b) Concrete footpaths and or cycleways
- c) Road opening for utilities and stormwater (including stormwater connection to Penrith City Council roads and other Penrith City Council owned drainage)
- d) Road occupancy or road closures (including temporary construction work zones and tower crane operation)
- e) The placement of hoardings, structures, containers, waste skips, signs etc in the road reserve
- f) Temporary construction access
- g) Temporary ground anchors (for basement construction)

All works shall be carried out in accordance with the Roads Act approval, the development consent, including the stamped approved plans, and Penrith City Council's specifications, guidelines and best engineering practice.

Contact Penrith City Council's Asset Management Department on 4732 7777 or visit Penrith City Council's website for more information.

Note:

- Where Penrith City Council is the Certifier for the development, the Roads Act approval for the above works may be issued concurrently with the Construction Certificate or Subdivision Works Certificate.
- Separate approval may be required from Transport for NSW for classified roads.
- All works associated with the Roads Act approval must be completed prior to the issue of any Occupation Certificate or Subdivision Certificate as applicable.
- On completion of any awning over the road reserve, a certificate from a practising structural engineer certifying the structural adequacy of the awning is to be submitted to Council before Council will inspect the works and issue its final approval under the Roads Act.

38 The stormwater management system shall be consistent with the plan/s lodged for development approval, prepared by AT&L, reference number 15-272-C7700 to C7741, revision A, dated 4/11/22 [excluding C7720], and C7720, revision B, dated 9/12/22.

Prior to the issue of any Construction Certificate, the Certifier shall ensure that the stormwater management system has been designed in accordance with Penrith City Council's Stormwater Drainage Specification for Building Developments and Water Sensitive Urban Design (WSUD) Policy.

Engineering plans and supporting calculations for the stormwater management system are to be prepared by a suitably qualified person and shall accompany the application for a Construction Certificate.

39 **Prior to the issue of any Construction Certificate**, the Certifier shall ensure that vehicular access, circulation, manoeuvring, pedestrian and parking areas associated with the subject development are in accordance with AS2890.1, AS2890.2 and AS2890.6.

40 **Prior to the issue of any Construction Certificate**, the Certifier shall ensure that vehicular crossings are perpendicular to the kerb or have the sides equally angled outwards from the property boundary in accordance with the requirements of Council's Driveway Specification, except where necessitated by heavy vehicle turning paths.

41 **Prior to the commencement of any works on-site (including demolition works) or prior to the issue of any Construction Certificate**, whichever occurs first, a Construction Traffic Management Plan (CTMP) shall be submitted to Penrith City Council's Asset Management Department for endorsement. The CTMP shall be prepared by a suitably qualified consultant with appropriate training and certification from Transport for NSW. The CTMP shall include details of any required road closures, work zones, loading zones and the like. Approval of the CTMP may require approval of the Local Traffic Committee. Please contact Council's City Asset Management Department on 4732 7777 and refer to Council's website for a copy of the Temporary Road Reserve Occupancy Application Form.

42 **Prior to commencement of works** sediment and erosion control measures shall be installed in accordance with the approved Construction Certificate and to ensure compliance with the Protection of the Environment Operations Act 1997.

The erosion and sediment control measures shall remain in place and be maintained until all disturbed areas have been rehabilitated and stabilised.

43 **Prior to the issue of any Occupation Certificate**, the Principal Certifier shall ensure that all works associated with a S138 Roads Act approval or S68 Local Government Act approval have been inspected and signed off by Penrith City Council.

44 **Prior to the issue of an Occupation Certificate**, works-as-executed drawings, final operation and maintenance management plans and any other compliance documentation shall be submitted to the Principal Certifying Authority in accordance with Penrith City Council's Engineering Construction Specification for Civil Works, WSUD Technical Guidelines and Stormwater Drainage for Building Developments.

An original set of works-as-executed drawings and copies of the final operation and maintenance management plans and compliance documentation shall also be submitted to Penrith City Council with notification of the issue of the Occupation Certificate where Council is not the Principal Certifying Authority.

45 **Prior to the issue of any Occupation Certificate**, the Principal Certifying Authority shall ensure that the stormwater management system (including water sensitive urban design measures):

- Have been satisfactorily completed in accordance with the approved Construction Certificate and the requirements of this consent.
- Have met the design intent with regard to any construction variations to the approved design.
- Any remedial works required to be undertaken have been satisfactorily completed.

Details of the approved and constructed system/s shall be provided as part of the works-as-executed drawings.

- 46 **Prior to the issue of an Occupation Certificate** a restriction as to user and positive covenant relating to the stormwater management systems (including water sensitive urban design measures) shall be registered on the title of the property. The restriction as to user and positive covenant shall be in Penrith City Council's standard wording as detailed in Penrith City Council's Stormwater Drainage Specification for Building Development – Appendix F.
- 47 The stormwater management systems shall continue to be operated and maintained in perpetuity to the satisfaction of Council in accordance with the final operation and maintenance management plan. Regular inspection records are required to be maintained and made available to Council upon request. All necessary improvements are required to be made immediately upon awareness of any deficiencies in the treatment measure/s
- 48 The required sight lines around the driveway entrances and exits shall not be compromised by street trees, landscaping or fencing.
- 49 Sight distance requirements at verges, footpaths and driveways shall be in accordance with AS 2890.2 Figure 3.3 and Figure 3.4.
- 50 All vehicles shall enter and leave to site in a forward direction.

Landscaping

- 51 All landscape works are to be constructed in accordance with the stamped approved plans.

Landscaping shall be maintained:

- in accordance with the approved plan, and
- in a healthy state, and in perpetuity by the existing or future owners and occupiers of the property.

If any of the vegetation comprising that landscaping dies or is removed, it is to be replaced with vegetation of the same species and, to the greatest extent practicable, the same maturity as the vegetation which died or was removed.

- 52 Upon completion of the landscape works associated with the development and **prior to the issue of an Occupation Certificate** for the development, an Implementation Report must be submitted to the Principal Certifying Authority attesting to the satisfactory completion of the landscaping works for the development. The report is to be prepared by a suitably qualified and experienced landscape professional.

An Occupation Certificate should not be issued until such time as a satisfactory Implementation Report has been received. If Penrith City Council is not the Principal Certifying Authority, a copy of the satisfactory Implementation Report is to be submitted to Council together with the Occupation Certificate for the development.

- 53 All landscape works are to meet industry best practice and the following relevant Australian Standards:
- AS 4419 Soils for Landscaping and Garden Use,
 - AS 4454 Composts, Soil Conditioners and Mulches, and
 - AS 4373 Pruning of Amenity Trees.
- 54 No trees are to be removed from within the development without the prior consent of Penrith City Council. Any trees to be removed as part of the engineering work are to be shown on engineering plans submitted for Council's consideration and subsequent approval.
- 55 All required fencing and retaining walls shall be at the full cost of the property owner/developer. The materials and colours of any new fencing or retaining walls shall match or complement the external materials of the development. Retaining walls are to be of masonry construction.
- 56 **Prior to the issue of a Construction Certificate**, the Development Application Landscape Drawing Set (*Landscape Sketch Plan – Lot 5A & 5B*) Revision B' prepared by Scape Design Landscape Architecture dated 10 May 2022) shall be amended to include the species proposed for the areas numbered 13 'Revegetation and tree planting to lot perimeter to mitigate long-range views.

The species proposed are to be native species characteristic of Cumberland Plain Woodland or River-flat Eucalypt Forest. Requirements to manage this area as an Asset Protection Zone will need to be considered in respect to shrub and tree planting densities.

The amended Landscape Plan is to be submitted to Penrith City Council's Development Services Manager for review and approval.

- 57 **Prior to issue of a Construction Certificate** all land identified as '13 Revegetation and tree planting to lot perimeter to mitigate long-range view' shown on the amended Landscape Plans (as required by Condition 56) shall be revegetated and planted out with irrigation installed.

Evidence to demonstrate compliance with this task is to be provided by the author of the Landscape Plan or company undertaking the revegetation works is to be submitted to Penrith Councils Environmental Health Team for review and approval.

An inspection of the works may be required by relevant Council's officer(s) to ensure this condition has been satisfied.

Section 94

- 58 This condition is imposed in accordance with Penrith City Council's Section 7.12 Contributions Plan. Based on the identified cost of the development, a contribution of **\$404,248.00 is to be paid to Council prior to a Construction Certificate** being issued for this development. Council should be contacted prior to payment to verify the contribution payable. The Section 7.12 Contributions Plan is available on Council's website.

Certification

59 Prior to the commencement of any earthworks or construction works on site, the proponent is to:

- (a) employ a Principal Certifying Authority to oversee that the said works carried out on the site are in accordance with the development consent and related Construction Certificate issued for the approved development, and with the relevant provisions of the Environmental Planning and Assessment Act and accompanying Regulation, and
- (b) submit a Notice of Commencement to Penrith City Council.

The Principal Certifier shall submit to Council an "Appointment of Principal Certifying Authority" in accordance with Section 81A of the Environmental Planning and Assessment Act 1979.

Information to accompany the Notice of Commencement

Two (2) days before any earthworks or construction/demolition works are to commence on site (including the clearing site vegetation), the proponent shall submit a "Notice of Commencement" to Council in accordance with Section 81A of the Environmental Planning and Assessment Act 1979.

60 An Occupation Certificate is to be obtained from the Principal Certifying Authority on completion of all works and prior to the occupation/use of the development.

The Certificate shall not be issued if any conditions of this consent, but not the conditions relating to the operation of the development, are outstanding.

A copy of the Occupation Certificate and all necessary documentation supporting the issue of the Certificate is to be submitted to Penrith City Council, if Council is not the Principal Certifying Authority.

SIGNATURE

Name:	Jacqueline Klincke
Signature:	

For the Development Services Manager

APPENDIX C

Consultation

Jasmine Wong

From: Kathryn Saunders <kathryn.saunders@penrith.city>
Sent: Thursday, 22 December 2022 11:31 AM
To: Mack Bowman
Cc: Jacqueline Klincke
Subject: Council Review Comments - P-424641-K9V3- Lot 5A & Lot 5B - Construction Traffic Management Plan (CTMP) - Oakdale West Estate, Kemps Creek
Attachments: P1959r04v01 DA CTMP_Lot 5A & 5B, Oakdale West Industrial Estate.pdf

Hi Mack, Please see below traffic comments in relation to Precinct 5 CTMP. Should Council's Assets team provide advice, this will be forwarded in a separate email. Thank you.

Regards,

Kathryn Saunders
Principal Planner

E kathryn.saunders@penrith.city
T +61247328567 | F | M
PO Box 60, PENRITH NSW 2751
www.visitpenrith.com.au
www.penrithcity.nsw.gov.au

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CITY COUNCIL**

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From: Phil Saverimuttu <Phil.Saverimuttu@penrith.city>
Sent: Thursday, December 22, 2022 10:15 AM
To: Kathryn Saunders <kathryn.saunders@penrith.city>
Cc: Jacqueline Klincke <jacqueline.klincke@penrith.city>
Subject: P-424641-K9V3- Lot 5A & Lot 5B - Construction Traffic Management Plan (CTMP) - Oakdale West Estate, Kemps Creek

Hi Kathryn

I have reviewed the Construction Traffic Management Plan submitted for Lots 5A & 5B, Kemps Creek.

The following comments are provided:

- Approval to be obtained from Council's City Assets for special permits.
- Vehicles should not use Bakers Lane to access the site.
- Traffic Guidance Scheme (TCS) shall maintain a suitable level of access past work areas for pedestrians and cyclists at all times.
- Regular engagement to be undertaken with Transport for NSW in regard to construction access requirements due to Southern Link Road.
- Material loading and unloading shall occur within the construction site boundary.

- An application shall be submitted to Council for any activities that will require use of kerbside parking for the purpose of a Works Zone.
- Traffic Guidance Scheme shall be updated by “Prepare a Work Zone Traffic Management Plan” card holder to ensure they remain consistent with the set-up on-site.
- Effectiveness of the CTMP shall be monitored by the contractor.
- The delivery of oversized plant or structure that require special arrangements to transport along public roads will require approval from National Heavy Vehicle Regulator (NHVR) and Council.
- Temporary traffic control measures on public road/road related area under the care and control of Penrith City Council will require obtaining Road Occupancy Permit (ROP) from the Council. Any excavation and/or road opening works on public road/road related area will require obtaining a Road Opening Permit from Council.

I hope this information helps.

Should you have any queries, please let me know.

Regards

Phil Saverimuttu
Senior Traffic Engineer

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APPENDIX D

Environmental Policy

1.4 Environmental Policy

To achieve this, Qanstruct will:

- a) Ensure as far as possible that all materials and plant are used and applied in an environmentally friendly manner according to manufacturers' specification.
- b) Provide all employees with appropriate training in sound environmental practices in handling of materials and the application of materials in all areas.
- c) Reduce waste as much as possible, and dispose of all waste according to regulatory laws and regulations, and in a responsible manner.
- d) Induct all new employees to Environmental legislation, applicable standards and Company procedures regarding the use and disposal of waste.
- e) Investigate all environmental accidents and take remedial measures and preventive actions to minimise the risk of occurrence.
- f) Comply with all relevant Environmental legislation and applicable standards; and other requirements.
- g) Conduct an environmental monitoring program to ensure adherence to Company and regulatory requirements.
- h) Involve and consult employees and contractors on all Environmental matters with the view to continuously improving Qanstruct's performance.
- i) Maintain an effective Environmental Management System certified to ISO 14001:2015.

Qanstruct's Commitment

Qanstruct is committed to conducting business in an environmentally responsible way, aimed at prevention of pollution to air, ground and water.

Mark Ruff / DIRECTOR

Date July 2022



APPENDIX E

Relevant Conditions of Consent

Table 1 SSD 7348 Relevant Conditions

SSD 7348 CEMP Consent Condition	Section Addressed
Schedule B – Conditions For The Concept Proposal	
FUTURE DEVELOPMENT APPLICATIONS	
B1. In accordance with section 4.22 of the EP&A Act, each Stage of the Concept Proposal (excluding Stage 1) is to be subject to future development applications (DAs). Future DAs are to be consistent with this development consent.	DA 22/0546
B2. To avoid any doubt, this Concept Proposal consent does not permit the construction or operation of any Development, except for the Stage 1 DA covered by Schedule D.	DA 22/0546
B3. This Concept Proposal consent does not approve the building layouts shown on Lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A on Figure 1 in Appendix 1. The location of the buildings on these lots must be assessed by separate DAs, and must satisfy the interface requirements of Conditions C3 and C4.	DA 22/0546
STATUTORY REQUIREMENTS	
B4. The Applicant shall ensure that all licences, permits, and approvals/consents are obtained as required by law and maintained as required throughout the life of the Concept Proposal. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals/consents.	Section 3.3.3
TERMS OF CONSENT	
B5. The Applicant shall carry out the Concept Proposal in accordance with the: (a) EIS and RTS; (b) the plans in Appendix 1 and Appendix 2; (c) SSD 7348 MOD 1; (d) the Applicant’s Management and Mitigation Measures in Appendix 7; and (e) modifications to this consent.	Noted
B6. If there is any inconsistency between the plans and documents referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.	Noted
B7. The Applicant shall comply with any reasonable requirement(s) of the Planning Secretary arising from the Department’s assessment of: any reports, plans or correspondence that are submitted in accordance with this consent; and the implementation of any actions or measures contained within these reports, plans or correspondence.	Noted
LIMITS OF CONSENT	
B8. This consent lapses five (5) years after the date from which it operates, unless any Stage of the Development has physically commenced on the land to which the consent applies before that date.	Noted
B9. The following limits apply to the Concept Proposal: (a) the maximum GLA for the land uses in the Development shall not exceed the limits in Table 1 (of SSD 7348);	Section 3.3

SSD 7348 CEMP Consent Condition		Section Addressed														
<p>(b) a minimum 60 metre (m) wide corridor along the northern Site boundary shall not be developed and shall be maintained and preserved for the future WSFL corridor, in accordance with the requirements of TfNSW;</p> <p>(c) the building layouts and footprints shown on Lots 3A, 3B, 3C and 4A on Figure 1 in Appendix 1, are not approved. The position, layouts and footprints of the buildings on these lots must be assessed by separate DAs, and must satisfy the interface requirements of Conditions C3 and C4;</p> <p>(d) any rooftop mechanical plant on buildings on Lots 2C, 2D, 3A, 3B, 4A, 4B and 4E are not to be operated during the night-time period;</p> <p>(e) forklifts are not to operate during the night-time period on Lots 2C, 2D, 3B, 4A, 4E and; and</p> <p>(c) all traffic associate with operation of the Development shall use the West North South Link Road, and the future SLR, to access the site and shall not use Bakers Lane or Aldington Road.</p> <p>Table 1: GLA Maximum for Concept Proposal</p> <table border="1"> <thead> <tr> <th>Land Use</th> <th>Maximum GLA square metres (m²)</th> </tr> </thead> <tbody> <tr> <td>Total Warehousing</td> <td>529,625</td> </tr> <tr> <td>Total Office</td> <td>22,720</td> </tr> <tr> <td>Oter</td> <td>4,429</td> </tr> <tr> <td>Total GLA</td> <td>556,824</td> </tr> </tbody> </table> <p><i>Note: Other includes but is not limited to the skybridge, gatehouse, dangerous goods store and energy complex in Building 1A.</i></p>		Land Use	Maximum GLA square metres (m ²)	Total Warehousing	529,625	Total Office	22,720	Oter	4,429	Total GLA	556,824					
Land Use	Maximum GLA square metres (m ²)															
Total Warehousing	529,625															
Total Office	22,720															
Oter	4,429															
Total GLA	556,824															
STAGING PLAN																
<p>B16. The Applicant must:</p> <p>(a) not commence construction of any stage of the Development until the Staging Plan required by Condition B15 is approved by the Planning Secretary;</p> <p>(b) implement the most recent version of the Staging Plan approved by the Planning Secretary.</p>		Figure 2 Oakdale West Precinct Plan														
<p>B17. 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: The Applicant may amend the Staging Plan as desired, with the approval of the Planning Secretary</i></p> <p><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></p>		Noted														
NOISE LIMITS																
<p>B18. The Applicant shall ensure the Development does not exceed the noise limits in Table 3 at the receiver locations N1, N2, N3, N4 and N5 shown on the plan in Appendix 5.</p> <p>Table 3: Noise Limits dB(A)</p> <table border="1"> <thead> <tr> <th rowspan="2">Location</th> <th>Day</th> <th>Evening</th> <th colspan="2">Night</th> </tr> <tr> <th>L_{Aeq} (15 minute)</th> <th>L_{Aeq} (15 minute)</th> <th>L_{Aeq} (15 minute)</th> <th>L_{AMax}</th> </tr> </thead> <tbody> <tr> <td>N1 Emmaus Village Residential</td> <td>44</td> <td>43</td> <td>41</td> <td>52</td> </tr> </tbody> </table>		Location	Day	Evening	Night		L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{AMax}	N1 Emmaus Village Residential	44	43	41	52	Section 4.2
Location	Day		Evening	Night												
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{AMax}												
N1 Emmaus Village Residential	44	43	41	52												

SSD 7348 CEMP Consent Condition					Section Addressed
N3 Kemps Creek – nearest residential property	39	39	37	52	
N4 & N5 Kemps Creek – other residences	39	39	37	52	
All other non-associated residences	40 ²	35 ²	35 ²	52	
N2 Emmaus Catholic College (school)	When in use: 45 _{Leq (1h)}				
<p><i>Notes:</i></p> <p>1. Noise generated by the development is to be measured in accordance with the relevant procedures and modifications, including certain meteorological conditions, of the Noise Policy for Industry (EPA, 2017). Refer to the plan in Appendix 2 for the location of residential sensitive receivers.</p>					
B19. The noise limits in Table 3 do not apply to receiver N3, N4 and N5 if the Applicant has a Noise Agreement with the relevant landowner to exceed the noise limits, and the Applicant has provided written evidence to the Planning Secretary that an agreement is in place.					Section 4.2
BUSHFIRE PROTECTION					
B20. The Applicant shall ensure the Development complies with: (a) the relevant provisions of <i>Planning for Bushfire Protection 2019</i> ; (b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016 and updated 13 January 2020, and the SSD-7348 (MOD 6) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 12 November 2020 and SSD-7348 (MOD 7) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 27 May 2021; and (c) AS2419.1 – 2005 Fire Hydrant Installations for firefighting water supply.					Section 4.11
TRANSGRID EASEMENT					
B21. The Applicant must: (a) provide safe and unobstructed access for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week; (b) comply with the requirements of TransGrid for any works in the TransGrid easement; and (c) advise TransGrid of any proposed amended or modified encroachment into the easement.					Section 4.11
ENDEAVOUR ENERGY					
B22. The Applicant must comply with the requirements of Endeavour Energy for the provision of land for a new zone substation as shown on the plans in the RtS.					Noted
WATER NSW					
B23. The Applicant must: (a) provide safe and unobstructed access for Water NSW plant and personnel to access the water pipelines corridor adjacent the Site, 24 hours a day, 7 days a week; (b) comply with the requirements of Water NSW for any works adjacent to or over, the water pipelines corridor; and (c) advise Water NSW of any proposed amended or modified encroachment into the water pipelines corridor.					Noted

SSD 7348 CEMP Consent Condition	Section Addressed
<p>C3. Future DAs for warehouses on lots 3A, 3B, 3C and 4A shall be accompanied by an Urban Design Assessment. The assessment must:</p> <ul style="list-style-type: none"> (a) be prepared by an independent urban design consultant; (b) be prepared in consultation with Council and the Emmaus Catholic College; (c) detail the key objectives for the interface with the sensitive receivers on the western and southern Site boundaries, including consideration of optimal uses and operational hours; (d) determine the optimal building location and setbacks on the western and southern boundaries, noting the design controls in Condition B10 are the minimum setback requirements; (e) present the optimal design for the building layouts along the western and southern site boundaries with detailed justification for the preferred option; (f) identify appropriate orientations and architectural treatments for the facades facing sensitive receivers; and (g) incorporate noise mitigation into the layout and design of buildings, internal roads, loading docks and parking areas to ensure the Development can meet the noise limits 	DA 22/0546
VISUAL AMENITY	
<p>C5 Landscaping</p> <p>Future DAs shall be accompanied by a Landscape Assessment. The assessment must:</p> <ul style="list-style-type: none"> (a) be prepared by a qualified landscape design consultant; (b) be prepared in consultation with Council; (c) describe how the landscaping for the relevant Stage of the Development is consistent with the Staging Plan approved in accordance with Condition B15; (d) describes the landscaping works to be completed as part of the relevant Stage of the Development and details a program for monitoring the success of landscaping works over time; (e) assesses the condition of and adequacy of landscaping completed as part of earlier Stages of the Development, in providing visual screening for adjacent sensitive receivers; and (f) details any additional landscaping or rehabilitation works required to ensure the visual impacts of the Development are minimised for the adjacent sensitive receivers. 	DA 22/0546
<p>C6. Outdoor lighting</p> <p>Future DAs must ensure compliance with AS/NZS 1158.3.1:2005 Pedestrian Area (Category P) Lighting and AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting.</p>	DA 22/0546
<p>C7. Signage</p> <p>Future DAs must ensure illuminated signage is oriented away from the sensitive receivers on the western and southern Site boundaries.</p>	DA 22/0546
<p>C9. Future DAs shall be accompanied by a transport, access and parking assessment. The assessment must:</p> <ul style="list-style-type: none"> (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; (b) demonstrate internal roads and car parking complies with relevant Australian Standards and the car parking rates in Condition B13; (c) detail the scope and timing of any required road upgrades to service the relevant Stage; and 	DA 22/0546

SSD 7348 CEMP Consent Condition	Section Addressed
(d) 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.	
<p>C10. Future DAs shall be accompanied by a noise and vibration impact assessment. The assessment must:</p> <p>(a) identify the noise and vibration impacts during construction and operation;</p> <p>(b) demonstrate compliance with the noise limits in Condition Error! Reference source not found.;</p> <p>(c) provide an analysis of all external plant and equipment, including but not limited to, forklifts, air conditioners and refrigeration systems;</p> <p>(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 B18 can be achieved;</p> <p>(e) detail the timing to construct the noise walls shown in Appendix 5, to ensure noise from operation of the Development does not exceed the noise limits in Condition B18Error! Reference source not found.; and</p> <p>(f) recommend mitigation and management measures to be implemented to minimise noise during construction.</p>	DA 22/0546
BUSHFIRE PROTECTION	
<p>C12. The Applicant shall ensure future DAs comply with:</p> <p>(a) the relevant provisions of Planning for Bushfire Protection 2019;</p> <p>(b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016 and updated 13 January 2020, and the SSD-7348 (MOD 6) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 12 November 2020 and SSD-7348 (MOD 7) Bushfire Hazard Assessment prepared by Blackash Bushfire Consulting, dated 27 May 2021; and</p> <p>(c) AS2419.1 – 2005 Fire Hydrant Installations for firefighting water supply.</p>	Section 4.11
TRANSGRID EASEMENT	
<p>C13. The Applicant must consult with TransGrid, prior to lodging DAs for Stages 4 and 5 of the Development as shown on Figure 2 in Appendix 1, and any other Stage or road infrastructure that may affect the TransGrid easement. The Applicant must design, construct and operate each Stage of the development in accordance with the reasonable requirements of TransGrid relating to their use of the TransGrid easement.</p>	Noted
WASTE	
<p>C17. Future DAs shall include a Waste Management Plan prepared in accordance with the NSW Waste Classification Guidelines (DECCW, 2009).</p>	DA 22/0546
COMMUNITY COMMUNICATION STRATEGY	
<p>C19. No later than one month before the commencement of construction of any stage of the Development, a Community Communication Strategy (CCS) must be prepared and submitted to the Planning Secretary for approval.</p> <p>The CCS is to provide mechanisms to facilitate communication between the Applicant, Council and the community (including adjoining affected landowners, schools, businesses, and others directly impacted by Stage 1), during design, construction and operation. The CCS must:</p>	Appendix G

SSD 7348 CEMP Consent Condition	Section Addressed
<p>(a) assign a central contact person to keep the nearby sensitive receivers regularly informed throughout the Development;</p> <p>(b) detail the mechanisms for regularly consulting with the local community throughout the Development, such as holding regular meetings to inform the community of the progress of the development and report on environmental monitoring results;</p> <p>(c) detail a procedure for consulting with nearby sensitive receivers to schedule high noise generating works, vibration intensive activities or manage traffic disruptions;</p> <p>(d) include contact details for key community groups, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders; and</p> <p>(e) include a complaints procedure for recording, responding to and managing complaints, including:</p> <p>(i) email, contact telephone number and postal addresses for receiving complaints;</p> <p>(ii) advertising the contact details for complaints before and during operation, via the local newspaper and through onsite signage;</p> <p>(iii) a complaints register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and</p> <p>(iv) procedures for the resolution of any disputes that may arise during the course of the Development.</p>	
<p>C20. The Applicant must:</p> <p>(a) not commence construction of the relevant stage of the Concept Proposal until the CCS required under Condition C19 has been approved by the Planning Secretary; and</p> <p>(b) implement the CCS for each stage of the Concept Proposal and following the completion of operation of the Development.</p>	(a) complete (Appendix G)
SCHEDULE D – CONDITIONS FOR STAGE 1 DA	
PART 1 – GENERAL CONDITIONS	
OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT	
<p>D1. 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 Stage 1 development, and any rehabilitation required under this consent.</p>	<p>Achieved through implementation of the CEMP</p>
TERMS OF CONSENT	
<p>D2. Stage 1 of the Development may only be carried out:</p> <p>(a) in compliance with the conditions of this consent;</p> <p>(b) in accordance with all written directions of the Planning Secretary;</p> <p>(c) in accordance with the EIS and RTS;</p> <p>(d) in accordance with the plans in Appendix 2 and Appendix 3;</p> <p>(e) in accordance with SSD 7348 MOD 1;</p> <p>(f) in accordance with the Applicant’s Management and Mitigation Measures in Appendix 7; and</p> <p>(g) in accordance with modifications to this consent.</p>	<p>Noted</p>
<p>D3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:</p>	<p>Noted</p>

SSD 7348 CEMP Consent Condition	Section Addressed
<p>(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</p> <p>(b) the implementation of any actions or measures contained in any such document referred to in Condition D3(a).</p>	
<p>D4. 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 D2(c). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in Condition D2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.</p>	Section 3.3.1
STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS	
<p>D11. With the approval of the Planning Secretary, the Applicant may:</p> <p>(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);</p> <p>(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</p> <p>(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).</p>	Noted
<p>D12. 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</p>	Noted
<p>D13. 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.</p>	Noted
COMPLIANCE	
<p>D19. 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 Stage 1.</p>	Section 3.4
OPERATION OF PLANT AND EQUIPMENT	
<p>D21. All plant and equipment used on site, or to monitor the performance of Stage 1 must be:</p> <p>(a) maintained in a proper and efficient condition; and</p> <p>(b) operated in a proper and efficient manner.</p>	Section 4.1
EXTERNAL WALLS AND CLADDING	
<p>D23. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the NCC.</p>	Noted
<p>D24. Before the issue of a Construction Certificate and an Occupation Certificate, the Applicant must provide the Certifying Authority 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 NCC.</p>	Noted

SSD 7348 CEMP Consent Condition	Section Addressed
D25. The Applicant must provide a copy of the documentation given to the Certifying Authority to the Planning Secretary within seven days after the Certifying Authority accepts it.	Noted
APPLICABILITY OF GUIDELINES	
D33. 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.	Noted
D34. 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.	Noted

Table 2 DA 22/0546 Relevant Conditions

DA/22/0550 CEMP Consent Condition	Section Addressed
ENVIRONMENTAL MATTERS	
13. Dust suppression techniques are to be employed during all works to reduce any potential nuisances to surround properties.	Section 4.4
14. Mud and soil from vehicular movements to and from the site must not be deposited on the road.	Section 4.5
15. No fill material is to be imported to the site without the prior approval of Penrith City Council . No recycling of material for use as fill material shall be carried out on the site without the prior approval of Council.	Section 4.6
<p>16. An appropriately qualified person/s shall:</p> <p>Supervise all filling works.</p> <p>(On completion of filling works) carry out an independent review of all documentation relating to the filling of the site, and submit a review findings report to Council and any Principal Certifying Authority. All fill material documentation is to (at minimum)</p> <ul style="list-style-type: none"> - be prepared by an appropriately qualified person with consideration of all relevant guidelines, standards, planning instruments and legislation (e.g. EPA, NEPM, ANZECC, NH&MRC), - clearly state the legal property description of the fill material source site and the total amount of fill tested - provide details of the volume of fill material to be used in the filling operations, - provide a classification of the fill material to be imported to the site in accordance with the NSW Environment Protection Authority’s “Waste Classification Guidelines” 2014, and - (based on the fill classification) determine whether the fill material is suitable for its intended purpose and land and use and whether the fill material will or will not pose an unacceptable risk to human health or the environment. 	Section 4.6
<p>Certify by way of a Compliance Certificate or other written documentation that fill materials have been placed on the site in accordance with all conditions of this consent and that the site will not pose an unacceptable risk to human health or the environment. A copy of the Compliance Certificate or other documentation shall be submitted to Council and any Principal Certifying Authority.</p>	Section 4.6
<p>The contact details of any appropriately qualified person/s engaged for the works shall be provided with the Notice of Commencement.</p> <p>If the Principal Certifying Authority or Penrith City Council is not satisfied that suitable fill materials have been used on the site, further site investigations or remediation works may be requested. In these circumstances the works shall be carried out prior to any further approved works.</p> <p>For the purpose of this condition an appropriately qualified person is defined as “a person who, in the opinion of Council, has a demonstrated experience, or access to experience in hydrology, environmental chemistry, soil science, eco-toxicology, sampling and analytical procedures, risk evaluation and remediation technologies. In addition, the person will be required to have appropriate professional indemnity and public risk insurance.”.</p>	Noted

DA/22/0550 CEMP Consent Condition	Section Addressed
<p>17. Where a building is to take place on any land that is to be filled, such filling is to be compacted in accordance with AS3798-1996. Certification is to be submitted to the Principal Certifying Authority by a Geotechnical Engineer verifying that the work has been undertaken prior to the commencement of the construction of any building.</p> <p>If Penrith City Council is not the Principal Certifying Authority, a copy of the certification is to be submitted to Council for their reference.</p>	Noted
<p>18. All construction waste materials stored on-site are to be contained within a designated area such as a waste bay or bin to ensure that no waste materials are allowed to enter the stormwater system or neighbouring properties. The designated waste storage areas are to be fully enclosed when the site is unattended.</p>	Section 4.7
<p>19. Waste materials associated with the construction phase of the development are to be classified and disposed of at a lawful waste facility, or, if suitable, re-used or recycled in accordance with the approved Waste Management Plan.</p> <p>All receipts and supporting documentation must be retained in order to verify lawful disposal of materials and are to be made available to Penrith City Council on request.</p>	Section 4.7
<p>20. Noise levels from the premises (including all associated plant and equipment) shall not exceed the relevant noise criteria detailed in the Noise and Vibration Assessment prepared by Wilkinson Murray and dated 28 April 2022 (RWDI #2102730) and consent SSD-7348-MOD-11. A certificate is to be obtained from a qualified acoustic consultant certifying that the buildings 5A and 5B, (including all associated mechanical plant and ventilation) have been constructed to meet the noise criteria. This certificate is to be submitted to the Principal Certifying Authority prior to the issue of an Occupation Certificate. The provisions of the Protection of the Environment Operations Act 1997 apply to the development, in terms of regulating offensive noise.</p>	Section 4.2
<p>21. Prior to the issue of the Construction Certificate, a Construction Environmental Management Plan (CEMP) is to be prepared by a suitably experienced / qualified person and submitted to Penrith City Council. The CEMP is to address the environmental aspects of the construction phase of the development and is to include details on the environmental management practices and controls to be implemented on the site.</p> <p>All construction activities on the site are to be implemented and carried out in accordance with the CEMP.</p>	Sections 1 and 3
<p>28. Stamped plans, specifications, a copy of the development consent, the Construction Certificate and any other Certificates to be relied upon shall be available on site at all times during construction.</p> <p>The following details are to be displayed in a maximum of 2 signs to be erected on the site:</p> <ul style="list-style-type: none"> • the name of the Principal Certifying Authority, their address and telephone number, • the name of the person in charge of the work site and telephone number at which that person may be contacted during work hours, • that unauthorised entry to the work site is prohibited, • the designated waste storage area must be covered when the site is unattended, and • all sediment and erosion control measures shall be fully maintained until completion of the construction phase. <p>Signage but no more than 2 signs stating the above details are to be erected:</p> <ul style="list-style-type: none"> • at the commencement of, and for the full length of the, construction works onsite, and • in a prominent position on the work site and in a manner that can be easily read by pedestrian traffic. <p>All construction signage is to be removed when the Occupation Certificate has been issued for the development.</p>	Section 4.1

DA/22/0550 CEMP Consent Condition	Section Addressed
<p>35. Construction works for subdivision works that are carried out in accordance with approved consent that involve the use of heavy vehicles, heavy machinery and other equipment are likely to cause offence to adjoining properties shall be restricted to the following hours in accordance with the NSW Environment Protection Authority Noise Control Guidelines:</p> <ul style="list-style-type: none"> • Mondays to Fridays, 7am to 6pm • Saturdays, 7am to 1pm (if inaudible on neighbouring residential premises), otherwise 8am to 1pm • No work is permitted on Sundays and Public Holidays. <p>Other construction works carried out inside a building/tenancy and do not involve the use of equipment that emits noise are not restricted to the construction hours stated above.</p> <p>The provisions of the Protection of the Environment Operations Act, 1997 in regulating offensive noise also apply to all construction works.</p>	Section 2.3 and 4.2
<p>41. Prior to the commencement of any works on-site (including demolition works) or prior to the issue of any Construction Certificate, whichever occurs first, a Construction Traffic Management (CTMP) shall be prepared by a suitable qualified consultant with appropriate training and certification from Transport for NSW. The CTMP shall include details of any required road closures, work zones, loading zones and the like. Approval of the CTMP may require approval of the Local Traffic Committee. Please contact Council's City Asset Management on 4732 7777 and refer to Council's website for a copy of the Temporary Road Reserve Occupancy Application Form.</p>	Section 4.5
<p>42. Prior to commencement of works sediment and erosion control measures shall be installed in accordance with the approved Construction Certificate and to ensure compliance with the Protection of the Environment Operations Act 1997.</p> <p>The erosion and sediment control measures shall remain in place and be maintained until all disturbed areas have been rehabilitated and stabilised.</p>	Section 4.6
<p>50. All vehicles shall enter and leave to site in a forward direction.</p>	Section 4.5
<p>51. All landscape works are to be constructed in accordance with the stamped approved plans. Landscaping shall be maintained:</p> <ul style="list-style-type: none"> • in accordance with the approved plan, and • in a healthy state, and in perpetuity by the existing or future owners and occupiers of the property. <p>If any of the vegetation comprising that landscaping dies or is removed, it is to be replaced with vegetation of the same species and to the greatest extent practicable, the same maturity as the vegetation which died or was removed.</p>	Section 4.13
<p>53. All landscape works are to meet industry best practice and the following relevant Australian Standards</p> <ul style="list-style-type: none"> • AS 4419 Soils for Landscaping and Garden Use, • AS 4454 Composts, Soil Conditioners and Mulches, and • AS 4373 Pruning of Amenity Trees. 	Section 4.13
<p>54. No trees are to be removed from within the development without the prior consent of Penrith City Council.</p> <p>Any trees to be removed as part of the engineering work are to be shown on engineering plans submitted for Council's consideration and subsequent approval.</p>	Section 4.13

APPENDIX F

Incident Report Form

Incident Details	
Date of Incident	
Site & Address where Incident occurred	
Person/s Involved in the Incident (name & company)	

Incident Investigation – Site Manager & OHS Rep will be involved in all site incident investigations. The QHSE Manager will also be involved in the incident investigation of HIGH & MODERATE potential risk incidents.	
Investigation Team (names)	
In which part of the workplace did the incident occur	
Job or task being done by the person at the time of the incident	
What happened unexpectedly (e.g. brake failed on a forklift, or slipped on wet floor etc)	
How exactly was the injury or damage sustained (e.g. bruised leg when fell to the floor etc)	
What preventive controls were in place that failed (e.g. guarding, harness etc)	
How did these controls fail (e.g. guard failed, rope became loose etc)	

Immediate Contributory Factors (assess the risks associated with the hazards identified). Be factual.

Additional Contributory Factors (assess the risks associated with the hazards identified). Be factual.

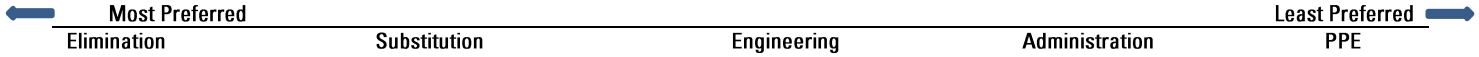
Details of Risk (refer to tables at end of sheet)	
Actual/ Potential Risk Class & Deadlines (choose whichever is highest)	<input type="checkbox"/> High (1) - primary cause/s must be resolved IMMEDIATELY. <input type="checkbox"/> Medium (2) - primary cause/s must be resolved WITHIN 24 HOURS <input type="checkbox"/> Low (3) - primary cause/s must be resolved WITHIN 7 DAYS

Was the incident a result of:

Inadequate process/es, follow up required is to AMEND PROCESS/ES (inc. SWMS); or

Inadequate compliance with process/es, follow up requires is to TOOLBOX WORKERS

HIERARCHY OF CONTROLS



List the Actions that will be Taken to prevent a Reoccurrence (considering the Hierarchy of Controls)	Who	Date Completed

Does the SWMS require changing? No Yes, If yes [date] SWMS has been updated to control this hazard.

Does the PRA require changing? No Yes, If yes [date] PRA has been updated to control this hazard

Subcontractor's Supervisor's/ Manager's Close Out	Name:		
Signature		Date	

Qanstruct OHS Representative's Close Out	Name:		
Signature		Date	

Qanstruct Manager's Close Out	Name:		
Signature		Date	

Level	Description of Consequence
High (1) (High level of harm)	Potential death, permanent disability or major structural failure/damage. Off-site environmental discharge/release not contained and significant long-term environmental harm.
Medium (2) (Medium level of harm)	Potential temporary disability or minor structural failure/damage. On-site environmental discharge/release contained, minor remediation required, short-term environmental harm.
Low (3) (Low level of harm)	Incident that has the potential to cause persons to require first aid. On-site environmental discharge/release immediately contained, minor level clean up with no short-term environmental harm.

Consequence	Likelihood / Probability		
	Likely	Moderate	Unlikely
High (1)	1	1	2
Medium (2)	1	2	3
Low (3)	2	3	3

APPENDIX G

Community Consultation Strategy

An aerial photograph of a large residential development, likely an apartment complex. The image shows several multi-story apartment blocks with balconies, arranged in a U-shape around a central area that appears to contain a swimming pool. The surrounding area includes roads, parking spaces, and some greenery. The overall scene is presented in a light, semi-transparent style.

COMMUNITY COMMUNICATION STRATEGY OAKDALE WEST ESTATE - CONCEPT AND STAGE 1

Prepared for:

Goodman Property Services (Australia) Pty Ltd

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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 Goodman Property Services (Australia) 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
660.20005.00000-R01-v8.0	29 September 2022	Kate McKinnon	Alanna Ryan	Alanna Ryan
660.20005.00000-R01-v7.0	22 April 2022	Chelsey Zuiderwyk	Adam Williams	Adam Williams
660.20005.00000-R01-v6.0	11 November 2019	Kate McKinnon	Samantha Hayes	Dan Thompson

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1 Introduction

1.1 Background

This Community Communication Strategy (CCS) has been prepared on behalf of Goodman Property Services (Australia) Pty Ltd (Goodman) for the Oakdale West Estate (OWE) Concept and Stage 1 development (State Significant Development [SSD] application 7348).

This CCS has been prepared in accordance with Condition C19 and supporting conditions within the Development Consent, identifying relevant stakeholders, key issues and the communication methods. Specifically, it details how Goodman and their contractors will engage with relevant stakeholders and the community. The CCS 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 OWE project has been assessed and determined under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The CCS includes the following key aspects:

- Identification of stakeholders to be consulted with during the CCS implementation including 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 to the identified stakeholders, providing opportunities for comment.
- Enquiry and Complaint management protocols.
- Monitoring and feedback mechanisms.

The CCS will be updated as the project progresses to account for variations in the construction program and methodology, along with changes in stakeholder situation that impacts on stakeholder interests, with these articulated through the feedback mechanisms. This CCS will also be updated to address the operational phase of the development during the preparation of the Operational Environmental Plan (OEMP) for the Estate.

SSD 7348 contained the following conditions of relevance to this CCS used to benchmark the contents:

- C19 & C20 – Community Communication Strategy
- D37 – Landscaping
- D71 – Hours of Work
- D117 – Ongoing Community Engagement
- D118 - Management Plan Requirements
- D127 & D128 – Environmental Representative
- D133 – Document Review
- D143 – Access to Information

The details of these conditions are identified within **Table 1** below, along with a cross reference to the relevant section of this CCS.

The approved development includes the construction of the Western North-South Link Road (WNSLR). This road is to be constructed to Roads and Maritime Service (RMS) specifications, to the satisfaction of Penrith City Council (as the Nominated Road Authority). Details of these specifications as they relate to community consultation and communication are identified within **Table 2**, including cross reference to the relevant section of this CCS.

Table 1 Relevant Conditions of Consent

Condition Number	Condition Detail	Report Reference
C19 – Community Communication Strategy	<p>No later than one month before the commencement of construction of any stage of the Development, a Community Communication Strategy (CCS) must be prepared and submitted to the Planning Secretary for approval. The CCS is to provide mechanisms to facilitate communication between the Applicant, Council and the community (including adjoining affected landowners, schools, businesses, and others directly impacted by Stage 1), during design, construction and operation. The CCS must:</p> <ul style="list-style-type: none"> a) assign a central contact person to keep the nearby sensitive receivers regularly informed throughout the Development; b) detail the mechanisms for regularly consulting with the local community throughout the Development, such as holding regular meetings to inform the community of the progress of the development and report on environmental monitoring results; c) detail a procedure for consulting with nearby sensitive receivers to schedule high noise generating works, vibration intensive activities or manage traffic disruptions; d) include contact details for key community groups, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders; and e) include a complaints procedure for recording, responding to and managing complaints, including: <ul style="list-style-type: none"> i. email, contact telephone number and postal addresses for receiving complaints; ii. advertising the contact details for complaints before and during operation, via the local newspaper and through onsite signage; iii. a complaint register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and iv. procedures for the resolution of any disputes that may arise during the course of the Development. 	<p>This CCS Document</p> <ul style="list-style-type: none"> a) Section 4 b) Section 5 c) Sections 5 & 6 d) Section 2.2 e) Section 5.4
C20 – Community Communication Strategy	<p>The Applicant must:</p> <ul style="list-style-type: none"> a) not commence construction of the relevant stage of the Concept Proposal until the CCS required under Condition C19 has been approved by the Planning Secretary; and b) implement the CCS for each stage of the Concept Proposal and following the completion of operation of the Development. 	<ul style="list-style-type: none"> a) Section 1.2 b) Sections 5 & 6
D37 – Landscaping	<p>The Applicant must complete the landscape bund along the western boundary of the Site as shown on Figure 5 in Appendix 2 within six months of commencing any construction including bulk earthworks.</p>	<p>Section 2.2.1 Appendix A</p>

Condition Number	Condition Detail	Report Reference
D71 – Hours of Work	<p>Works outside of the hours identified in Condition D70 may be undertaken in the following circumstances:</p> <ul style="list-style-type: none"> 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. 	Section 5.3.2
D117 – Ongoing Community Engagement	<p>The Applicant must consult with the community regularly throughout Stage 1, including consultation with the nearby sensitive receivers identified in Appendix 5, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy approved in accordance with Condition C19.</p>	Sections 5 & 6
D118 – Management Plan Requirements	<p>Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> e) details of: <ul style="list-style-type: none"> 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, Stage 1 or any management measures; f) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; g) a program to monitor and report on the: <ul style="list-style-type: none"> i. impacts and environmental performance of Stage 1; and ii. effectiveness of the management measures set out pursuant to paragraph (b) above; h) 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; i) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time; j) a protocol for managing and reporting any: <ul style="list-style-type: none"> 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 k) a protocol for periodic review of the plan. <p>Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</p>	<ul style="list-style-type: none"> a) Refer to Project CEMPs (SLR, 2019a & SLR 2019b) b) Sections 3.2, 5.3 and 5.4 c) Section 6 d) Section 5.4.4 e) Section 6 f) Section 5.4 g) Section 6

Condition Number	Condition Detail	Report Reference
<p>D127 - Environmental Representative</p>	<p>For the duration of construction of Stage 1, or as agreed with the Planning Secretary, the approved ER must:</p> <ul style="list-style-type: none"> (a) receive and respond to communication from the Planning Secretary in relation to the environmental performance of Stage 1; (b) consider and inform the Planning Secretary on matters specified in the terms of this consent; (c) 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; (d) review the CEMP identified in Condition D119 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"> (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); (e) regularly monitor the implementation of the CEMP, and any other documents identified by the Planning Secretary, to ensure implementation is being carried out in accordance with the document and the terms of this consent; (f) as may be requested by the Planning Secretary, help plan, attend or undertake audits of Stage 1 commissioned by the Department including scoping audits, programming audits, briefings, and site visits; (g) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; (h) 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, or as otherwise agreed with the Planning Secretary. 	<p>Section 6.2</p>
<p>D128 - Environmental Representative</p>	<p>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 D127 (including preparation of the ER monthly report), as well as:</p> <ul style="list-style-type: none"> (a) the complaints register; 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). 	<p>Section 6.2</p>

Condition Number	Condition Detail	Report Reference
D133 Revision of Strategies, Plans and Programs	<p>Within three months of:</p> <ul style="list-style-type: none"> (a) the submission of a Compliance Report under Condition D141; (b) the submission of an Environmental Representative Monthly Report under Condition D127; (c) the submission of an incident report under Condition D135; (d) the approval of any modification of the conditions of this consent; or (e) the issue of a direction of the Planning Secretary under Condition D2(b) which requires a review <p>the strategies, plans and programs required under this consent must be reviewed.</p>	Section 6.2
D143 – Access to Information	<p>At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must:</p> <ul style="list-style-type: none"> a) make the following information and documents (as they are obtained or approved) publicly available on its website: <ul style="list-style-type: none"> i. the documents referred to in Condition D2 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 complaint register, updated monthly; x. the Compliance Report of the Development; xi. audit reports prepared as part of any monitoring or environmental 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 5.3.1

It is a requirement of the RMS that communications and community liaison are undertaken in accordance with the RMS QA Specification G36 – Environmental Protection. All relevant requirements within the specification are included in **Table 2** below.

Table 2 Relevant RMS Specifications

Specification Number	Relevant Specification Detail	Report Reference
<p>3.3 - Resources, Responsibilities and Authority</p>	<p>Communications and Community Liaison Representative</p> <p>Appoint a Communications and Community Liaison Representative (CCLR) to lead and manage the community involvement activities, including liaison with property owners and key stakeholders. This person is your representative for the requirements of RMS G36 Clause 3.7.</p> <p>The CCLR must have relevant qualifications with a minimum of 5 years' communications and community liaison experience, preferably in infrastructure development and delivery. The CCLR must be flexible and willing to work outside of normal working hours when required, such as nights and weekends. The CCLR is to be the primary daily contact to the public handling of enquiries/complaints management/interface issues.</p> <p>The CCLR must be available for contact by local residents and the community at all reasonable times to answer any questions and to address any concerns in relation to your construction activities. The CCLR must have up-to-date information on:</p> <ul style="list-style-type: none"> • emerging stakeholders; • planned construction activities; • planned traffic arrangements, including any temporary traffic switches; • current landowner discussions with members of your staff; • planned community and stakeholder consultations; • complaints or enquiries received; • duties and accountabilities of your staff; and, • commitments to stakeholders made by you or Goodman. <p>The CCLR is to handle document management administration and systems/contact database management and maintenance. The CCLR is to liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the upgrade works. The CCLR is to lead in the development and delivery of communication and community engagement strategies and plans.</p> <p>The CCLR is to facilitate meetings, forums and arranging interviews to address concerns from community.</p> <p>The CCLR is to provide advice and participate with the project teams to improve and enhance the delivery of communication services to the community. The CCLR is to build, maintain collaborative and consultative working relationships with internal and external stakeholders.</p> <p>The CCLR is to possess excellent writing and digital media skills including writing and editing copy for printed and electronic material, internal and external materials such as letters, web brochures and public facing reports, and video and photography for promotional use, etc. The CCLR is to possess a current motor vehicle driver's licence.</p> <p>The CCLR must be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback.</p>	<p>Section 4</p>

Specification Number	Relevant Specification Detail	Report Reference
3.7 - Communications	<p>Describe in the CEMP the processes for external and internal communication in relation to the environmental aspects of the work under the Contract.</p> <p>Make all staff and subcontractors working on the Site aware of these external and internal communications procedures and ensure they are properly trained in their application.</p>	<p>Refer to Project CEMPs (SLR, 2019a & SLR 2019b)</p> <p>Section 5.3</p>
3.7.1 - Liaison with EPA and/ or other Government Agencies	<p>The CEMP must identify at least two persons (together with their contact telephone numbers) who will be available to be contacted by the EPA and/ or Other Government Agencies on a 24 hour basis and who have authority to take immediate action to shut down any activity, or to effect any pollution control measure, as directed by an authorised officer of the EPA and/ or Other Government Agencies.</p> <p>Immediately notify Goodman of any visit to the Site by the EPA and/ or Other Government Agencies. Prepare a report for each occasion when the Site is visited by the EPA and/ or Other Government Agencies, notifying Goodman of the purpose and outcome of the EPA and/ or Other Government Agencies visit, and of all actions taken by you in response to the EPA and/ or Other Government Agencies visit. Submit this report to Goodman within one working day of the EPA and/ or Other Government Agencies site visit.</p>	Section 4
<p>3.7.2 - Community Liaison and/or Notification</p> <p>3.7.2.1 New or Changed Construction Activities</p>	<p>Notify local residents and other stakeholders about any new or changed construction activities including changes to bus stop locations and / or timetables which will affect access to their properties/ premises at least five 5 working days before commencing work affecting residents.</p> <p>Such notification must state the nature of the work, why it is necessary, the expected duration, details of any changes to the traffic arrangements or property access and the name and 24 hour contact telephone number of your representative who can respond to any resident/stakeholder concerns.</p> <p>Address any concerns raised by residents in accordance with the complaints procedure as required under Clause 3.7.3 and in accordance with any licence or approval held by you.</p>	Section 5.3.2
3.7.2.2 - Extended Working Hours – No Environmental Protection Licence	<p>Following approval from Goodman on each instance to extend working hours, inform affected residents by letter of the location, nature, scope and duration of the proposed work outside normal working hours, not less than 1 week and not more than 2 weeks, before commencing such work.</p> <p>Include the name and contact telephone number of your representative so that residents can contact him over any concerns about extended working hours and any other information required by any licence or approval held by you.</p> <p>Refer to Practice Note vii of RMS publication “Environmental Noise Management Manual” when preparing the letter and notifying the affected residents.</p>	Section 5.3.2

Specification Number	Relevant Specification Detail	Report Reference
3.7.3 - Complaints and Enquiries Management	<p>As part of your CEMP, prepare and implement a Construction Complaints and Enquiries Management procedure prior to the commencement of construction. You must follow the Construction Complaints and Enquiries Management procedure for the duration of construction. You must ensure your Construction Complaints and Enquiries Management procedure is consistent with AS 4269 "Complaints Handling". This must include:</p> <ul style="list-style-type: none"> a) an advertised 24 hour contact telephone number listed with a telephone company and include a contact name; b) a postal address to which written complaints and enquiries can be sent; c) an email address to which electronic complaints and enquiries can be sent; d) a procedure to receive, record, track and respond to complaints and enquiries within a specified timeframe. When a complaint or enquiry cannot be responded to immediately, a follow-up verbal response on what action is proposed must be provided to the complainant/enquirer within two hours during night-time works and 24 hours at other times; e) a process for the provision of a written response to the complainant/enquirer within ten (10) days, if the complaint or enquiry cannot be resolved by the initial or follow-up verbal response; f) a mediation system for complaints unresolved through the above system. <p>Within one working day of receiving a complaint about any environmental or other issue which has the capacity to damage Goodman’s reputation, including any pollution incidents, arising from the Work Under the Contract, submit a written report to Goodman detailing the complaint and the action taken to remedy the problem. A final report together with your proposed measures to prevent the recurrence of such incidents must be submitted to Goodman within 5 working days.</p> <p>Keep a register of all complaints or enquiries, which must include the following details:</p> <ul style="list-style-type: none"> (a) date and time of complaint or enquiry; (b) method by which the complaint or enquiry was made (telephone, letter, meeting, etc); (c) name, address, contact telephone number of complainant (if no such details were provided, a note to that effect); (d) nature of complaint or enquiry; (e) action taken in response including follow up contact with the complainant.; (f) any monitoring to confirm that the complaint or enquiry has been satisfactorily resolved; (g) if no action was taken, the reasons why no action was taken by you. 	Section 5.4

Specification Number	Relevant Specification Detail	Report Reference																				
3.7.4 - Notification to communities and stakeholders	Notify Goodman in advance of the following construction activities:	Sections 5.3.2																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Activity</th> <th style="width: 50%;">Notification required</th> </tr> </thead> <tbody> <tr> <td>Work at night (any time between 6pm and 7am)</td> <td>2 weeks where possible, a minimum of 1 week</td> </tr> <tr> <td>Work on weekends (including public holidays)</td> <td>2 weeks where possible, a minimum of 1 week</td> </tr> <tr> <td>Major changes to configuration of road traffic</td> <td>At least 4 weeks</td> </tr> <tr> <td>Impacts on pedestrians and/or bicyclists</td> <td>At least 4 weeks</td> </tr> <tr> <td>Commencement, rescheduling or completion of key construction activities</td> <td>At least 4 weeks for commencement and completion, 24 hours' notice for rescheduling</td> </tr> <tr> <td>Commencement or rescheduling of property adjustment work</td> <td>At least 2 weeks (4 weeks for businesses)</td> </tr> <tr> <td>Alteration to property access arrangements</td> <td>At least 4 weeks</td> </tr> <tr> <td>Other activities not identified above which may impact on the community stakeholders</td> <td>At least 24 hours</td> </tr> <tr> <td>Any form of community protest on site</td> <td>Immediately</td> </tr> </tbody> </table>		Activity	Notification required	Work at night (any time between 6pm and 7am)	2 weeks where possible, a minimum of 1 week	Work on weekends (including public holidays)	2 weeks where possible, a minimum of 1 week	Major changes to configuration of road traffic	At least 4 weeks	Impacts on pedestrians and/or bicyclists	At least 4 weeks	Commencement, rescheduling or completion of key construction activities	At least 4 weeks for commencement and completion, 24 hours' notice for rescheduling	Commencement or rescheduling of property adjustment work	At least 2 weeks (4 weeks for businesses)	Alteration to property access arrangements	At least 4 weeks	Other activities not identified above which may impact on the community stakeholders	At least 24 hours	Any form of community protest on site	Immediately
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<p>In your communications with the community, you must comply with the requirements of the Privacy and Personal Information Protection Act 1998 (NSW).</p> <p>You must not make any undertakings on behalf of Goodman without the prior written approval of Goodman. Comply with the distribution for various notification types as follow:</p>																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Notification Type</th> <th style="width: 33%;">Submission to Goodman</th> <th style="width: 33%;">Distribution</th> </tr> </thead> <tbody> <tr> <td>Out of Hours Works / Night Works (refer to clause 3.7.2.3)</td> <td>Draft a notification letter at least 24 hours prior to the works being carried out</td> <td>2 weeks where possible, a minimum of 1 week prior to the works being carried out</td> </tr> <tr> <td>Traffic Conditions</td> <td>Draft letter at least 4 weeks prior to the traffic conditions changing</td> <td>At least 5 business days prior to the traffic conditions changing if deemed necessary by Goodman</td> </tr> <tr> <td>Individual private properties regarding property adjustments or</td> <td>Draft letter at least 4 weeks prior to</td> <td>At least 2 weeks prior to the works being</td> </tr> </tbody> </table>		Notification Type	Submission to Goodman	Distribution	Out of Hours Works / Night Works (refer to clause 3.7.2.3)	Draft a notification letter at least 24 hours prior to the works being carried out	2 weeks where possible, a minimum of 1 week prior to the works being carried out	Traffic Conditions	Draft letter at least 4 weeks prior to the traffic conditions changing	At least 5 business days prior to the traffic conditions changing if deemed necessary by Goodman	Individual private properties regarding property adjustments or	Draft letter at least 4 weeks prior to	At least 2 weeks prior to the works being									
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Specification Number	Relevant Specification Detail			Report Reference
	changes to access (refer to clause 3.7.2.1)	the works being carried out	carried out of access changes	
	Access for bridgeworks over the Water NSW pipelines	Final draft of notification at least 4 weeks prior to be works being carried out	At least 4 weeks prior to the works being carried out	
	Individual businesses regarding property adjustments or changes to access (refer to clause 3.7.2.1)	Draft letter at least 4 weeks prior to the works being carried out	At least 4 weeks prior to the works being carried out of access changes	

1.3 Community Communications Strategy Scope

The CCS applies to works and operations undertaken by Goodman, their engaged contractors and future tenants of the estate.

Stage 1 comprises two components with separate contractors engaged for each:

- Bulk earthworks across the site, civil infrastructure and landscaping; and construction of warehousing within Precinct 1 (Stage 1).
- Construction of the WNSLR including a signalised intersection with Lenore Drive, roundabout with Lockwood Road and roundabout with the new internal Estate Road No. 1, earthworks, civil works, utility works, property adjustments and landscaping. A haul road will be constructed through Oakdale West (referred to as the Construction Access Road) as part of the WNSLR construction to provide access to the WNSLR corridor.

Stages 2 to 8 will continue to engage contractors for the construction of each building (see **Figure 4**).

For the construction phase of the project, the CCS applies to all stages of development and separate CEMPs have been prepared to address each component of Stage 1, and separate CEMPs will continue to be prepared for the construction of each building in Stages 2 to 8. All CEMPs reference this CCS and will be serviced by the same project website and phone number to provide a simplified and consistent communications process across the project.

For the operation of these developments, an estate-wide OEMP has been prepared, as well as individual OEMPs for each building. All OEMPs reference this CCS and also include additional information within the OEMP to ensure Condition C19(e) of SSD 7348 is clearly addressed for each tenancy’s operation.

1.4 Project Description

1.4.1 State Significant Development Approvals

SSD 7348 was approved on 13 September 2019, granting approval for the Stage 1 Development and Concept Approval for the Oakdale West Industrial Estate at Kemps Creek. The development, as approved under SSD 7348 and approved modifications are included in **Table 3** below.

Table 3 Approved Development and Modifications

Application Number	Development Description
SSD 7348	<p>A Concept Proposal including:</p> <ul style="list-style-type: none"> • concept layout of 22 warehouse buildings inclusive of dock offices and ancillary offices providing 476,000 square metres of gross lettable area, built over five development stages; • concept layout of development lots, internal roads, drainage, landscaping, noise walls, basins and biodiversity offsets; and • development controls <p>A Stage 1 Development including:</p> <ul style="list-style-type: none"> • bulk earthworks across all five stages including retaining walls and noise walls; • lead in services including but not limited to drainage, power, sewer, water and telecommunications; • service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications; • construction and operation of three warehouse buildings inclusive of dock offices and ancillary offices in Precinct 1 (1A, 1B and 1C) providing 118,000 square metres of gross lettable area; • Western North-South Link Road and associated subdivision, basins and drainage; • estate roads 1, 2 and 6 and eastern part of road 7; • landscaping of Stage 1, the western boundary, Western North-South Link Road, estate roads 1, 2 and 6 and the eastern part of road 7, detention basins and the amenity lot • subdivision of Stage 1 lots and road • infrastructure including the services (substation) lot; • stormwater drainage infrastructure for Lots 2A and 2B and all basins; • temporary works to facilitate construction including but not limited to swales, haul road (construction access), landscaping and basins; and • works including construction of traffic signals at Lenore Drive/Grady Crescent/WNSLR intersection.
SSD 7348 MOD 1	<p>Minor amendments to pad levels, stormwater changes and refinement of the infrastructure design of OWE has resulted in the need for minor amendments to the approved masterplan layout and necessitates minor modifications to SSD 7348.</p>
SSD 7348 MOD 2	<p>Modifications to the Oakdale West Estate approved concept plan and Stage 1 development, including master plan layout, increase in gross floor area and expansion of Building 1A (Warehouse building 1A including high-bay (39m) and low-bay (28m) components), changes to internal roads, civil design and building pad levels.</p>
SSD 7348 MOD 3	<p>Amendments to the Concept Proposal:</p> <ul style="list-style-type: none"> • the OWE layout and staging • precinct boundaries • reconfigure estate road layout • basic design and infrastructure (including building height, basins, noise wall, pad levels and GLA) • civil strategy and servicing strategy • development standards applicable to the site including a height increase for Building 2B from 15 m to 28m and applicable noise limits for the development. <p>Amendment to the Stage 1 Development:</p>

Application Number	Development Description
	<ul style="list-style-type: none"> • construction of estate road 03, roundabout, retaining wall, noise wall, basins and infrastructure • subdivision of estate roads • extension to noise wall • change to pad levels, bulk earthworks and landscaping and construction hours.
SSD 7348 MOD 4	Inclusion of an additional lot (Lot 9 DP 1157476) in the subject site and carrying out works in the additional lot to facilitate development of the WNSLR
SSD 7348 MOD 5	<p>Concept Approval</p> <ul style="list-style-type: none"> • Update Condition B10 to reflect the 17m building setback to the Southern Link Road • Update Masterplan Landscape Plan reference to reflect the widened road reserve for the Southern Link Road. <p>Stage 1 Approval</p> <ul style="list-style-type: none"> • Update Architectural, Civil, and Landscaping plans to reflect the proposed design changes on Lot 1. • Change incorrect figure reference in Condition D75A from Figure 7 to Figure 6. • Change in correct figure reference in Condition D75C from Figure 7B to Figure 7 and update this condition D75 C to reflect the revised noise barrier completion date. • Update Condition D93 to reflect revised location for biodiversity planting
SSD 7348 MOD 6	Amendments to the approved Concept Plan and Stage 1 development including changes in Precincts 2A, 2C, 2D, 2E layouts, increase in building height control for Precinct 2A, and inclusion of construction Estate Road 8 as part of Stage 1 development.
SSD 7348 MOD 7	Changes to Precincts 3 and 4 including earthworks, retaining walls, building layouts in Precinct 4 and estate road 7.
SSD 7348 MOD 8	Amendments to architectural plans for Stage 1 Buildings 1A, 1B and 1C.
SSD 7348 MOD 9	Amendments to the layout of Buildings 2A, 2C and 2D and increased height of Building 2C
SSD 7348 MOD 10	Updates to the Concept plan to update Precinct 5 layout and update to Precinct 1 signage plans, including façade signage

Further project details are located in the Environmental Impact Statement, Oakdale West Estate, State Significant Development Application (EIS) (Urbis, 2017) and Response to Submissions (RTS) and SSD 7348 Modification Reports, available on the Major Projects Portal.

Table 4 below identifies the site layout, which is a ‘Master Plan’ to guide the staged development of Oakdale West and core development controls that will form the basis for design and assessment of future development applications for the site. **Figure 2** shows further detail of the WNSLR plans for the estate.

1.4.2 Site works

The site works for the estate will be undertaken by two contractors, with specific areas of responsibility. Areas of responsibility comprise the bulk earth works, civil infrastructure and services, along with the Stage 1 built form development. A second contractor is engaged for the WNSLR connection north to Lenore Drive and haul road civil works through to the south west corner of the site:

The project involves construction activities including:

- Site establishment.
- Clearing and stripping.
- Site construction access.
- Demolition of existing buildings.
- Sediment erosion control works.
- Bulk earthworks and haulage of materials.
- Signage and fencing.
- Construction of civil infrastructure including access roads, bridge, drainage, retaining walls and utilities.
- Building construction and landscaping within Stage 1.

Contractors will continue to be engaged separately for the construction of each building for Stages 2 to 8 (see **Figure 3**).

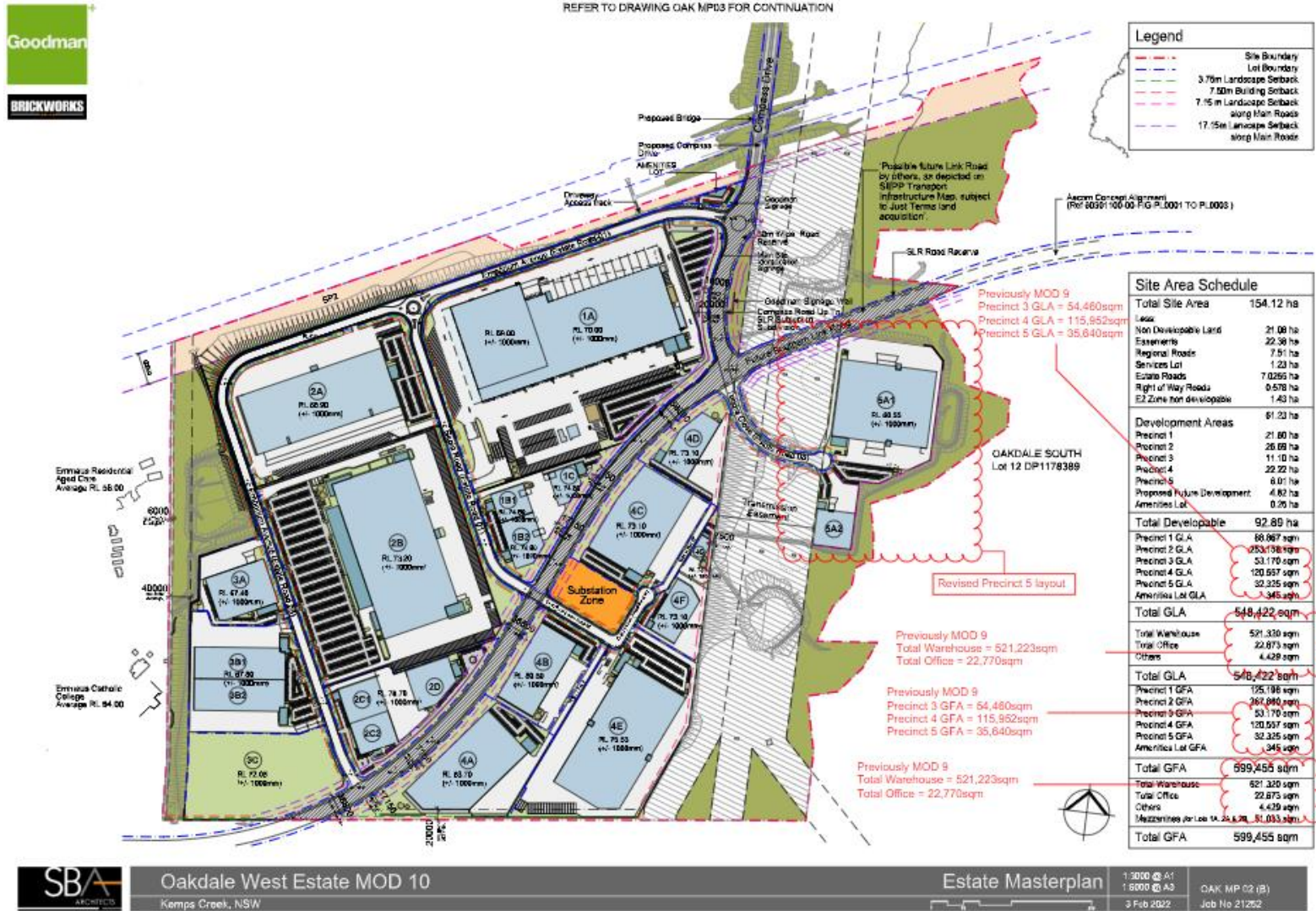


Figure 1 Oakdale West Site Layout



Figure 2 WNSLR Plans

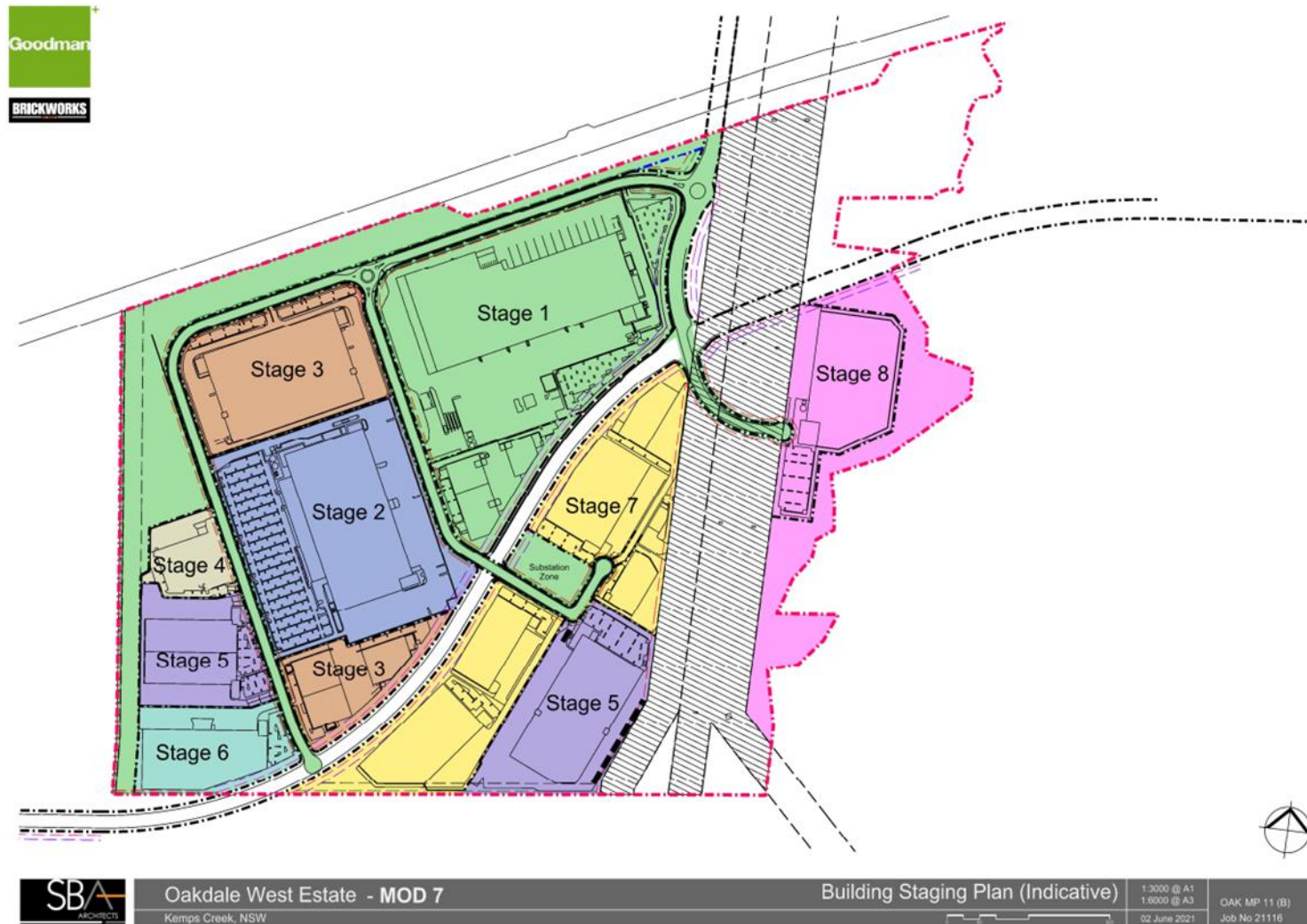


Figure 3 Oakdale West Staging Plan

2 Stakeholder Identification

2.1 Community Overview

The site comprises historic agricultural land identified within the Western Sydney Employment Area (WSEA). The site is located across two Australian Bureau of Statistics (ABS) geographical boundaries, with Erskine Park to the north and Kemps Creek to the south. The ABS data below has been used to inform the communications methodology, with appropriate media and language used to reflect the statistical data.

2.1.1 Erskine Park

Erskine Park has a population of 6,436 accommodated in 2,016 dwellings. The median age is 34 compared to a State median of 38. The top ancestry response is Australian, followed by English, Irish, Scottish then Filipino, with languages other than English spoken at home comprising Arabic (2.6%), Tagalog (2.4%), Filipino (1.4%), then Hindi (1.2%).

17.7% of the Erskine Park population completed Year 12 compared to 15.3% for the State, with 66% of the population employed full time compared to a State average of 59.2%. Management comprised the highest percentage of employment, equating to 19.5%, with a median weekly income of \$781, compared to \$664 for the State.

2.1.2 Kemps Creek

Kemps Creek has a population of 2,268 accommodated in 700 dwellings. The median age is 41 compared to a State median of 38. The top ancestry response is Italian, followed by Australian, English, Lebanese then Maltese, with languages other than English spoken at home comprising Italian (10.1%), Arabic (6.4%), Cantonese (4.3%), then Assyrian Neo-Aramaic (3%).

14.2% of the Kemps Creek population completed Year 12 compared to 15.3% for the State, with 58.4% of the population employed full time compared to a State average of 59.2%. Clerical and Administrative Workers comprised the highest percentage of employment, equating to 20%, with a median weekly income of \$588, compared to \$664 for the State.

2.2 Key Stakeholders

The site is located in close proximity to sensitive receivers to the west comprising a Catholic School, Anglican School and Age Care facility, along with a number of dwellings to the south. The northern and eastern boundaries comprise environmental corridors and infrastructure. Goodman and their representatives carried out extensive consultation with the community and stakeholders during the development of the EIS (Urbis, 2017). Previously identified stakeholders are categorised in **Table 4** below.

Table 4 Key Stakeholders

Stakeholder Agency/Authority	Interests/Issues
Directly affected stakeholders	Adjacent and directly affected properties, businesses and schools including: <ul style="list-style-type: none"> • Residential property – 20 Aldington Road • Emmaus Catholic College • Trinity Catholic Primary School • Emmaus Retirement Village • Mamre Anglican School • Catholic Healthcare Emmaus Village • Little Smarties Early Learning Centre
Local Councils	<ul style="list-style-type: none"> • Penrith City Council
State Government Departments and Offices	<ul style="list-style-type: none"> • NSW EPA • NSW Heritage Office • NSW Biodiversity and Conservation Division, Department of Planning Industry and Environment • NSW Department of Industry • Roads and Maritime Service • Transport for NSW • NSW Rural Fire Service • WaterNSW • National Resources Asset Regulator
Utility and Service Providers	<ul style="list-style-type: none"> • TransGrid • Endeavour Energy • WaterNSW • Sydney Water • Jemena • NBN • Telstra
Other Interested Parties	<ul style="list-style-type: none"> • Registered Aboriginal Parties

Contact details for the key stakeholders listed in **Table 4** above are included in **Appendix B & C**.

2.2.1 Properties receiving adjustments or architectural treatment and mitigating works

It is proposed to provide window glazing treatments to assist in acoustic attenuation to dwellings located at 20 Aldington Road, Kemps Creek.

A landscape bund is to be formed along the Western boundary of the development site to create an acoustic barrier to properties to the West. The location of the landscape bund is shown at **Appendix A**. The landscape bund shall be completed within 6 months of the commencement of any construction work, including bulk earthworks.

3 Key Issues Affecting Stakeholders

3.1 Previous Consultation

Goodman and their representatives have previously undertaken consultation with the community and stakeholders during the development of the project. Details of this consultation were included in the EIS (Urbis, 2017).

A total of 15 submissions were received, including one submission from a Local Council, three submissions from utilities providers, nine submissions from government authorities and two submissions from nearby properties and businesses. In response to the issues raised, Goodman revised several plans and consultant reports, which informed a Response to Submissions Report (Urbis, 2018a).

A further 10 submissions following these revisions were received and further modification to proposed plans and consultant reports were made, with a Supplementary Response to Submissions Report (Supplementary RTS) (Urbis, 2018b) prepared to the satisfaction of the determining authority.

For more information, refer to the Department of Planning and Environment's Major Project Assessments webpage at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7348v

3.2 Potential Issues and Strategies

Goodman are committed to ongoing proactive consultation with the community and stakeholders while understanding the importance of addressing potential issues and minimising construction and operational related impacts. **Table 5** outlines 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 Goodman will undertake to manage and mitigate impacts. The CEMP identifies management and mitigation measures to address those matters extending beyond consultation.

Table 5 Issue Identification and Mitigation

Potential Issue	Potential Key Impacts	Mitigation Strategy
Noise, Vibration and Dust	<p>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.</p> <p>Operations within the estate have the potential to emit noise and vibration with the potential to impact on nearby sensitive receivers.</p>	<p>Sensitive receivers and affected stakeholders will be consulted prior to actions likely to generate high levels of noise or vibration in accordance with Section 5.4.2 of this strategy.</p> <p>Up to date information on current and proposed works will be accessible to stakeholders and the wider public on the project web page.</p> <p>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.</p> <p>The CEMP, along with the supporting Dust, Noise and Vibration management plans 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.</p> <p>The OEMP prepared for the OWE as well as individual OEMPs for each warehouse development will contain environmental management controls to address noise and vibration, as well as monitoring and contingency measures to be implemented.</p>
Stormwater, Sediment Control, Erosion, Water Quality	<p>High rainfall events could result in localised flooding.</p> <p>Construction could result in impacts to local water quality, associated with sediment laden runoff.</p>	<p>Surrounding sensitive receivers will be consulted with in relation to adjacent works regarding flooding and water quality issues, with these items discussed at regular meetings, or as they arise via the construction hotline, in accordance with Section 5.4.2 of this Strategy.</p> <p>The CEMP, along with the supporting Soil and Water Management Plan and Water Quality Monitoring Program 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.</p>
Construction Traffic	<p>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.</p>	<p>Sensitive receivers will be notified prior to actions likely to cause traffic disruption in accordance with Section 5.4.2 of this strategy.</p> <p>The CEMP and supporting Construction Traffic Management Plan and Fill Importation Plan identify specific mechanisms to manage and mitigate these impacts.</p>

Potential Issue	Potential Key Impacts	Mitigation Strategy
Operational Traffic	An increase in traffic movements may be experienced in the broader locality directly related to the operations of the OWE, including light vehicles and transport trucks.	An OEMP has been established for the overall OWE and individual OEMPs will be developed for each warehouse within the estate. All OEMPs will be informed by and will enforce measures prescribed within Operational Traffic Management Plans (OTMPs), which will be developed to ensure operational traffic volumes and behaviours do not adversely impact on the surrounding area. All vehicle operators related to the OWE will comply with a Driver's Code of Conduct, to ensure safety and respect for other road users and the surrounding community is upheld.
Local Infrastructure, Utilities and Services	Temporary interruption to existing services including surrounding roads may be required to allow for road connections and the extension of services to the site.	Affected receivers would be notified of possible service disruption via letter box drop and regular meetings, with these disruptions minimised where possible through implementation of the designs identified within the SSD approvals package, measures identified within the CEMP and subsequent engagement with utility providers.
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 with these items discussed at regular meetings, or as they arise via the construction hotline, in accordance with Section 5.4.2 of this Strategy. The CEMP identifies 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 are likely to comprise those receivers immediately adjacent, who are to be advised of works with the potential for impact via letter box drop and regular meetings, or as they arise via the construction hotline, in accordance with Section 5.4.2 of this Strategy. The CEMP, along with the supporting Flora and Fauna Management Plan identify 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 where necessary and subject to endorsement from the applicable managing agency. Should out of hours work with the potential for impact be proposed the potentially affected receivers would be advised via letter box drop and/ or regular meetings in accordance with Section 5.4.2 of this Strategy.

Potential Issue	Potential Key Impacts	Mitigation 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 would be put in place, as discussed within Section 5.4.2 of this document. The CEMP, along with the supporting Unexpected Finds Protocol (Heritage) 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 unaware of the extent of the approval, with these complaints not directed through the appropriate project hotline. 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.	The CCS includes measures at Section 5.4.2 to provide regular updates in plain language, supported by imagery to stakeholders and the wider community through public and private media. Contact details including the hotline details will be provided on site, the project web page and in all information issued.
Emergency Event	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.	The CCS includes measures at Section 5.4.2 to provide updates in emergency events, with the CEMP and Emergency Management Plan identifying specific mechanisms to manage and mitigate these impacts.

4 Communications and Community Liaison Representative

Goodman have appointed a Communications and Community Liaison Representative (CCLR) who will provide the community and stakeholders with a single point of contact for the construction phases 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, including any temporary traffic switches.
- Current landowner discussions with members of staff.
- Planned community and stakeholder consultation.
- Complaints or enquiries received.
- Duties and accountabilities of staff.
- Commitments to stakeholders made by Goodman.

The CCLR will be supported by a community consultation team with the following responsibilities:

- Development and delivery of communications strategies, including meeting/workshop facilitation.
- Maintenance of the community and stakeholder consultation register.
- Property owner liaison to address property specific issues.
- Preparation of material and facilitating group and public meetings, workshops and forums for the works.
- Liaison with the construction team to identify items of potential community interest within the upcoming construction program.
- Identifying opportunities for improvement, monitoring community feedback and reporting back to the community via updates to the project web page and at regular community meetings.

The CCLR details are:

- Kiera Plumridge – Senior Consultant
kplumridge@slrconsulting.com; 1300 002 887
- Kate McKinnon – Associate – SLR
kmckinnon@slrconsulting.com; 1300 002 887

5 Community and Stakeholder Engagement

5.1 Objectives

The key objectives of the strategy are to meet the requirements of condition C19 of SSD7348 and:

- Keep the local community and key stakeholders informed of the commencement and progress of works relating to the OWE project.
- Ensure that enquires and complaints received from the community or key stakeholders for the duration of the project are addressed and responded to in a timely and effective manner.
- Inform nearby sensitive receivers 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.
- Seek opportunities for improvement throughout the project.

5.2 Approach

Goodman are committed to delivering Community and Stakeholder Engagement outcomes utilising the following principles at the core of their approach:

- **Clarity** – Communication and engagement will be delivered in a clear and easy to understand manner to ensure the project and all associated works are fully understood by the community and stakeholders.
- **Proactivity** – Consultation and notice shall be given prior to the commencement of works or the undertaking of potentially impactful activities.
- **Transparency** – Communication and engagement will be undertaken in an open and transparent fashion, with information shared between the community and the project team.
- **Accessibility** – Information relating to the project will be accessible via a broad range of mediums and will be made readily available to the community and stakeholders. Several avenues of contact shall be provided for the purposes of enquiry or complaint.

In their communications and consultation with the community and key stakeholders, Goodman 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)*.

5.3 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 6** below provides an overview of the mechanisms to be utilised to regularly inform and consult with the local community and key stakeholders and measures to mitigate potential issues throughout the development.

Table 6 Communication Management and Mitigation Tools

Tool/ Technique	Description	Person Responsible	Audience	Frequency/Timing/Phase	Specifications
Community Consultation Meetings	Informal meetings, providing a project update and opportunity for the community and stakeholders to discuss recent experiences and upcoming construction activities.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Construction phase. Meetings would initially be held quarterly, with the frequency then subject to the level of interest and the construction program.	Project updated including a review of any complaints received and remedial actions, followed by informal discussion with stakeholders and the community.
Community Workshops/Forums	An initial community workshop/forum to be held to identify the overarching construction program and communications protocols, with the event advertised via local newspaper and letter box drop.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Prior to commencement of construction.	The first portion of the workshop is formal, identifying the project program, key personnel and the communications protocol. The second portion is informal with time for stakeholders and the community to ask questions and discuss any concerns.
Consultation Register	Recording community and stakeholder interactions, along with associated remedial actions as required.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Project duration.	The consultation register satisfies the requirements of Condition C19 of SSD7348, and Specification 3.7.3 of the RMS G36 Specifications requiring a Complaints Register. The register will be continually updated to record community engagement, including information provided by Goodman, feedback received, and remedial action undertaken where required.

Tool/ Technique	Description	Person Responsible	Audience	Frequency/Timing/Phase	Specifications
Environmental Review Group Meeting	Meeting of key environmental stakeholders	Environmental Representative	All environmental stakeholders	As required for the construction phase	The Environmental Review Group will be briefed on upcoming project tasks with key environmental implications, along with complaints and enquiries received
Individual Community Meetings	Meetings with stakeholders as required to discuss a specific item.	CCLR and Community Consultation Team	The wider community and key stakeholders.	As required for the project duration.	Details and format subject to the meetings context, with a record of the discussion included in the consultation register and actioned as required.
Newspaper Advertisement	Newspaper Advertisement(s) to be published in The Western Weekender and Mt Druitt – St Marys Standard identifying the project hotline number and web page address.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Prior to the commencement of the initial construction activities on the site and throughout the project prior to known key intrusive events.	An advertisement will be published advising of the commencement date of construction, a brief overview of the project and key contact details for enquires and complaints including the hotline, webpage and email address. Further advertisements will be published where intrusive events are scheduled advising of the nature and date(s) and time(s) of the event and key contact details for enquiries and complaints.
Notification Letterbox Drop	Letters would be provided to specific receivers identified as being potentially affected by construction. This could be undertaken in tandem with door knocking.	CCLR and Community Consultation Team	Residents of the immediate area.	As required for the project duration.	Letter box drop details to be recorded in the consultation register. Timing of construction activity to be identified along with relevant contact details.
On Site Signage	Project information details.	CCLR and Community Consultation Team	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.

Tool/ Technique	Description	Person Responsible	Audience	Frequency/Timing/Phase	Specifications
Online Feedback Forms	Simple form allowing rapid ad hoc feedback.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Project duration.	Form available on the Oakdale project web page, with feedback provided to be incorporated into the consultation register and actioned as required.
Project Information and Complaints Number	Project hotline available for 24 hours recording of project feedback during construction Goodman and Tenant's Representative numbers available during operations	CCLR and Community Consultation Team or Goodman Representative / Tenant Representative	The wider community and key stakeholders.	Project duration.	Hotline number located on site signage, the web page and all project information material. Feedback provided to be incorporated into the consultation 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 for WNSLR and Stage 1 Infrastructure Works	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
Text Message and Email Alerts	Text messages providing prompt updates	CCLR and Community Consultation Team	Residents of the immediate area.	As required for the project duration.	Text Messages and email alerts will provide important information at short notice to potentially affected receivers. Text message and email details to be recorded in the consultation register.

Tool/ Technique	Description	Person Responsible	Audience	Frequency/Timing/Phase	Specifications
Website	A web page is established at: oakdaleopportunities.com	CCLR and Community Consultation Team	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 contact details including hotline, email address and enquiry form, as well as project updates, along with environmental performance monitoring. Refer to Section 5.3.1 below for further details.

5.3.1 Project Website

Goodman has established a website for the project (oakdaleopportunities.com). The website was established prior to the commencement of works and will be maintained during the delivery of the project until the completion of all works.

The following information will be updated monthly or more frequently when necessary and made available on the website as required by SSD 7348 Condition D143:

- A copy of the documents listed in Condition D2 of the SSD Consent (SSD 7348).
- All current statutory approvals for the Development.
- All approved strategies, plans and programs required under conditions of the SSD Consent (SSD 7348).
- The proposed staging plans for the Development if the construction, operation or decommissioning of the Development is to be staged.
- A comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of the SSD Consent (SSD 7348), or any approved plans and programs.
- A summary of the current stage and progress of the Development.
- Contact details (including email address, phone number and postal address) to enquire about the Development or to make a complaint.
- A complaints register, updated monthly and details of the complaints handling protocol for the project.
- The Compliance Report of the Development.
- Audit reports prepared as part of any monitoring or environmental audit of the Development and the Applicant's response to the recommendations in any audit report.
- Any other matter required by the Planning Secretary.

5.3.2 WNSLR Works Liaison and Notification Requirements

Where works relate to the construction of the WNSLR, the RMS QA Specification G36 – Environmental Protection sets out a number of specifications and measures addressing notification to the community and affected stakeholders. In order to comply with these requirements, Goodman shall undertake the following activities:

- Goodman shall notify local residents and other stakeholders about any new or changed construction activities including changes to bus stop locations and / or timetables, which will affect access to their properties/ premises at least five 5 working days before commencing work affecting residents.
- Such notification will state the nature of the work, why it is necessary, the expected duration, details of any changes to the traffic arrangements or property access and the name and 24-hour contact telephone number of the CCLR who can respond to any resident/stakeholder concerns.
- Any complaints shall be addressed in accordance with the complaint's procedure outlined in Section 5.4 of this strategy.
- Where extended working hours are proposed, the contractor shall inform Goodman who will subsequently inform residents of the proposed work outside normal working hours in accordance with the requirements outlined in this strategy. Written approval from the Planning Secretary will be sought for out of hours work.

- Within one working day of receiving a complaint about any environmental or other issue which has the capacity to damage Goodman’s reputation, including any pollution incidents, arising from the Work Under the Contract, a written report to Goodman shall be submitted detailing the complaint and the action taken to remedy the problem. A final report together with proposed measures to prevent the recurrence of such incidents shall be submitted to the Goodman within 5 working days.

The contractor shall adhere to set timeframes for notification of Goodman and distribution of notice to the community and stakeholders for activities related to the WNSLR. This commitment is outlined in **Table 7** and **Table 8** below:

Table 7 Notification Requirements for Goodman prior to Construction Activities

Activity	Notification required
Work at night (any time between 6pm and 7am)	2 weeks where possible, a minimum of 1 week
Work on weekends (including public holidays)	2 weeks where possible, a minimum of 1 week
Major changes to configuration of road traffic	At least 4 weeks
Impacts on pedestrians and/or bicyclists	At least 4 weeks
Commencement, rescheduling or completion of key construction activities	At least 4 weeks for commencement and completion, 24 hours’ notice for rescheduling
Commencement or rescheduling of property adjustment work	At least 2 weeks (four weeks for businesses)
Alteration to property access arrangements	At least 4 weeks
Other activities not identified above which may impact on the community stakeholders	At least 24 hours
Any form of community protest on site	Immediately

Table 8 Notification Requirements for construction works

Notification Type	Submission to Goodman	Distribution to Community and Stakeholders
Out of Hours Works / Night Works	Draft a notification letter at least 24 hours prior to the works being carried out	2 weeks where possible, a minimum of 1 week prior to the works being carried out
Traffic Conditions	Draft letter at least 4 weeks prior to the traffic conditions changing	At least 5 business days prior to the traffic conditions changing if deemed necessary by Goodman
Individual private properties regarding property adjustments or changes to access	Draft letter at least 4 weeks prior to the works being carried out	At least 2 weeks prior to the works being carried out of access changes
Access for bridgeworks over the Water NSW pipelines	Final draft of notification at least 4 weeks prior to be works being carried out	At least 4 weeks prior to the works being carried out
Individual businesses regarding property adjustments or changes to access	Draft letter at least 4 weeks prior to the works being carried out	At least 4 weeks prior to the works being carried out of access changes

5.3.3 Communication with Sensitive Receivers’ Procedure

During the course of construction works the CCLR will consult with nearby sensitive receivers listed below when necessary to advise of and/or schedule events and activities with the potential to cause impact such as high noise generating works, vibration intensive activities or traffic management disruptions.

The CCLR shall also consult with sensitive receivers to arrange respite period offerings where high-noise works are predicted to exceed 75dBA for residential receivers and 65dBA for schools and the retirement village. Respite offers will also be considered for high vibration works where the works are undertaken within the human comfort minimum working distances for all sensitive receivers.

Sensitive receivers are considered to include adjacent and directly affected properties, businesses and schools including:

- Residential properties located along Aldington Road (As shown in **Appendix A**).
- Emmaus Catholic Primary School and High School and Retirement Village on Bakers Lane.

Where development works have the potential to impact on sensitive receivers or respite offerings are proposed the CCLR will implement the sensitive receiver procedure outlined in **Table 9** below:

Table 9 Sensitive Receiver Procedure

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 Variable Message Signs	No less than 24 hours prior to the activity
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

5.4 Complaints Procedure

Goodman are committed to the timely and effective management of enquiries and complaints relating to construction and operational activities for the OWE. To this end, the following complaints procedure shown in **Figure 4** will be adhered to, enabling the receipt and recording of enquiries and complaints, along with the methods of response and resolution of issues raised.

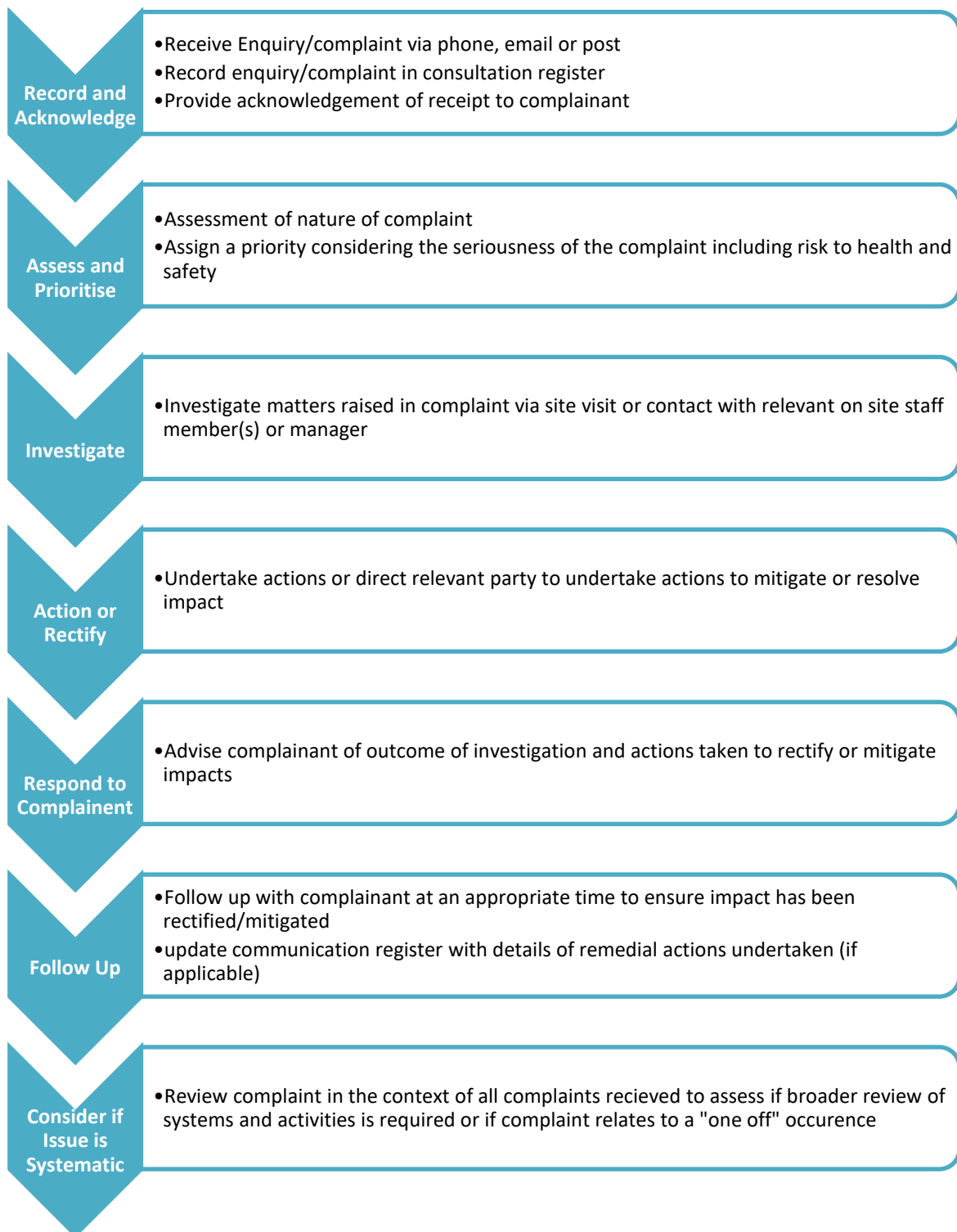


Figure 4 Complaints Handling Procedure

5.4.1 Protocol for Receiving and Recording Enquiries and Complaints

Goodman have established a project email and postal address for the receipt of enquiries and complaints relating to the development. The email and postal accounts will be regularly monitored to receive and respond to customer feedback and enquiries. The community information line (1300002887) has been established. The CCLR and community consultation team will manage the information line from the commencement of the project until the completion of construction. 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. Phone enquiries and complaints received in relation to the operational phase will be received by Goodman’s or the Tenant’s Representative. All approaches from the community and stakeholders will be registered in the project’s consultation register. The facilities established for receiving enquiries and complaints about the project during construction are shown in **Table 10**.

Table 10 Enquires and Complaints Facilities

Facility	Purpose	Detail
Community Information Line (Construction phase)	A contact phone number and associated contact name for questions/enquiries and the lodgement of complaints relating to the construction of the development.	1300 002 887
Goodman’s or Tenant’s Representative (Operational phase)	Contact phone numbers and associated contact name for questions/enquiries and the lodgement of complaints relating to the operation of the development.	As per Table 2-2 of the OWE OEMP as well as individual OEMPs for each warehouse
Email Address	An email address accessible via email and online enquiry form for questions/enquiries and the lodgement of complaints relating to the development.	community.oakdalewest@goodman.com
Postal Address	A postal address for the receipt of questions/enquiries and the lodgement of complaints relating to the development.	Level 17, 60 Castlereagh Street, Sydney, NSW 2000
In person verbal	Verbal enquiries and complaints can be made formally during community meetings or may be made informally where staff interact with members of the public in informal settings.	Verbal in person comments and submissions

Goodman have established a consultation register to record all complaints and enquiries received by the above means. The consultation register will be maintained on a regular basis and used to inform discussion at monthly community consultation and project team meetings. The consultation 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.
- If no action was taken, the reasons why no action was taken by you.

An excerpt of the consultation register is included at **Appendix B**.

5.4.2 Protocol for Responding to and Resolving Enquiries and Complaints

Where a complaint or enquiry is received the responsible party (CCLR (construction phase) and Goodman or Tenant's Representative (operational phase)) will attempt to provide an immediate response if possible, via phone or email. Where a complaint or enquiry cannot be responded to immediately the responsible party 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 responsible party will assess whether the complaint is founded or unfounded and if necessary, delegate the remediation of the issue to the project manager for action or to the relevant project engineer or tenant's representative. The responsible party 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 responsible party 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 responsible party will liaise with the project manager or relevant project engineer/tenant's representative 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 Goodman to facilitate negotiation between affected parties. This shall be performed by an independent person (mediator) appointed by Goodman.

5.4.3 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 support team's health, safety, resourcing or equity of service, Goodman shall adhere to the procedures and practices outlined within the NSW Ombudsman's "*Managing Unreasonable Complainant Conduct Practice Manual 2nd Edition*".

5.4.4 Contingency Management Plan

In accordance with Condition D118(d) of the SSD 7348 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 11** below:

Table 11 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 consultation register. No further response required.	Acknowledge receipt and record in consultation register. Direct enquiry to relevant person for actioning and response within 5 days.	Acknowledge receipt and record in consultation 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 consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman Project Team for further action and response. Contact relevant person for actioning and response within 48 hours

Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
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 consultation register. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response immediately. Acknowledge in consultation 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	Goodman Project Team to prepare and provide response or assign response task to relevant staff member for comment. Record in consultation register.	Goodman Project Team to prepare and provide response within 48 hours. Record in consultation register.	Goodman Project Team to prepare and provide response within 24 hours. Record in consultation register.

6 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 CCS undertaken to formalise these incremental improvements.

6.1 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.
- 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 12** below.

Table 12 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

Monitoring Parameter	Rationale	Performance Criteria	Monitoring Frequency
Response timeframes	Response to enquiries and complaints should be timely to ensure effective responsiveness and rectification of issues and to encourage trust within the community.	Enquiries and complaints acknowledged within 48 hours. Urgent enquiries and complaints responded to within 48 hours of receipt, non-urgent enquiries and complaints responded to within 5 days.	Monthly

6.2 Reporting

Reporting shall be undertaken annually, with a monthly summary of results provided to the approved Environmental Representative (ER) in accordance with Conditions D127(e) and D128 of SSD77348 and the broader project team during monthly project team meetings. The 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 community consultation activities proposed within the following month.
- A summary of all enquiries and complaints received within the preceding month, including details of response and/or remediation activities.

Within three months of the submission of documentation identified by Condition D133 this CCS would be reviewed for compatibility.

6.3 Evaluation

Where performance criteria are not being satisfied, review of this strategy and its implementation will be undertaken by the Community Consultation Team 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.

7 References

- NSW Ombudsman (2012) *Managing Unreasonable Complainant Conduct Practice Manual 2nd Edition*
- SLR Consulting Australia (2019) *Construction Environmental Management Plan*
- Urbis (2017) *Environmental Impact Statement – Oakdale West Estate (State Significant Development Application Ref 7348)*
- Urbis (2018) *Response to Submissions (A)*
- Urbis (2018) *Response to Submissions (B)*

APPENDIX A

Sensitive Receiver Map



APPENDIX B

Key Stakeholder Contact Details

Contact Name/Organisation	Contact Details
The Residents – 20 Aldington Road	
Emmaus Catholic College	Harvey Anchique - Business Manager P: (02) 9670 8300 F: (02) 9834 3403 M: 0428 063 119 E: hanchique@parra.catholic.edu.au
Trinity Catholic Primary School	Catherine Hey - Principal, chey@parra.catholic.edu.au, 02 8856 6200
Mamre Anglican School	Cathie Graydon – Principal (02)98341881, cathie.graydon@mamre.nsw.edu.au Marijana Motrivic, Business Manager 02, 8073 6908 marijana.mitrovic@mamre.nsw.edu.au,
Catholic Healthcare Emmaus Village	James Byrne Building Services Manager, M. 0434604370, jbyrne@chcs.com.au Kate Todd, Emmaus Village, ktodd@chcs.com.au, Home, 02 8804 0200
Little Smarties Learning Centre	61 2 9834 2155 kempscreek@littlesmarties.com.au
Penrith City Council	61 2 4732 7777 council@penrith.city
NSW EPA	131 555 info@epa.nsw.gov.au
NSW Biodiversity and Conservation Division, Department of Planning Industry and Environment	61 2 9995 5000 info@environment.nsw.gov.au
NSW Department of Industry	61 2 9338 6600
Roads and Maritime Service	13 22 13
Transport for NSW	61 2 8202 2200
NSW Rural Fire Service	61 2 8741 5555 webmaster@rfs.nsw.gov.au
WaterNSW	1300 662 077 Customer.Helpdesk@waternsw.com.au
National Resources Asset Regulator	61 2 9338 6600
TransGrid	61 2 9284 3000
Endeavour Energy	131 081
Sydney water	13 20 92
Jemena	1300 536 362
NBN	1300 687 626
Telstra	13 22 00
Registered Aboriginal Parties	See Appendix C

APPENDIX C

Registered Aboriginal Parties

Name	Organisation	Address	Suburb	State	Postcode	Email	Phone	Notes
Caroline Hickey	A1 Indigenous Services					cazadirect@live.com	Mobile: 0411 650 057	
Andrew Williams	Aboriginal Archaeology Service Inc.	PO Box 6283	Rouse Hill	NSW	2155	AAS.info@bigpond.com	Mobile: 0490 126 040	
Amanda Hickey	Amanda Hickey Cultural Services	41 Dempsey St	Emu Heights	NSW	2750	amandahickey@live.com.au	Mobile: 0434 480 588	
Karia Lea Bond	Badu	11 Jeffery Pl	Morya	NSW	2537	baduacts@gmail.com	Mobile: 0476 381 207	
Seli Storer	Biamanga					biamangachts@gmail.com		
Richard Andy	Bidawal CHTS					bidawalchts@gmail.com		
Simalene Carriage	Bilinga					bilingachts@gmail.com		OR Wandai Kirkbright??? Website: http://www.butucarbin.org.au/ , postal address: PO Box E18 Emerton NSW 2770
Jennifer Beale	Butucarbin Aboriginal Corporation	28 - 30 Pringle Road	Hebersham	NSW	2770	koori@ozemail.com.au	Office: (02) 9832 7167, Mobile: 0409 924 409	
Marilyn Carroll-Johnson	Corroboree Aboriginal Corporation	PO Box 3340	Rouse Hill	NSW	2155	corroboreecorp@bigpond.com.au	Mobile: 0415 911 159	Contact details for Steve Johnson
Corey Smith	Cullendulla Darug Aboriginal Cultural Heritage					cullendullachts@gmail.com		
Gordon Morton	Assessments	Unit 9, 6 Chapman Ave	Chatswood	NSW	2067		Office: (02) 9410 3665, Mobile: 0422 865 831	
Des Dyer	Darug Aboriginal Landcare	18A Perigee Close	Doonside	NSW	2767	desmond4552@hotmail.com	Mobile: 0408 360 814	Site officer: 0402 942 572
Justine Coplin	Darug Custodian Aboriginal Corporation	PO Box 81	WINDSOR	NSW	2756	justinecoplin@optusnet.com.au	(02) 4577 5181 Office: (02) 4577 5181, Mobile: 0415 770 163	
Leanne Watson	Darug Custodian Aboriginal Corporation	PO Box 81	Windsor	NSW	2758	mulgokivi@bigpond.com	Mobile: 0420 591 138	
Jamie Workman	Darug Land Observations PTY LTD	PO Box 571	Plumpton	NSW	2761	daruglandobservations@gmail.com	Mobile: 0415 663 763	Deceased
Gordon Workman	Darug Land Observations PTY LTD	PO Box 571	Plumpton	NSW	2761	gordow51@bigpond.net.au	Office: (02) 9622 4081	
John Reilly	Darug Tribal Aboriginal Corporation	PO Box 441	Blacktown	NSW	2148	jmreilly228@gmail.com		
Steve Randall	Deerubbin Local Aboriginal Land Council	2/9 Tindale St	Penrith	NSW	2750	SRandall@deerubbin.org.au	Office: (02) 4724 5600	
Andrew Bond	Dharug CHTS					dhargchts@gmail.com		
Ricky Fields	Dhinawan-Dhigaraa Culture and Heritage PTY LTD	19 Moomi St	Lalor Park	NSW	2147	Dhinawan2@yahoo.com.au	Mobile: 0402 942 572	
Athol Smith	Dhinawan-Dhigaraa Culture and Heritage PTY LTD	16 Yantara Place	Woodcroft	NSW	2767	Dhinawan2@yahoo.com.au	Mobile: 0499 665 715	
Lilly Carroll	Didge Ngunawal					didgengunawalclan@yahoo.com.au	Mobile: 0450 616 404	
Paul Boyd	Didge Ngunawal					didgengunawalclan@yahoo.com.au	Mobile: 0426 823 944	
Keith Nye	Djiringanj CHTS					diiringanichts@gmail.com		
Lenard Nye	Elouera CHTS					elouerachts@gmail.com		
Kahu Brennan	Eora					eorachts@gmail.com		
Kim Carriage	Gangangarra					gangangarra@gmail.com		
Basil Smith	Goobah Developments	66 Grantham Rd	Batehaven	NSW	2536	goobahchts@gmail.com	Mobile: 0405 995 725	
Wendy Smith	Gulaga					gulagachts@gmail.com		
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APPENDIX D

Complaints Register

Date	Time	Responsible Party	In/Out	Initial Communication Method/Tool	Contact Name/ Organisation	Contact Details	Documentation Location (if applicable)	Communication Type: Complaint/ Enquiry/ Communication	Summary of Issues/ Details	Action Taken	Further Action/ Monitoring to Confirm Resolution

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APPENDIX H

Construction Noise and Vibration Management Plan

OAKDALE WEST INDUSTRIAL ESTATE - LOT 5A & 5B

Construction Noise and Vibration Management Plan

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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 Goodman Property Services (Aust) 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
630.30434-OWE 5A & 5B CNVMP-R01-v1.0	2 February 2023	Joshua Ridgway	Antony Williams	Antony Williams

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1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Goodman Property Services (Aust) Pty Limited (Goodman) to prepare a Construction Noise and Vibration Management Plan (CNVMP) for construction works associated with the development of Lot 5A and 5B of the Oakdale West Industrial Estate (Oakdale West) in Kemps Creek.

The CNVMP addresses the potential noise and vibration impacts associated with the construction of the development and details the mitigation and management procedures for dealing with potential impacts. Construction noise and vibration impacts were previously assessed for Oakdale West Lot 5A and 5B as part of the *Oakdale West Estate Buildings 3C1, 3C2, 5A & 5B Noise and Vibration Assessment* (Report No 2102730 Version D) prepared by RWDI in November 2022 (the NVA).

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).

1.1 Development Overview

Oakdale West is a regional warehouse and distribution hub located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Oakdale Industrial Precinct located within the Western Sydney Employment Area (WSEA) (see **Figure 1**).

Goodman obtained Development Consent SSD 7348 for the staged development of Oakdale West Industrial Estate (Oakdale West) comprising a warehousing and a distribution hub at Kemps Creek in Western Sydney. SSD 7348 and all associated Modifications incorporates the approval of a 'Concept Proposal' to guide the future development of the estate and consent for the 'Stage 1 Development' and all subsequent stages. The Stage 1 Development includes construction of the proposed Western North South Link Road (WNSLR), site-wide bulk earthworks, estate wide basins, and lead-in services. It also includes infrastructure and associated services, landscaping, and construction and use approval for Precinct 1.

This CNVMP has been prepared to cover the construction at Lot 5A and 5B of Oakdale West (see **Figure 2**). Where Goodman is nominated as having responsibility as the Applicant, this may be delegated to their specialist consultants.

The development of Lot 5A and 5B was approved by the Department of Planning under SSD7348 MOD 11 and Penrith City Council under Development Application DA22/0546.

Figure 1 Oakdale West Masterplan

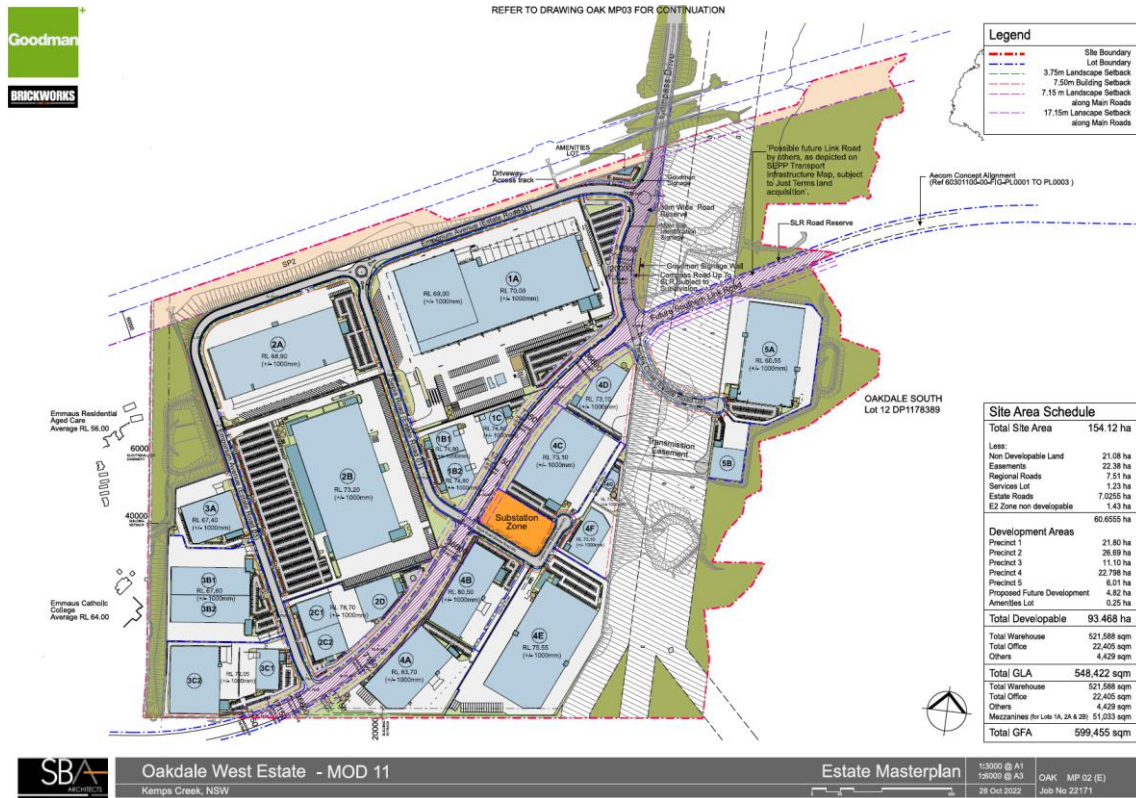


Figure 2 Lot 5A & 5B Plan



1.2 Objectives of the CNVMP

The objectives of this CNVMP are as follows:

- Document the statutory requirements applicable to construction noise and vibration emissions;
- Detail the mitigation and management measures required to achieve compliance with relevant noise and vibration criteria for surrounding sensitive receivers;
- Outline the roles and responsibilities in relation to the management of noise and vibration emissions during construction; and
- Promote environmental awareness among employees and subcontractors.

This CNVMP covers construction of Lot 5A and 5B at Oakdale West.

1.3 Terminology

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in **Appendix A**.

2 Statutory Requirements

This CNVMP has been prepared to accompany the Construction Environmental Management Plan (CEMP) for Lot 5A and 5B at Oakdale West. The conditions relevant to this CNVMP are outlined in the following sections.

2.1 Penrith City Council Conditions of Consent

Conditions of consent specific to Lot 5A and 5B are specified in Penrith City Council Notice of Determination DA22/0546, dated February 2023. The conditions relevant to this CNVMP are reproduced in **Table 1**.

Table 1 Development Consent Conditions

Development Consent Conditions	Section / Comment
20. Construction works shall be carried out in accordance with the NSW Department of Environment and Climate Change's "Interim Construction Noise Guideline" 2009.	Section 4
22. Prior to issue of the Construction Certificate, a Construction Noise Impact Assessment and Management Plan, prepared by a suitably qualified acoustic consultant, is to be prepared and submitted to Penrith City Council for approval. This assessment is to consider (at minimum) the noise impacts associated with the construction phase, as well as details of the construction program, construction methods, equipment and vehicles in associated with the NSW Department of Environment and Climate Change's "Interim Construction Noise Guideline" 2009. The recommendations of the Council approved Management Plan are to be implemented and adhered to during the construction phase of the development. Note: For the purpose of this condition a suitably qualified acoustic consultant means a consultant who possesses the qualifications to render them eligible for membership of the Australia Acoustics Society, Institution of Engineers Australia or the Association of Australian Acoustic Consultant at the grade of member.	This CNVMP
38. Construction works or subdivision works that are carried out in accordance with an approved consent that involve the use of heavy vehicles, heavy machinery and other equipment likely to cause offence to adjoining properties shall be restricted to the following hours in accordance with the NSW Environment Protection Authority Noise Control Guidelines: <ul style="list-style-type: none"> • Monday to Fridays, 7am to 6pm • Saturdays, 7am to 1pm (if inaudible on neighbouring residential properties), otherwise 8am to 1pm • No work is permitted on Sundays and Public Holidays. Other construction works carried out inside a building/tenancy and do not involve the use of equipment that emits noise are not restricted to the construction hours stated above. The provisions of the Protection of the Environment Operations Act, 1997 in regulating offensive noise also apply to all construction works.	Section 3.5

2.2 Relevant Guidelines

The guidelines used to assess the construction impacts from the development are listed in **Table 2**. The guidelines aim to protect the community and environment from excessive noise and vibration impacts that may result from construction of the development.

Table 2 Construction Noise and Vibration Guidelines

Guideline/Policy Name	Where Used
Environment Protection Authority (EPA) (2009) <i>Interim Construction Noise Guideline</i> (ICNG)	Assessment of noise impacts on sensitive receivers.
Roads and Maritime Services (2016) <i>Construction Noise and Vibration Guideline</i> (CNVG)	Assessment and management protocols for noise and vibration impacts.
Environment Protection Authority (EPA) (2006) <i>Assessing Vibration: a technical guideline</i>	Assessment of vibration impacts on sensitive receivers.
British Standard Institution (BSI) (1993) <i>BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2</i> (BS 7385)	Assessment of vibration impacts (structural damage) to sensitive structures.
German Institute for Standardisation (Deutsches Institut für Normung) (1999) <i>DIN 4150 – Structural vibration - Effects of vibration on structures</i> (DIN 4150)	Assessment of vibration impacts (structural damage) to sensitive structures.

3 Project Overview

3.1 Description

The Oakdale West site is bound to the north by the WaterNSW Pipeline and to the east by the Ropes Creek riparian corridor. Land along the eastern boundary of the site is also affected by a transmission easement associated with Transgrid infrastructure. To the east of the site is Goodman's Oakdale South Estate. Emmaus Catholic College and Emmaus Retirement Village are located to the west of the site. Other boundaries interface with adjoining rural lands used for a mix of rural-residential and agricultural.

Lot 5A and 5B are located in Precinct 3 of Oakdale West (see **Figure 1**).

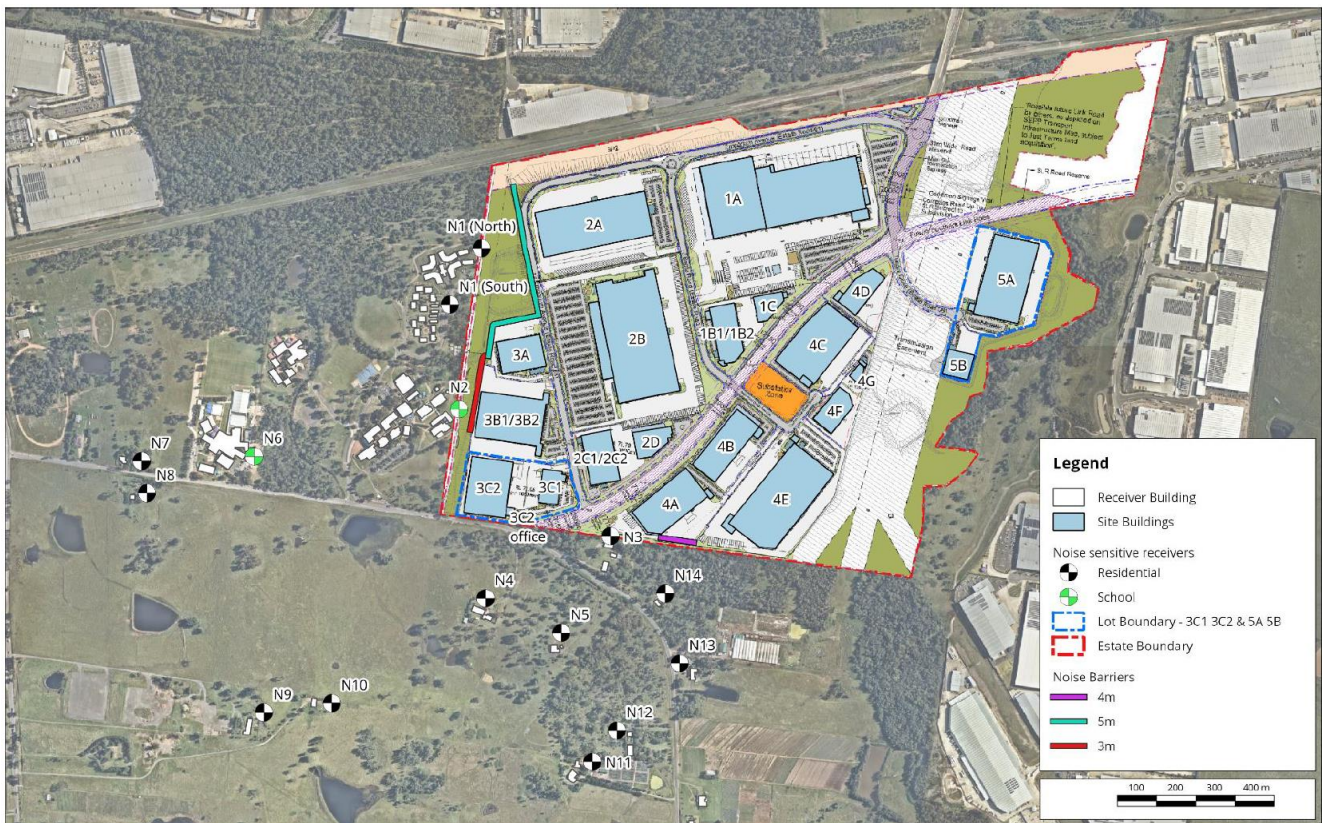
3.2 Location

Located in the Penrith local government area (LGA) at the far south western extent of the WSEA, Oakdale West is made up of the land parcel legally described as Lot 26 DP 1269741, owned by Goodman.

3.3 Surrounding Land Uses

The noise and vibration assessment locations representative of the nearest sensitive receivers surrounding Oakdale West were identified in the NVA for the project and are shown in **Figure 3**.

Figure 3 Receiver Locations



Note 1: Figure extracted from *Oakdale West Estate Buildings 3C1, 3C2, 5A & 5B Noise and Vibration Assessment* (Report No 2102730 Version D) prepared by RWDI in November 2022 (the NVA).

3.4 Construction Timing and Activities

Construction at Lot 5A and 5B is proposed to commence in March 2023 and be completed in November 2023. Construction must not commence until this CNVMP is approved by Penrith City Council.

Construction activities will include:

- Minor earthworks to accommodate the building and external levels;
- Pouring of concrete slabs;
- Construction of the warehouse and office including wall and roof cladding;
- Internal fit-outs (office area and warehouse racking);
- Construction of loading bays
- Construction of truck and car parking areas; and
- Site landscaping.

3.5 Construction Hours

Construction hours will be in accordance with Condition 38 of the Development Consent, which is reproduced below:

38. Construction works or subdivision works that are carried out in accordance with an approved consent that involve the use of heavy vehicles, heavy machinery and other equipment likely to cause offence to adjoining properties shall be restricted to the following hours in accordance with the NSW Environment Protection Authority Noise Control Guidelines:

- *Monday to Fridays, 7am to 6pm*
- *Saturdays, 7am to 1pm (if inaudible on neighbouring residential properties), otherwise 8am to 1pm*
- *No work is permitted on Sundays and Public Holidays.*

Other construction works carried out inside a building/tenancy and do not involve the use of equipment that emits noise are not restricted to the construction hours stated above.

The provisions of the Protection of the Environment Operations Act, 1997 in regulating offensive noise also apply to all construction works.

3.6 Construction Site Access

Access to Lot 5A and 5B will be via Compass Drive (the WNSLR) and Estate Roads 01 and 03 (refer to **Figure 1**).

4 Construction Noise and Vibration Criteria and Guidelines

4.1 Construction Noise Criteria

In accordance with Condition 20 of the Development Consent, the site must be constructed with the aim of achieving the construction noise management levels (NMLs) detailed in the NSW *Interim Construction Noise Guideline* (ICNG). Explanation of what constitutes feasible and reasonable is outlined in Section 1.4 of the ICNG.

The ICNG process to determine NMLs is detailed in **Section 4.1.1**. The project specific noise criteria is summarised in **Section 4.1.2**.

4.1.1 Interim Construction Noise Guideline

The ICNG requires project specific NMLs to be established for noise affected receivers. The NMLs are not mandatory limits, however in the event construction noise levels are predicted to be above the NMLs, feasible and reasonable work practices are to be investigated to minimise noise emissions.

The ICNG provides an approach for determining NMLs at residential receivers based on Rating Background Level (RBL) for the area, as described in **Table 3**.

Table 3 Determination of NMLs for Residential Receivers

Time of Day	NML LAeq(15minute)	How to Apply
ICNG 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	RBL + 10 dBA	<ul style="list-style-type: none"> The noise affected level represents the point above which there may be some community reaction to noise. 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. 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.
	Highly Noise Affected 75 dBA	<ul style="list-style-type: none"> The Highly Noise Affected (HNA) level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours that the very noisy activities can occur, taking into account: <ul style="list-style-type: none"> 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. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

Time of Day	NML LAeq(15minute)	How to Apply
Outside recommended standard construction hours	RBL + 5 dBA	<ul style="list-style-type: none"> A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dBA above the noise affected level, the proponent should negotiate with the community.

Note 1 The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW *Noise Policy for Industry*.

Works are recommended to be completed during Standard Construction Hours where possible. More stringent requirements are placed on works that are required to be completed outside of Standard Construction Hours (ie during the evening or night-time) which reflects the greater sensitivity of communities to noise impacts during these periods.

The ICNG also recognises other kinds of noise sensitive receivers and provides recommended NMLs for them. Those specific receivers and their recommended noise levels are presented in **Table 4**.

Table 4 Construction Noise Management Levels at Other Sensitive Land Uses

Land use	NML LAeq(15minute)
Classrooms at schools and other educational institutions	Internal noise level 45 dBA
Hospital wards and operating theatres	Internal noise level 45 dBA
Places of worship	Internal noise level 45 dBA
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dBA
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level 60 dBA
Community centres	Depends on the intended use of the centre

The ICNG notes that due to the broad range of sensitivities that commercial or industrial land can have to noise from construction, the process of defining management levels is separated into three categories:

- Industrial premises: external 75 dBA LAeq(15minute)
- Offices, retail outlets: external 70 dBA LAeq(15minute)
- For other businesses that may be very sensitive to noise, appropriate goals should be determined on a case by case basis with reference to Australian/New Zealand Standard *AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (AS2107)*.

4.1.2 Project Specific NML Summary

The NVA defined the airborne NMLs for the various surrounding receivers. The NMLs applicable for the receivers surrounding Oakdale West are outlined in **Table 5**.

Table 5 Project Specific Noise Management Levels

Receiver	Period	LAeq,15min Construction NMLs (dBA)	
		Standard Hours	Highly Noise Affected
N1, N7 & N8	Day	49	75
N9 – N14	Day	44	75
N2 & N6	Day	55 ¹	n/a

Note 1: Noise level of LAeq 55 dBA has been adopted, with consideration to the generally accepted 10 dB noise reduction typically achieved through a partially open window.

It is understood that a Noise Agreement between the applicant and receiver N3, N4 and N5 has been made. As such, no criteria are applicable at receivers N3, N4 and N5.

As noted in **Table 3**, where the predicted or measured LAeq(15minute) construction noise levels exceed the NMLs in **Table 5**, all feasible and reasonable work practices will be applied with the aim of meeting the NMLs.

Where the predicted or measured construction noise levels are above the highly noise affected criteria (i.e. 75 dBA), respite periods may be required by restructuring the hours that the noisy activities can occur.

Predicted construction noise levels are discussed in **Section 5.1**.

4.2 Construction Vibration Criteria

Vibration from construction works on the site, as measured at any residence or sensitive structure, must be limited to the criteria outlined in:

- For structural damage – German Standard *DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures* (DIN 4150); and
- For human exposure, the EPA’s *Assessing Vibration: a technical guideline*.

British Standard *BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2* (BS 7385) provides further guidance with regards to reducing the potential for structural damage.

Structural damage criteria is detailed in **Section 4.2.1** and human exposure criteria is detailed in **Section 4.2.2**.

Minimum working distances based on these criteria are summarised in **Section 4.2.3**.

4.2.1 Cosmetic Damage Vibration Thresholds

British Standard BS 7385

The recommended vibration limits from BS 7385 for transient vibration for minimal risk of cosmetic damage to residential and industrial buildings are shown in **Table 6**. These levels are judged to give a minimum risk of vibration-induced damage, where minimal risk is usually taken as a 95% probability of no effect.

Table 6 Transient Vibration Guide Values for Minimal Risk of Cosmetic Damage (BS 7385)

Line	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	50 mm/s at 4 Hz and above
2	Unreinforced or light framed structures	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

German Standard DIN 4150-3

For continuous long-term vibration or repetitive vibration with the potential to cause fatigue effects, DIN 4150 provides the following Peak Particle Velocity (PPV) values as safe limits, below which even superficial cosmetic damage is not to be expected:

- 10 mm/s for commercial buildings and buildings of similar design.
- 5 mm/s for dwellings and buildings or similar design.
- 2.5 mm/s for buildings of great intrinsic value (eg heritage listed buildings).

For short-term vibration events (ie those unlikely to cause resonance or fatigue), DIN 4150 offers the criteria shown in **Table 7**. These are maximum levels measured in any direction at the foundation or in the horizontal axes in the plane of the uppermost floor.

Table 7 Guideline Values for Short-term Vibration on Structures (DIN 4150)

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 and are of great intrinsic value (e.g. listed buildings)	3	3 to 8	8 to 10	8	20 ¹

Note 1: It may be necessary to lower the relevant guideline value markedly to prevent minor damage.

The “safe limits” given in DIN 4150 are the levels up to which no damage due to vibration effects has been observed for the particular class of building. “Damage” is defined by DIN 4150 to include even minor non-structural effects such as superficial cracking in cement render, the enlargement of cracks already present, and the separation of partitions or intermediate walls from load bearing walls.

4.2.1.1 WaterNSW Pipelines

WaterNSW pipelines are located adjacent to the northern boundary of the Oakdale West site, over 400 m from the closest point of the Lot 5A and 5B works. This separation distance is sufficient to mitigate vibration from the Lot 5A and 5B site to the pipelines. As such, no further assessment has been undertaken.

4.2.2 Human Exposure Vibration Thresholds

The EPA’s *Assessing Vibration: a technical guideline* provides guideline values for continuous, transient and intermittent events that are based on a Vibration Dose Value (VDV) rather than a continuous vibration level. The VDV is dependent upon the level and duration of the short-term vibration event, as well as the number of events occurring during the daytime or night-time period.

The VDV’s recommended in the document for vibration of an intermittent nature (i.e. construction works where more than three distinct vibration events occur) are presented in **Table 8**.

Table 8 Acceptable Vibration Dose Values for Intermittent Vibration ($m/s^{1.75}$) (*Assessing Vibration: a technical guideline*)

Location	Daytime ¹		Night-time ¹	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Note 1: Daytime is 7:00 am to 10:00 pm and night-time is 10:00 pm to 7:00 am.

4.2.3 Minimum Working Distances

Recommended minimum working distances for vibration intensive construction plant based on the BS 7385, DIN 4150 and *Assessing Vibration: a technical guideline* are referenced from the Roads and Maritime *Construction Noise and Vibration Guideline* (CNVG). These minimum working distances are summarised in **Table 9**.

The minimum working distances are based on empirical data which suggests that where works are further from receivers than the quoted minimum distances then impacts are not considered likely.

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 building under typical geotechnical conditions.

Table 9 Recommended Minimum Working Distances for Vibration Intensive Equipment

Plant Item	Rating / Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline) ¹
		Residential and Light Commercial (BS 7385) ¹	Heritage Items (DIN 4150 Group 3) ²	
Vibratory Roller	< 50 kN (Typically 1-2t)	5 m	11 m	15 m to 20 m
	< 100 kN (Typically 2-4t)	6 m	13 m	20 m
	< 200 kN (Typically 4-6t)	12 m	15 m	40 m
	< 300 kN (Typically 7-13t)	15 m	31 m	100 m
	> 300 kN (Typically 13-18t)	20 m	40 m	100 m
	> 300 kN (Typically > 18t)	25 m	50 m	100 m
Small Hydraulic Hammer	300 kg – 5 to 12t excavator	2 m	5 m	7 m
Medium Hydraulic Hammer	900 kg – 12 to 18t excavator	7 m	15 m	23 m
Large Hydraulic Hammer	1600 kg – 18 to 34t excavator	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	5 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	2 m

Note 1: Criteria reference from Roads and Maritime CNVG.

Note 2: Criteria reference from DIN 4150.

5 Construction Noise and Vibration Impacts

5.1 Construction Noise Impacts

The NVA presented construction noise predictions from a number of construction scenarios likely to occur on site. These construction scenarios are representative of the activities which will be required during the construction of the site. These included:

- Earthworks
- Pad and hardstand works, including concrete pours
- Construction of warehouse and office structures

The predicted worst-case noise levels from the various construction works at Oakdale West Lot 5A and 5B are presented in **Table 10**.

Table 10 Predicted LAeq,15min Construction Noise Levels

Receiver	Period (weather)	LAeq,15min Noise Level (dBA)				
		NML	Highly Affected NML	Predicted		
				Earthworks	Hardstand	Construction
N1 – Emmaus Village Residential	Day (Standard)	49	75	34-35	31-32	29-31
N2 – Emmaus Catholic College (School)	Day (Standard)	55	n/a	34-36	31-32	29-31
N6 – Mamre Anglican College	Day (Standard)	55	n/a	31-33	28-30	26-28
N7 – 21-42 Bakers Ln, Kemps Creek	Day (Standard)	49	75	30-32	27-28	25-27
N8 – 706-752 Mamre Rd, Kemps Creek	Day (Standard)	49	75	30-31	27-28	25-27
N9 – 754-770 Mamre Rd, Kemps Creek	Day (Standard)	44	75	30-32	27-29	26-27
N10 – 784-786 Mamre Rd, Kemps Creek	Day (Standard)	44	75	31-33	28-30	26-28
N11 – 99-111 Aldington Rd, Kemps Creek	Day (Standard)	44	75	43-45	40-42	38-40
N12 – 53 Aldington Rd, Kemps Creek	Day (Standard)	44	75	43-46	40-43	38-41
N13 – 54-72 Aldington Rd, Kemps Creek	Day (Standard)	44	75	45-48	42-45	40-43
N14 – 74-88 Aldington Rd, Kemps Creek	Day (Standard)	44	75	40-44	37-40	36-39

Note 1: **Bold** text indicates and exceedance of the ICNG NML.

As detailed in the NVA and shown in **Table 10** above, the construction noise impacts are predicted to exceed the daytime NMLs at N11, N12 and N13 during earthworks, and N13 during hardstand works, when noise intensive activities are being completed. The exceedances of the NMLs are minor (up to 4 dBA) and are worst when works are closest to the nearest receivers. Noise impacts would generally reduce in magnitude as construction works move away from the nearest receivers, or when less noisy activities are being completed.

Best practise noise management measures will be undertaken for all construction works. Additional feasible and reasonable noise mitigation and management measures will be applied for works where an exceedance of the NMLs is identified, with the aim of achieving the applicable NMLs.

Mitigation and management measures are outlined in **Section 6**.

5.2 Construction Vibration Impacts

Vibration intensive items of plant proposed for use during the construction of the development would include plate compactors and vibratory rollers. These items of equipment are proposed to be used during various stages of works across the project.

Vibration intensive works during construction of Lot 5A and 5B at Oakdale West would not occur within the recommended minimum working distances of any receivers.

Best practice mitigation and management measures are outlined in **Section 6**.

Vibration at the nearest receivers is unlikely to be perceptible during the works.

6 Mitigation and Management Measures

In order to minimise noise impacts during works, the construction contractor will take all reasonable and feasible measures to mitigate noise effects. Impacts from the works will be minimised and managed in accordance with the procedures detailed below in **Table 11**.

Note: **Table 11** is replicated as Table 10 and Table 13 in the CEMP.

Table 11 Environmental Management Controls for Construction Noise and Vibration

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Project Planning			
Less noise and vibration intensive construction techniques for rock breaking and concrete sawing will be used.	Construction Contractor	Ongoing	Best practice
Works will be completed during standard daytime construction hours outlined in Section 3.5 .			
Truck routes to site will be in accordance with the approved Construction Traffic Management Plan.			
Scheduling			
Respite offers will be considered where high-noise works are predicted to exceed 75 dBA for residential 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.	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. High-noise or vibration generating works conducted outside standard construction hours (where approved) will be limited to no more than two consecutive nights except where there is a Duration Respite (see below). For night-works these periods will be separated by no less than one week, and limited to six nights per month. Where possible, high-noise and vibration generating works will be completed before 11 pm.			
Duration Respite will be considered where it may be beneficial to the 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 CCS.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
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.	Construction Contractor	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.			
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 project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Construction Contractor	Ongoing	Best practice
Plant and Equipment Source Mitigation			
All construction plant and equipment used on Site must be, in addition to other requirements: a) regularly inspected and maintained in an efficient condition; b) operated in a proper and efficient manner.	Construction Contractor	Ongoing	Best practice
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).			
Noisy equipment will be sited behind structures that act as barriers, or at the greatest distance from the noise-sensitive area; or orienting the equipment so that noise emissions are directed away from any sensitive areas, to achieve the maximum attenuation of noise.			
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.			
Dropping materials from a height will be avoided.			
Loading and unloading will be carried out away from noise sensitive areas, where practicable.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
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.			
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. Refer to the CCS.	Communications and Community Liaison Representative	Ongoing	Best practice
Where complaints are received, work practices will be reviewed and feasible and reasonable practices implemented to minimise any further impacts. Refer to Section 7 .			
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.	Construction Contractor	Ongoing	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 Section 8 for full details of monitoring requirements.			
Vibration			
Where works are required within the minimum working distances, vibration monitoring will be undertaken to confirm that vibration is within acceptable levels.	Construction Contractor	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 will not be used closer than 30 m from residential and educational buildings unless vibration monitoring confirms compliance with the vibration criteria.			
Where there is a risk that vibration activities may cause damage to nearby structures and buildings or if these are located within the minimum working distance from the construction activity, a building condition inspection will be undertaken at least three weeks before the construction activity commences.			
		Before and after any vibration activities within minimum distances	

Measure	Person Responsible	Timing / Frequency	Reference / Notes
The Building Condition Inspection Reports will contain photographs of the inspected properties and include details of the inspectors' qualification and expertise, together with a list of any identified defects, where relevant. The reports will be submitted to the owner of each property and to Goodman before the commencement of any vibration intensive activities.			
A copy of the Building Condition Inspection Reports and CNVMP will be submitted to Goodman at least 10 working days prior to commencement of piling, excavation by hammering or ripping, compaction, demolition operations, or any activity which may cause damage through vibration.			

Initial consultation has been established with all potentially affected community groups and sensitive receivers (refer to the CCS). The mitigation and management measures detailed in **Table 11** are considered to be appropriate to minimise impacts on the potentially affected receivers.

These measures will be implemented and refined as informed by the results of monitoring and ongoing community consultation.

Specific consultation with the potentially affected receivers to determine suitable respite periods and management measures will be undertaken during the planning stage of high-noise generating works once specific details of the works have been identified, such as the location of the works, activities proposed to be undertaken and required equipment.

7 Complaints Handling and Response Procedure

All complaints will be handled in accordance with the sections below and the *Community Communication Strategy* (CCS) (SLR 2022b) (see Appendix G of the CEMP).

7.1 Performance Objective

To ensure that all environmental complaints in relation to the construction of Lot 5A and 5B at Oakdale West are promptly and effectively received, handled and addressed.

7.2 Responsibility

The Communications and Community Liaison Representative is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint. The induction and toolbox talks outlined in Section 3.4 of the CEMP will be used to ensure all site employees are aware of and understand their obligations for complaints response.

All employees who take 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.

7.3 Complaints Handling Procedure

Upon becoming aware of a complaint, the protocol outlined below will be followed.

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 4 of the CEMP.

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 Communications and Community Liaison Representative 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 CCS (SLR 2022b).

3. Investigate

A field 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.

If the complaint is due to an incident, the notification requirements and handling procedures outlined in Section 3.5.3 and 3.5.4 of the CEMP respectively 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 in order to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in Community Correspondence Register (Appendix G of the CEMP). 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 3.6.3 of the CEMP.

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.

7.4 Complaints Register

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

- A copy of the environmental complaint handling procedure contained in Section 3.6.3 of the CEMP;
- A separate reference sheet containing the contact details listed in Table 4 of the CEMP;
- Blank hard copies of the Community Correspondence Register (see Appendix G of the CEMP); and
- Copies of all completed Community Correspondence Register entries which are to be maintained for at least five years after the event to which they relate.

8 Monitoring

8.1 Construction Noise Monitoring

Attended noise measurements will be undertaken at the start of noise intensive works in the vicinity of sensitive receivers to verify the levels are as predicted and to check the effectiveness of mitigation and management measures used to minimise the impacts.

Attended monitoring will also be undertaken in response to any complaints regarding construction noise. The location and extent of monitoring would be determined in consultation with Goodman and an acoustic consultant 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 any impact across all potentially affected sensitive receivers.

Monitoring reports will be produced following each monitoring survey and provided to Goodman for review. In the event that an exceedance of the applicable NMLs is measured (refer to **Section 4.1**), actions to be carried out are detailed in **Section 9**.

All items of acoustic instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.

8.2 Construction Vibration Monitoring

8.2.1 Sensitive Receivers and Structures

Where vibration intensive works (such as vibratory rolling and plate compacting) are proposed to be undertaken within the minimum working distances of sensitive receivers or structures (refer to **Section 4.2.3**), vibration will be monitored continuously for the duration of works within the minimum working distances.

Attended vibration measurements will be undertaken at the commencement of vibration intensive works within the minimum working distances to confirm the levels of vibration are below the applicable vibration limits (refer to **Section 4.2**).

Geophones 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 set off the visual alarm if exceeded – the equipment operator must take care to limit vibration emissions when the warning level is exceeded.
- An exceedance vibration level equal to the applicable vibration limit will set off both the visual and audible alarms. Actions to be carried out if the exceedance alarm is set off are detailed in **Section 9**.

Monitoring data will be downloaded and reported monthly, at a minimum. Vibration monitoring reports will be prepared and provided to Goodman for review at the following stages:

- Monthly during works (at a minimum)

- Within one week of an exceedance of the vibration limit alarm level (15 mm/s PPV)
- Upon completion of construction.

All items of vibration instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.

9 Contingency Management Plan

The following contingency management plan, shown in **Table 12**, would be used to manage any unpredicted noise and vibration impacts and their consequences.

In the event of an incident, response will be carried out in accordance with the procedures detailed in Section 3.5 of the overarching CEMP. As detailed in Section 5.4 of the overarching CEMP, all Condition Amber and Condition Red occurrences will be recorded in the Environmental Representative Monthly Report 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 **Section 3.5**.
- Any works occurring outside the standard construction hours, where those works do not meet the allowable circumstances defined in **Section 3.5**.
- Trigger of Condition Red for vibration impacts at sensitive receiver locations.

Table 12 Contingency Management Plan

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Noise impacts at sensitive receiver locations	Trigger	Noise levels do not exceed applicable NMLs	Noise levels exceed applicable NMLs	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)	Undertake all feasible and reasonable mitigation and management measures to ensure noise levels are below Highly Noise Affected criteria. If noise levels cannot be kept below Highly Noise Affected criteria then a different construction method or equipment must be utilised.
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.

10 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 noise and vibration management are as follows:

10.1 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;
- Commissioning a suitably qualified consultant to install and maintain noise and vibration monitors and ensuring that the environmental coordinator undertakes any attended noise and vibration measurements required by this Plan;
- Assessing and (as required) mitigating risks of elevated noise and vibration levels before commencing works each day and ensuring that the appropriate controls are implemented and effective;
- Reviewing weather forecasts and current observations of meteorological conditions (as recorded at Horsley Park AWS);
- Ceasing works in the event of excessive noise and vibration generation due to noise enhancing weather conditions or inadequately controlled construction activities (e.g. strong winds blowing from the noise source to nearby receivers, temperature inversions, etc.); and
- In the event that a noise or vibration complaint is received, the procedure in Section 3.6 of the CEMP will be implemented (see **Section 7**).

10.2 Environmental Coordinator

- Undertaking noise monitoring program;
- Review that control measures are working in accordance with the CNVMP; and
- Identifying and reporting noise and vibration emissions incidents.

10.3 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; and
- Identifying and reporting noise and vibration emission incidents.

11 Review and Improvement of the CNVMP

Details on review and improvement are outlined in Section 6 of the overarching CEMP.

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 2×10^{-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

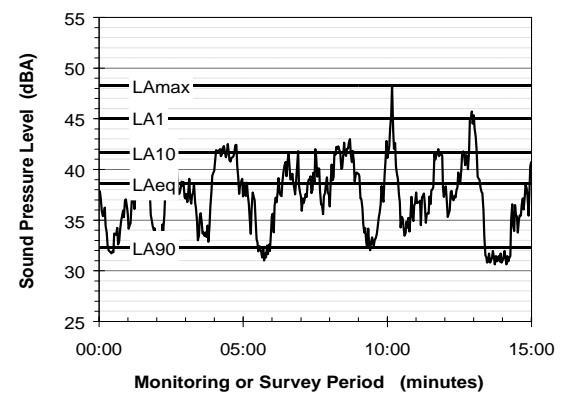
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit 10^{-12} W.

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

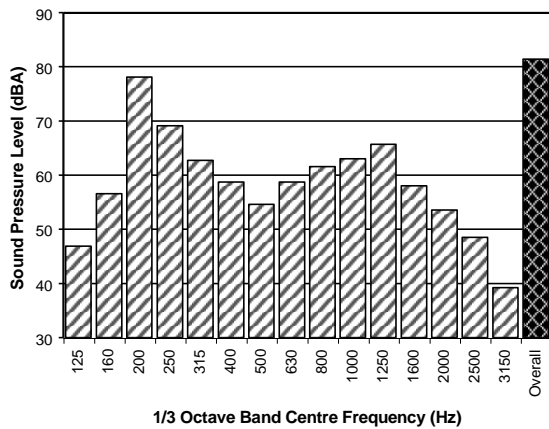
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

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

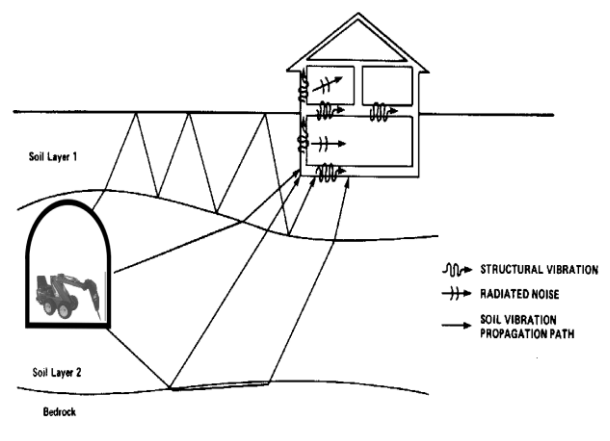
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience 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.

APPENDIX B

SLR Author CV

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ASSOCIATE CONSULTANT

Acoustics & Vibration, Asia-Pacific

QUALIFICATIONS

MDesSc	2008	Master of Design Science (Audio and Acoustics), University of Sydney, NSW
DipPM	2018	Diploma of Project Management, Charter Australia Education and Training, NSW

EXPERTISE

- Infrastructure and Industrial Noise and Vibration
- Construction Noise and Vibration
- Transport (Road, Rail and Air) Noise and Vibration
- Noise and Vibration Measurement Systems

Joshua completed his Master of Design Science (Audio and Acoustics) at University of Sydney in 2008 and has been a consultant at SLR since 2011.

Joshua has worked on a broad range of assessments involving field measurements, analysis, modelling and reporting of construction and operational impacts from a variety of projects.

Joshua has a Diploma of Project Management and extensive experience in delivering key infrastructure and industry projects in NSW, including numerous SSDA developments from concept approval, through construction, to operational compliance.

Joshua brings detailed knowledge of noise predictive software, including SoundPLAN, through his previous experience of modelling some of NSW's most complex infrastructure projects.

PROJECTS

Industrial/Construction Projects

Oakdale Central, South and West Industrial Estates, Kemps Creek	Project manager and lead modeller for construction and operational noise impact assessments for State Significant Development Applications (SSDA) for large multi-stage industrial developments from DA stage to occupation and compliance stage, and preparation of construction and operational noise and vibration management plans.
Aspect Industrial Estate, Kemps Creek	Construction and operational noise impact assessment for large multi-stage SSDA industrial development.
Light Horse Business Hub, Eastern Creek	Construction and operational noise impact assessment for large multi-stage SSDA industrial development, preparation of construction noise and vibration management plan.
Horsley Logistics Park, Horsley Park	Construction and operational noise impact assessment for large multi-stage SSDA industrial development.
Enfield Intermodal Logistics Centre, Enfield	Construction and operational noise impact assessments for large multi-stage SSDA intermodal (rail to road freight) centre, preparation of construction and operational noise and vibration management plans.
Smithfield Distribution Centre, Smithfield	Construction and operational noise impact assessment for industrial development.

Lidcombe Business Park, Lidcombe	Construction and operational noise impact assessment for industrial development.
Coal Pier Industrial Estate, Banksmeadow	Construction and operational noise impact assessment for industrial development.
Marsden Park North Precinct	Road traffic and ambient noise monitoring, assessment of noise impacts associated with the Precinct.
Metropolitan Colliery, Helensburgh	Ambient noise monitoring, operational noise measurements, risk assessment and noise mitigation strategy.
	Transport Projects
Anzac Bridge and Western Distributor Upgrade REF	Ambient noise monitoring, construction noise and vibration assessment, lead modeller for operational noise impacts and assessment.
M12 Motorway EIS & AR	Ambient noise monitoring, construction noise and vibration assessment, lead modeller for operational noise impacts and assessment.
WestConnex M4-M5 Link EIS & Post-Approval	Ambient noise monitoring, construction noise and vibration assessment, lead modeller for operational noise impacts and assessment, post-approval operational noise assessment
M4 Smart Motorways, M4 Widening and WestConnex M4 East EIS & Post Approval	Ambient noise monitoring, operational noise assessment and modelling, post-construction operational noise validation
Northern Beaches Hospital Road Network Upgrade EIS	Ambient noise monitoring, operational noise assessment and modelling.
Transport Access Program	Ambient noise monitoring, construction and operational noise assessments and modelling for transport access improvements at numerous rail stations around Greater Sydney
CBD and South East Light Rail EIS & Post-Approval	Noise and vibration environmental impact assessment. Post-commissioning operational noise and vibration measurements and compliance assessment.
Sydney Light Rail	Operational noise and vibration measurements and compliance assessment.
North West Rail Link and Sydney Metro EIS	Ambient noise monitoring, operational and construction noise assessments and modelling.
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APPENDIX I

Construction Air Quality Management Plan

OAKDALE WEST ESTATE - LOT 5A & 5B

Construction Air Quality Management Plan

Prepared for:

Goodman Property Services (Aust) Pty Ltd
The Hayesbery
1 11 Hayes Road
Rosebery NSW 2018

SLR Ref: 630.30435-R02
Version No: -v1.1
February 2023



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 Goodman Property Services (Aust) 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
630.30435-R02-v1.1	21 February 2023	Sahar Bagheri	Varun Marwaha	Varun Marwaha
630.30435-R02-v0.3	21 February 2023	Sahar Bagheri	Varun Marwaha	
630.30435-R02-v0.2	3 February 2023	Sahar Bagheri	Varun Marwaha	Varun Marwaha

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1 Introduction

Oakdale West Industrial Estate (OWE) is a regional warehouse and distribution hub, located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Oakdale Industrial Precinct located within the Western Sydney Employment Area (WSEA).

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 7348 for the staged development of Oakdale West Industrial Estate (Oakdale West) comprising a warehousing and a distribution hub at Kemps Creek in Western Sydney. SSD 7348 incorporates the approval of a 'Concept Proposal' to guide the future development of the estate and consent for the 'Stage 1 Development'. The Stage 1 Development includes construction of the proposed Western North South Link Road (WNSLR), site-wide bulk earthworks, estate wide basins, and lead-in services. It also includes infrastructure and associated services, landscaping, and construction and use approval for Precinct 1.

As per Condition B3 of SSD 7348, the Concept Proposal consent did not approve the building layout of Lots 5 and this was assessed by a separate DA submitted to Penrith City Council. The construction and use of Lot 5 as part of Stage 6 of the Concept Proposal was approved by Penrith City Council on 25 January 2023 under Development Application (DA) DA22/0546.

The aim of this CAQMP is to address potential air quality impacts on nearby sensitive receivers during the construction works. Works comprise the construction, use and fit-out of Warehouse 5 (the Site) as a warehouse and distribution centre.

1.1 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.

2 Statutory Requirements

Conditions of consent specific to Lot 5A and 5B are specified in Penrith City Council Notice of Determination DA22/0546, dated February 2023. The conditions relevant to this AQMP are reproduced in **Table 1**.

Table 1 Development Consent Conditions

Development Consent Conditions	Section / Comment
13. Dust suppression techniques are to be employed during all works to reduce any potential nuisances to surrounding properties.	Section 7.2.4
21. prior to issue of the Construction Certificate, a Construction Environmental Management Plan (CEMP) is to be prepared by a suitably experienced/qualified person and submitted to the Principal Certifying Authority for approval. The CEMP is to address the environmental aspects of the construction phase of the development and is to include details on the environmental management practices and controls to be implemented on the Site. the CEMP is to address, but is not limited to the following:	Appendix D

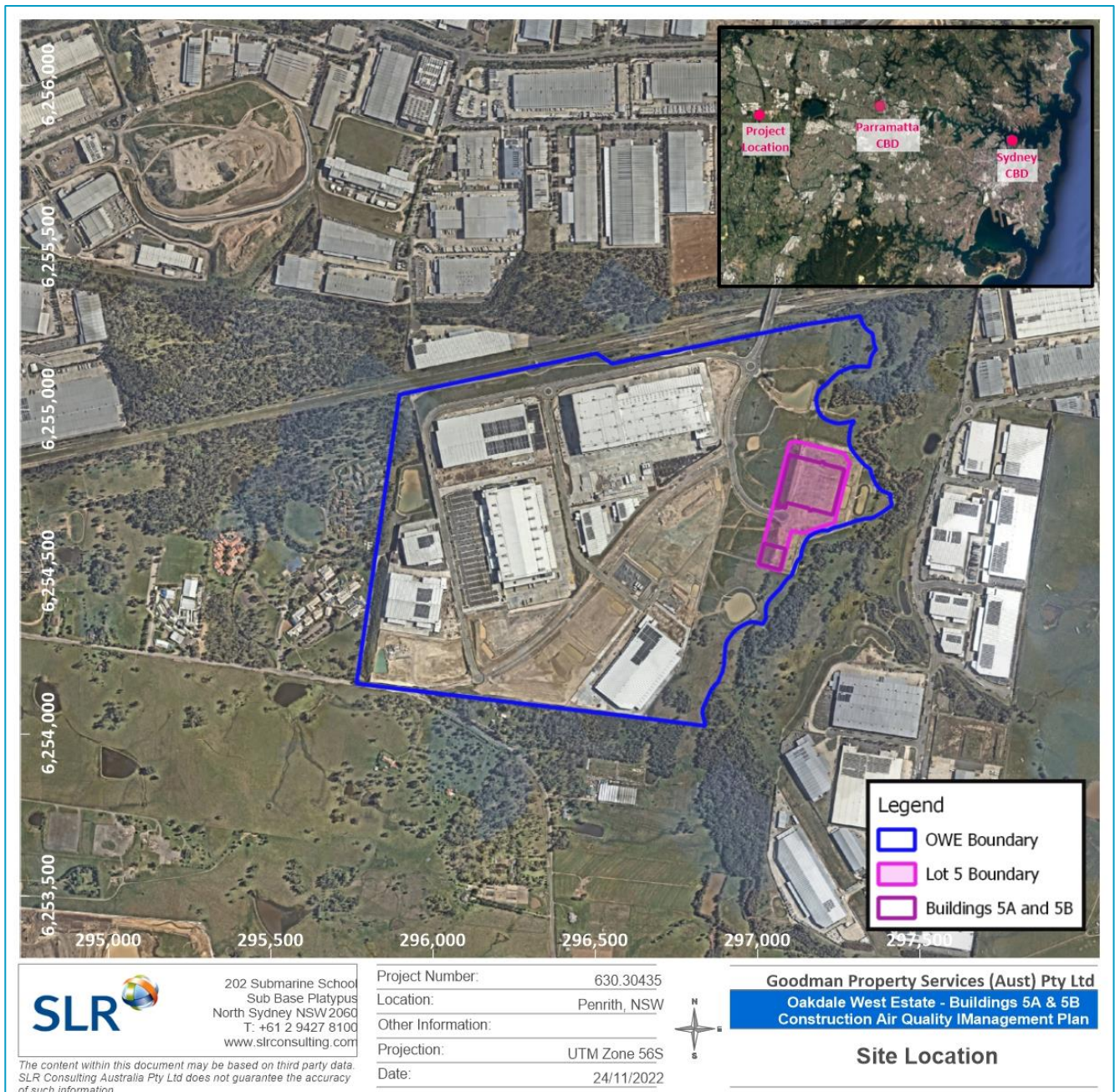
3 Project Overview

3.1 Site Location

Oakdale West is legally described as Lot 101 to 103 in DP 1262308 and Lot 105 to 111 DP 1262310, at the far south-western extent of the Western Sydney Employment Area (WSEA) within the Penrith Local Government Area (LGA) approximately 18 kilometres (km) west of Parramatta Central Business District (CBD) and 33 km west-northwest from the Sydney CBD (refer **Figure 1**). As shown in **Figure 1**, Lot 5 is located at the Eastern part of OWE.

Oakdale West is bound to the north by the Water NSW Pipeline and to the east by the Ropes Creek riparian corridor. Land along the eastern boundary of the site is also affected by a transmission easement associated with Transgrid infrastructure. To the east of the site is Goodman's Oakdale South Estate. Emmaus Catholic College and Emmaus Retirement Village is located to the west of the site. Other boundaries interface with adjoining rural lands used for a mix of rural-residential and agricultural.

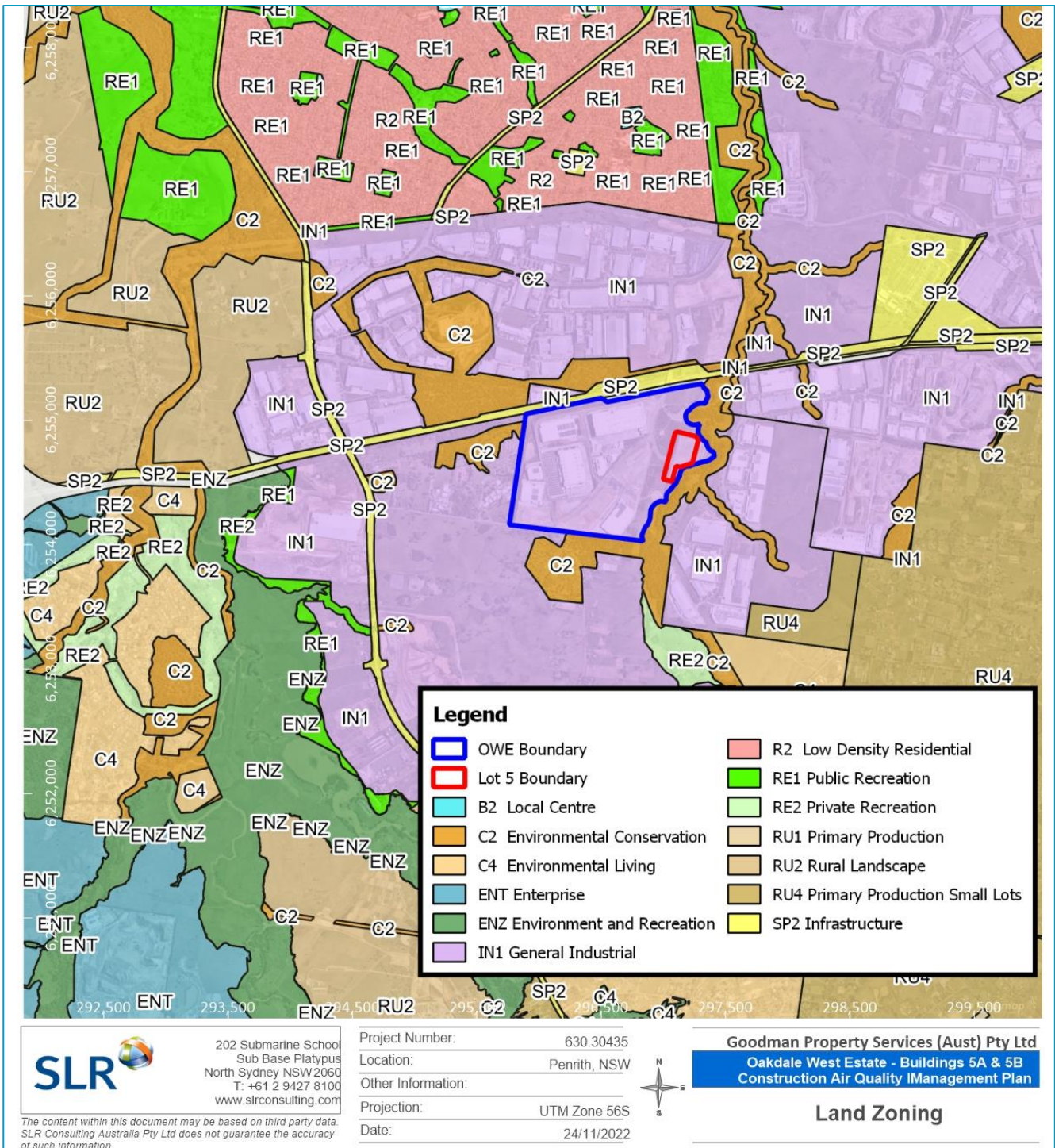
Figure 1 Regional Locality



3.2 Surrounding Land Uses

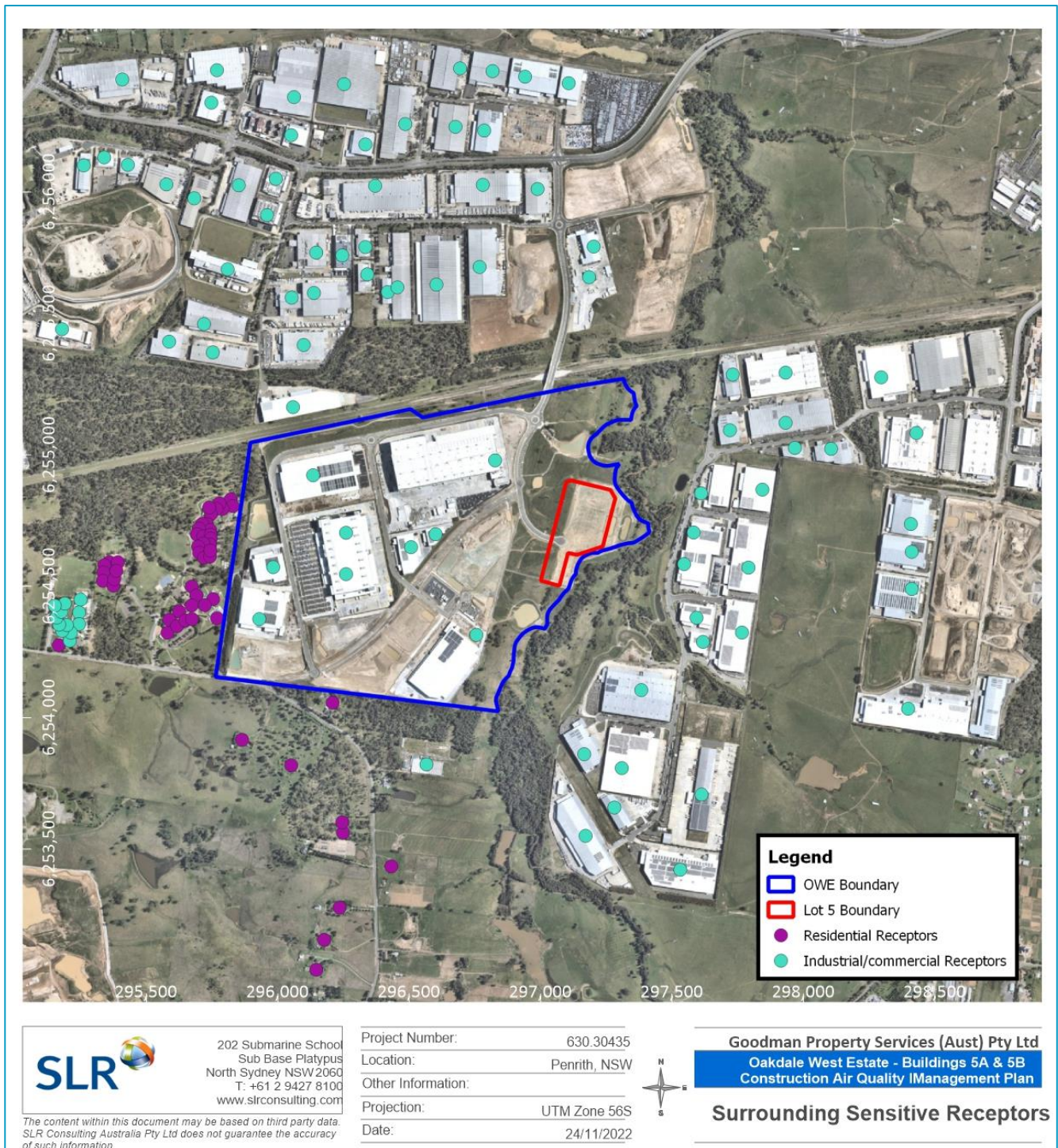
As shown in **Figure 2**, OWE and the immediate areas to its west are zoned as General Industrial (IN1), adjacent areas to its east and south are zoned as Environmental Conservation (C2), and the narrow area to its north is zoned Infrastructure (SP2).

Figure 2 Surrounding Land Uses



The closest residential receptors to the Site are located approximately 1.2 kilometres (km) to the west of the Site. The nearest industrial/commercial receptors are located approximately 290 m to the west of the Site boundary including amenities (such as office buildings or workshops; see **Figure 3**). Individuals in these areas could potentially experience air quality impacts due to the demolition and construction works at the Site.

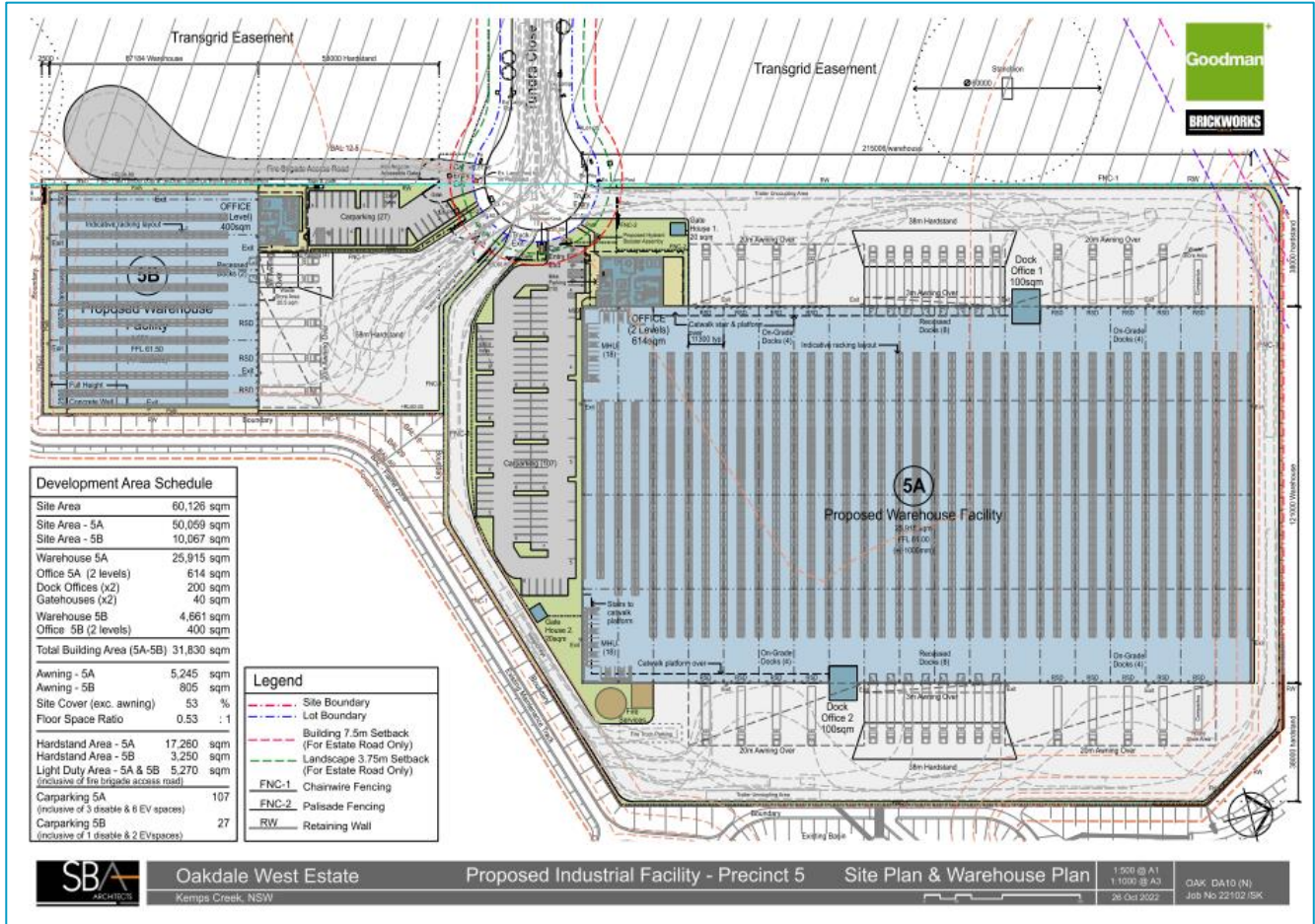
Figure 3 Surrounding Sensitive Receptors



3.3 Site Layout

The proposed layout of the Site is shown in **Figure 4**.

Figure 4 Indicative Site Layout of the Site



3.4 Construction Activities

The construction activities at the Site are scheduled to commence in xxx and will extend until xxx. The construction activities will be staged and are summarised in **Table 2**.

Table 2 Construction Staging and Activities – Stage 1

Stage	Duration	Activities

3.5 Construction Hours

Construction hours will be in accordance with Conditions B7 and B8 of DA22/0546, which are reproduced below:

B7. 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

B8. Works outside of the hours identified in Condition B8 may be undertaken in the following circumstances:

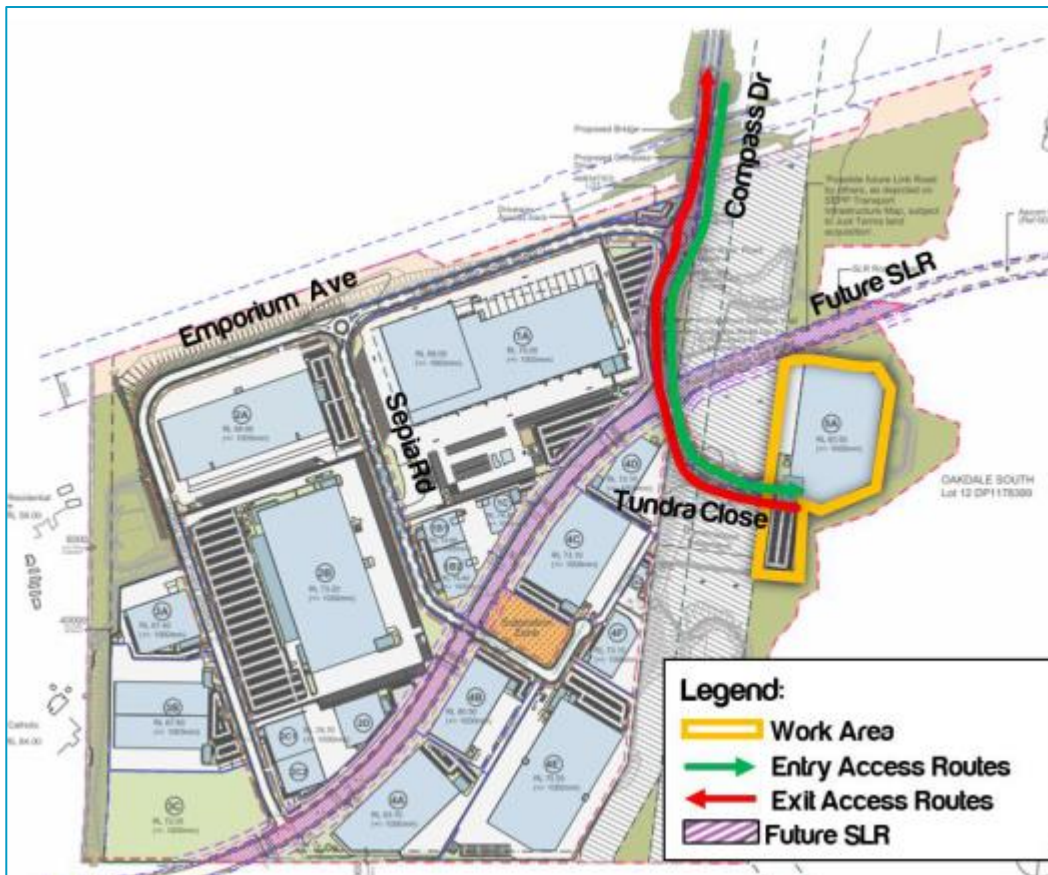
- a) works that are inaudible at the nearest sensitive receivers;*
- b) works agreed to in writing by the Planning Secretary;*
- c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or*
- d) where it is required in an emergency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

The construction hours will be provided to all staff and contractors in the induction. The movements of staff and contractors will be recorded for this project.

3.6 Construction Site Access

Based on the construction traffic management plan (Ason, 2022) prepared by ASON Group for the Project, access to the Site will be via Tundra Close, as shown in **Figure 5**.

Figure 5 Construction Site Access



3.7 Construction Contact Details

Table 3 lists the key contacts during the construction of Lot 5.

Table 3 Construction Contact List

Role	Name	Company	Contact Details
Project Principal/Superintendent	Ben Milner	Goodman	Ben.Milner@goodman.com
Site Manager	Simeon Tidboald	Qanstruct	stidboald@qanstruct.com
Contractor's Project Manager	Simon Horan	Qanstruct	shoran@qanstruct.com
Contractor's WHS&E Advisor	Wes Ellington	Qanstruct	wellington@qanstruct.com
Environmental Representative	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au
Communications and Community Liaison Representative	Kiera Plumridge	SLR	0458 967 285 kplumridge@slrconsulting.com

4 Potential Sources of Air Emissions

The main emissions to air during the construction phase will be emissions of particulate matter (as TSP, PM₁₀ and PM_{2.5}) and nuisance dust from the movement of vehicles and construction equipment, excavation and rehabilitation, demolition, clearing and grading, truck loading and unloading and wind erosion.

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; and
- 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**.

5 Relevant Pollutants and Air Quality Criteria

5.1 Pollutants of Concern

As identified in **Section 4**, potential air pollutants of interest for the Stage 1 construction activities are considered to be both:

- Suspended particulate matter; and
- Deposited dust.

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 (μm) in diameter. Particulate matter with an aerodynamic diameter of 10 microns or less is referred to as PM_{10} . The 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 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.

5.2 Ambient Air Quality Criteria

There are no air quality criteria outlined within Development Consent SSD 5248, 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* (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.

Table 4 NSW EPA Impact Assessment Criteria for Particulate Matter and Nuisance Dust

Pollutant	Averaging Period	Assessment Criteria
		($\mu\text{g}/\text{m}^3$)
Particulate matter (PM_{10})	24-hours	50
	Annual	25
Particulate matter ($\text{PM}_{2.5}$)	24-hours	25
	Annual	8
Pollutant	Averaging Period	Assessment Criteria ($\text{g}/\text{m}^2/\text{month}$)
Deposited dust	Annual	2 (maximum increase in deposited dust level) 4 (maximum total deposited dust level)

Source: EPA 2022

5.3 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 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 3.1 kilometres (km) southeast of the Site. The long term and short term 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 demolition/construction works towards the nearest sensitive receptors located to the east, west, and south of the proposed construction activities occur rarely during (less than 10%) of the time.
- The long term wind and rainfall patterns suggest that construction activities at the 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 Planning and Environment (DPE) at a number of monitoring stations across NSW. The closest such station with data for the last five years is the Prospect Air Quality Monitoring Station (AQMS), which is located approximately 6.5 km to the northeast of the Site. Considering the relatively flat terrain between the Site and Prospect 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 Site. The following relevant air pollutants are monitored at this station:

- Fine particles as PM₁₀; and
- Fine particles as PM_{2.5}.

A summary of the PM₁₀ concentrations for the last five years (2017-2021) is tabulated in **Table 5** and presented graphically in **Figure 6** and **Figure 7**.

Table 5 Summary of PM₁₀ Monitoring Data at Prospect AQMS (2017 – 2021)

Year	PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)	
	24-hour	Annual	24-hour	Annual
2017	61.1	18.9	30.1	7.7
2018	113.3	21.9	47.5	8.5
2019	182.8	26.0	134.1	11.9
2020	245.8	20.2	70.8	8.6
2021	44.6	17.2	37.3	6.9
Criterion	50	25	25	8

Figure 6 Measured 24-Hour Average PM₁₀ Concentrations at Prospect AQMS (2017 – 2021)

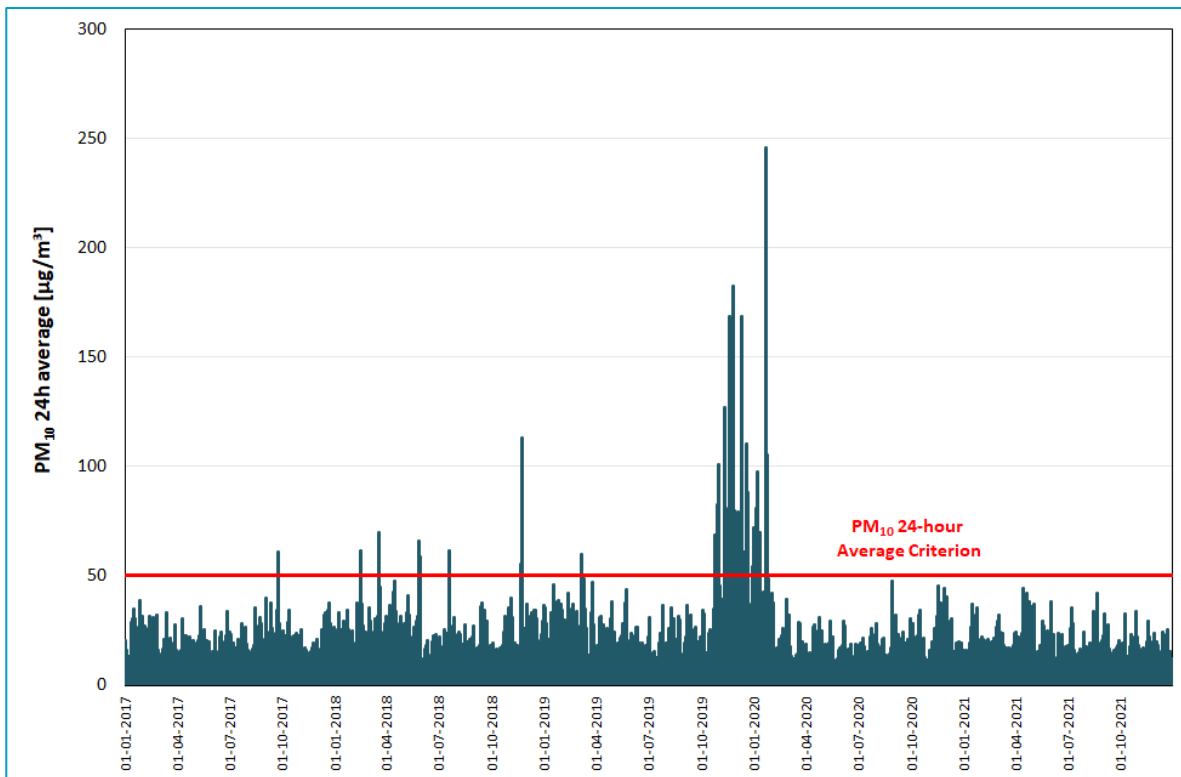
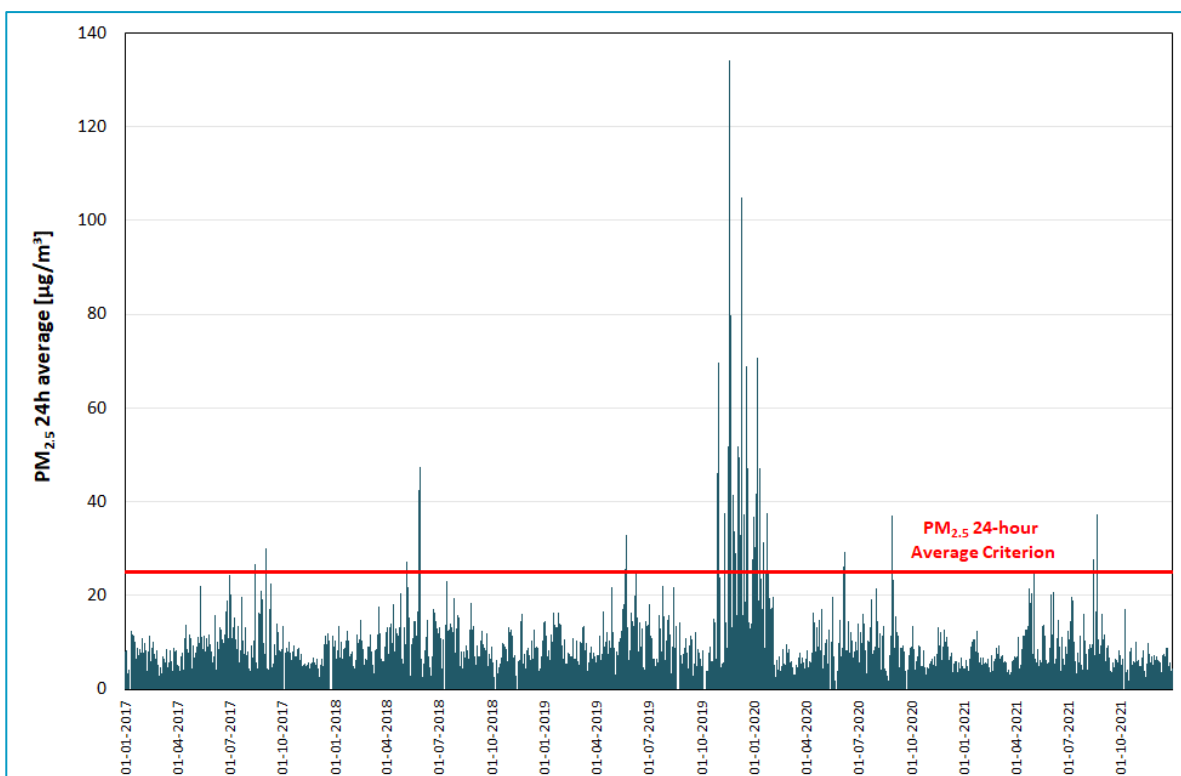


Figure 7 Measured 24-Hour Average PM_{2.5} Concentrations at Prospect AQMS (2017 – 2021)



A review of the ambient air quality data presented in **Table 5**, **Figure 6**, and **Figure 7** shows that generally, the 24-hour average PM₁₀ and PM_{2.5} concentrations recorded by the Prospect 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 Prospect 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 Stage 1 construction works so that the activities do not contribute to any additional exceedances of air quality criteria in the surrounding area.

7 Assessment of Dust Emissions during Construction

7.1 Assessment Method

Potential impacts of dust emissions associated with proposed demolition and construction activities at the Development Site will be performed 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.

7.2 Risk Assessment

7.2.1 Step 1 – Screening Based on Separation Distance

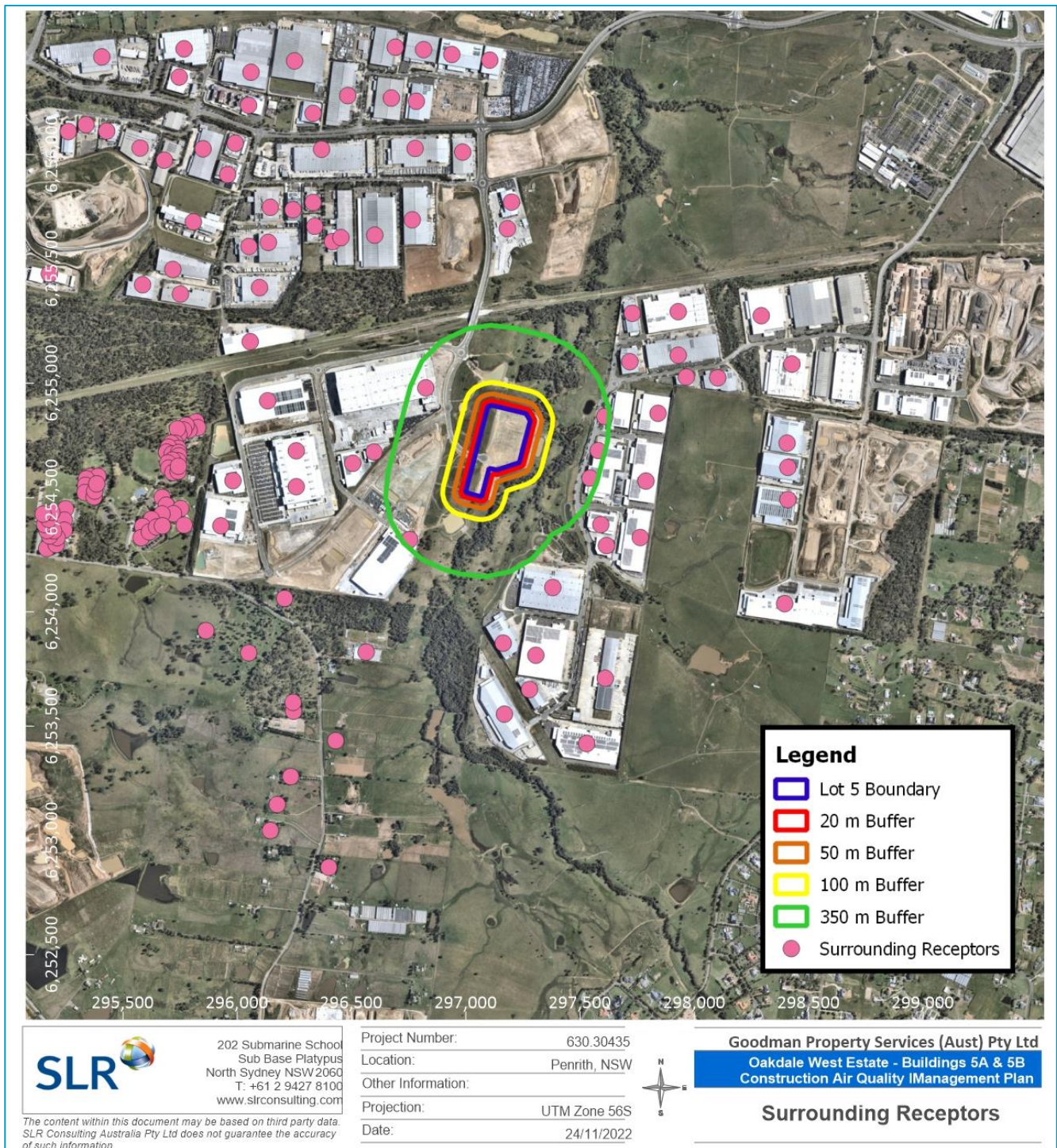
As noted in **Section 3.2**, a number of sensitive receptors (industrial/commercial) are located 290 m of the nearest Site boundary.

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, and within 500 m of the site entrance, further assessment is required. As shown in **Figure 8**, for the purpose of this assessment, the number of sensitive receptors is estimated to be between 10 and 100 within 350 m of the Site boundary.

Figure 8 The Distance of Surrounding Sensitive Receptors from the Site



7.2.2 Step 2a – Assessment of Scale and Nature of the Works

Based upon the above assumptions and the IAQM definitions presented in **Appendix B**, the dust emission magnitudes for each phase of the construction works have been categorised as presented in **Table 6**. It should be noted that no significant demolition will be done as part of the construction works; therefore, this phase is not assessed further.

Table 6 Categorisation of Dust Emission Magnitude

Activity	Dust Emission Magnitude	Basis
Earthworks	Large	<p>IAQM Definition: Total site area greater than 10,000 m², 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>Relevance to this Project: Total area of the Site is estimated to be approximately 60,200 m².</p>
Construction	Large	<p>IAQM Definition: Total building volume greater than 100,000 m³, piling, on site concrete batching; sandblasting.</p> <p>Relevance to this Project: The total area of the warehouses is 30,600 m² with a height of 13.7 m, the total office area is 1,014 m² with a height of 3.6 m and therefore, the total building volume would be approximately 423,000 m³.</p>
Trackout	Large	<p>IAQM Definition: 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>Relevance to this Project: It is estimated that approximately 60 heavy vehicles movements per day will occur during the peak construction period.</p>

7.2.3 Step 2b – Risk Assessment

Receptor Sensitivity

Based on the criteria listed in **Table B1** in **Appendix B**, the sensitivity of the identified receptors in this study is concluded to be **medium** for health impacts and **medium** 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.

Sensitivity of an Area

Based on the criteria listed in **Table B1**, the sensitivity of the identified receptors in this study is concluded to be **medium** for health impacts and **medium** 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.

Based on the classifications shown in **Table B2** and **Table B3** in **Appendix B**, the sensitivity of the area to both dust soiling and health effects may be classified as **low**. This categorisation has been made taking into account the individual receptor sensitivities derived above, the 5-year mean background PM₁₀ concentration of 20.8 µg/m³ recorded at Prospect AQMS (see **Section 6.2**) and the existing number of sensitive receptors present in the vicinity of the Site (ie 10-100 within 350 m).

Risk Assessment

Given the sensitivity of the general area is classified as '**low**' for dust soiling and for health effects, the resulting risk of air quality impacts is as presented in **Table 7**.

Table 7 Preliminary Risk of Air Quality Impacts from Construction Activities (Uncontrolled)

Type of Receptor	Impact	Sensitivity of Area	Dust Emission Magnitude			Preliminary Risk		
			Earthworks	Construction	Trackout	Earthworks	Construction	Trackout
Residential	Dust Soiling	Low	Large	Large	Large	Low Risk	Low Risk	Low Risk
	Human Health	Low				Low Risk	Low Risk	Low Risk

The results indicate that there is a **low risk** of adverse dust soiling and human health impacts due to earthworks, construction and trackout activities occurring at the off-site sensitive receptor even if no mitigation measures were to be applied to control emissions during the works.

7.2.4 Step 3 - Mitigation Measures

As per **Section 7.2**, construction works at the 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 as listed in **Table 8**.

Table 8 Dust and Odour Mitigation Measures

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.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Site Management			
All dust and air quality incidents will be undertaken as per Section 8 of this CAQMP.	Construction Contractor	Ongoing	Section 8 of this document
All dust and air quality complaints will be undertaken as per Section 8 of this CAQMP.			
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	Best practice
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.		Daily	
Preparing and Maintaining the Site			
All reasonable steps to minimise dust generated will be undertaken during construction.	Construction Contractor	Ongoing	SSD 7348 Condition D98
Exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.			SSD 5248 Condition D100a
Land stabilisation works will be carried out in such a way on site to minimise exposed surfaces.			SSD 5248 Condition D100e
Dust generating activities in areas close to receptors will be closely monitored and additional mitigation applied as required to best manage potential dust emissions			Best practice
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 Stage 1 constructions will not track dirt off site and onto the public road network.	Construction Contractor	Ongoing	SSD 7348 Condition D100c
Project access roads used by delivery trucks will be kept clean.			SSD 7348 Condition D100d
All on-road vehicles will comply with relevant vehicle emission standards (prescribed by the NSW RMS), where applicable, and will be maintained in good condition, in accordance with manufacturer's specifications and POEO Act.			Best practice

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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: <ul style="list-style-type: none"> • 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.			
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	Best practice
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	SSD 7348 Condition D100b
No waste materials, timbers or any other combustible materials will be burnt on site.			Best practice
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	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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	
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 access 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.			
Demolition			
Ensure effective water suppression of dust is used during demolition operations.	Construction Contractor	Ongoing	Best practice
Bag and remove any biological debris or damp down such material before demolition.			

7.2.5 Step 4 - Residual Impacts

A reappraisal of the predicted unmitigated air quality impacts on sensitive receptors has been performed to demonstrate the opportunity for minimising risks associated with the use of mitigation strategies. These are termed ‘residual impacts’. The results of the reappraisal are presented below in **Table 9**.

Table 9 Residual Risk of Air Quality Impacts from Construction

Impact	Sensitivity of Area	Residual Risk		
		Earthworks	Construction	Trackout
Dust Soiling	Low	Negligible Risk	Negligible Risk	Negligible Risk
Human Health	Low	Negligible Risk	Negligible Risk	Negligible Risk

The mitigated dust deposition and human health impacts for earthworks, construction, and trackout phases are anticipated to be **low**.

8 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 (Bull et al 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 (see **Section 3.2**) have a low potential to experience odour impacts since no obvious odour sources are available within the Site. All southerly, westerly, and easterly winds occur less than 10% of the time, therefore there is a low likelihood that the surrounding receptors would experience frequent potential odour impacts from the Site.
- Intensity – based on the activities within the 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 10% 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 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 above in this section (high).

Given the above, the potential impact of odour emissions from the AIE Site is considered to be **negligible** (ie Impact is predicted to cause no significant consequences) for the Development Site (see **Table 10**).

Table 10 Impact Significance – Odour from the 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 **‘not significant’**.

9 Complaints Handling and Response Procedure

All complaints will be handled in accordance with the sections below.

9.1.1 Performance Objective

To ensure that all environmental complaints in relation to the air emissions from Lot 3C construction activities are promptly and effectively received, handled and addressed.

9.1.2 Responsibility

The Communications and Community Liaison Representative is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint. It should be ensured that all site employees are aware of and understand their obligations for complaints response.

All employees who take 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.

9.1.3 Complaints Handling Procedure

Upon becoming aware of a complaint, the protocol outlined below will be followed.

1. Record and Acknowledge

Any employee who take receipt of a complaint, either verbal or written, is 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.

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, must 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 Communications and Community Liaison Representative 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.

3. Investigate

A field investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any air quality monitoring information and/or site 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

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.

As outlined in **Section 11**, if a complaint regarding air quality impacts is concluded to be substantiated, the need for any changes to the air quality mitigation measures identified for the Project in **Section 7.2.4** and/or the air quality monitoring programme outlined in **Section 10** is to be reviewed and, the CAQMP updated as appropriate.

5. Respond to Complainant

The Communications and Community Liaison Representative and the Contract Superintendent will oversee the rectification of the issue. The Communications and Community Liaison representative will then 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 investigation of the situation is carried out and proposed improvements documented in order to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the Complaint Enquiry Form. A copy of the completed form will be maintained for at least five years. The complaint will also be recorded in the Complaints Register.

7. Preventative Action

Once the complaint has been suitably handled, proposed improvements will be investigated and implemented to minimise the potential of re-occurrence. The Complaint Enquiry Form will not be closed out until the preventative actions are completed and recorded on the form.

9.1.4 Complaints Register

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

- A copy of the environmental complaint handling procedure;
- A separate reference sheet containing the contact details;
- Blank hard copies of the Complaint Enquiry Form; and

Copies of all completed Complaint Enquiry Forms, which are to be maintained for at least five years after the event to which they relate.

10 Proposed Air Quality Monitoring Program

As discussed in **Section 7**, the risk of construction dust emissions causing nuisance impacts at off-site sensitive receptor locations is concluded to be negligible. It is also noted that any impacts will be temporary and managed through the implementation of appropriate mitigation measures (see **Section 7.2.4**).

An air quality monitoring program has been implemented by Goodman as part of the management of air emissions during construction of the OWE. The data from ongoing monitoring program for OWE will be utilised to inform the management measures and contingency response for the construction of Lot 3C.

A summary of the on-site air quality monitoring programme at the OWE is shown in **Table 11**. The locations of these monitors are shown in **Figure 9**. Further details are provided in the OWE AQMP.

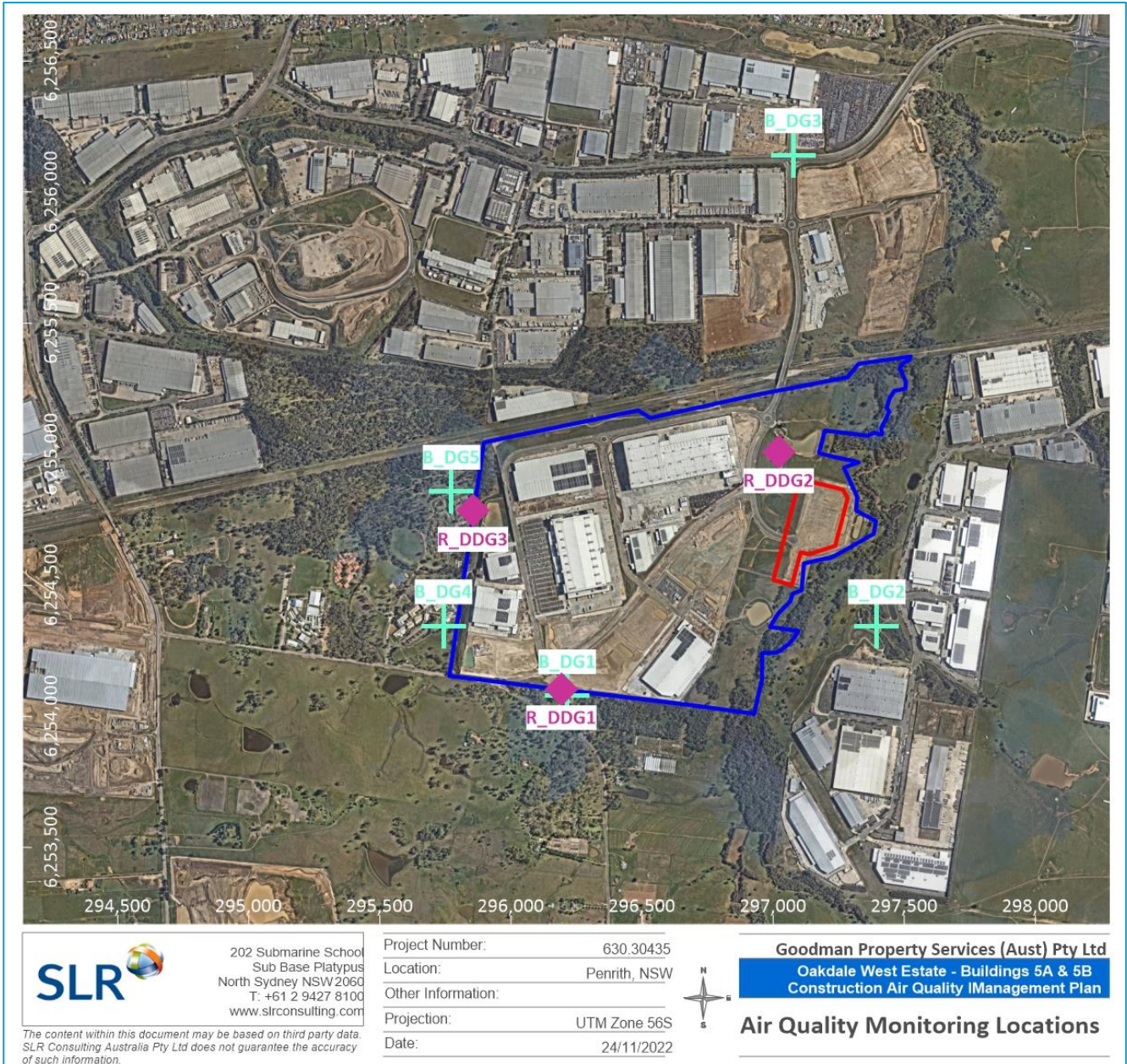
Table 11 Summary of On-Site Monitoring Programme

Pollutant	Equipment Used	Number of Monitoring Sites	Criterion (Averaging Period)
PM ₁₀	Dust Pro 7000 ^a (with telemetric capacity managed by Sentinex systems)	3	50 µg/m ³ (24-hour average)
Deposited dust	Dust Deposition Gauges (DDGs) - Burtons ^b	5	4 g/m ² /month (annual average)

^a The Dust Pro 7000 system is non-compliant with the *Approved Methods for Sampling and Analysis of Air Pollutants in NSW* (December 2006), and is used as a management tool to proactively manage the onsite operations to reduce dust impacts.

^b The dust gauges were installed and maintained by construction contractor (Burtons). It has not been confirmed by SLR if the installation of these dust gauges was undertaken in compliance with the AS/NZS 3580.1.1:2016.

Figure 9 Air Quality Monitoring Locations for the OWE Construction Project



11 Contingency Management Plan

The air quality contingency management plan for the construction activities related to Lot 3C is shown in **Table 12**. As noted in **Section 10**, data from the ongoing monitoring program will be utilised to inform the appropriate contingency response for the development.

Table 12 Air Quality Contingency Management Plan for the Construction of Momentum M7

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: <ul style="list-style-type: none"> Deployment of additional water sprays, water trucks etc 	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities
Dust deposition reading of >4g/m ² /month	Trigger	Dust deposition rates are less than 4 g/m ² /month at all the dust gauges.	Dust deposition rate greater than 4 g/m ² /month is recorded by any of the dust gauges	Dust deposition rates greater than 4 g/m ² /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"> Goodman 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. 	<ul style="list-style-type: none"> Goodman 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.	<ul style="list-style-type: none"> Report the complaint to the regulator, in line with complaints handling procedure (See Section 8). Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate. 	<ul style="list-style-type: none"> Including real time monitors to measure PM₁₀ and PM_{2.5}. Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing (see Appendix C).

12 Roles and Responsibilities

The key responsibilities specifically for dust management are as follows:

12.1 Contractor's Project Manager

- Ensuring appropriate resources/plant/personnel are available for the implementation of this CAQMP;
- 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);
- 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 8** of this CAQMP will be implemented.

12.2 Environmental Coordinator

- Undertaking dust monitoring program; and
- Review that control measures are working in accordance with the CAQMP.

12.3 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.

13 Review and Improvement of the CAQMP

The review of the CAQMP will be undertaken at least quarterly and will include participation by Goodman. 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.

14 References

- DPIE 2020, *NSW Air Quality Statement 2019*, available online at <https://www.environment.nsw.gov.au/topics/air/air-quality-statement>, accessed 15 May 2020.
- EPA 2022, *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*, Environment Protection Authority NSW, January 2017.
- EPA 2018, *Local Government Air Quality Toolkit, Module 3 – Guidelines for Managing Air Pollution, Part 3 – Guidance Notes for Construction Sites*, available online at <https://www.epa.nsw.gov.au/your-environment/air/air-nsw-overview/local-government-air-quality-toolkit>, accessed on 17 July 2018.
- Holman *et al* 2014, *IAQM Guidance on the assessment of dust from demolition and construction*, Institute of Air Quality Management, London. <http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf>.
- Australian Standards / New Zealand Standards (AS/NZS) 3580.10.1:2016 “Methods for sample and analysis of ambient air – Determination of Particulates – Deposited Matter – Gravimetric method”.
- AS/NZS 3580.1.1:2016 “Methods for sampling and analysis of ambient air Part 1.1: Guide to siting air monitoring equipment”.

APPENDIX A

WIND ROSES AND RAINFALL DATA ANALYSIS

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 3.1 kilometres (km) southeast of the Site. Considering the relatively flat terrain between the 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 Site.

Annual wind roses for the years 2017 to 2021 compiled from data recorded by the Horsley Park AWS are presented in **Figure A1**, with seasonal wind roses for 2021 presented in **Figure A2**. 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 ‘Beaufort Wind Scale’ (consistent with terminology used by the BoM) presented in **Table A1** was used to describe the wind speeds experienced at Oakdale West.

Table A1 Beaufort Wind Scale

Beaufort Scale #	Description	m/s	Description on land
0	Calm	0-0.5	Smoke rises vertically
1	Light air	0.5-1.5	Smoke drift indicates wind direction
2-3	Light/gentle breeze	1.5-5.3	Wind felt on face, leaves rustle, light flags extended, ordinary vanes moved by wind
4	Moderate winds	5.3-8.0	Raises dust and loose paper, small branches are moved
5	Fresh winds	8.0-10.8	Small trees in leaf begin to sway, crested wavelets form on inland waters
6	Strong winds	>10.8	Large branches in motion, whistling heard in telephone wires; umbrellas used with difficulty

Source: <http://www.bom.gov.au/lam/glossary/beaufort.shtml>

The annual wind rose (**Figure A1**) indicates that the predominant wind directions in the area are from the southwest. Calm wind conditions (wind speed less than 0.5 m/s) were recorded approximately 12% of the time throughout the five year period reviewed. The average seasonal wind roses for the years 2017-2021 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 south eastern quadrants, with very few winds from westerly directions. Calm wind conditions were recorded approximately 10% 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 12.5% of the time during autumn.
- In winter, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 10.1 m/s). The majority of winds originated from the southwest quadrant, with very few winds from the east. Calm wind conditions were observed to occur approximately 13.5% of the time during winter.
- In spring, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.9 m/s). The frequencies of winds were generally even from all directions. Calm wind conditions were observed to occur approximately 11% of the time during spring.

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 2017-2021 is presented in **Figure A3**. The plot showed that the frequency of wind speeds exceeding 5 m/s for the period 2017-2021 at Horsley Park AWS was approximately 6%.

Figure A1 Annual and Seasonal Wind Roses for Horsley Park (2017 to 2021)

Horsley Park Equestrian
Centre AWS (ID 67119)
01/01/2017 - 01/01/2022
BoM (observations)
630.30434

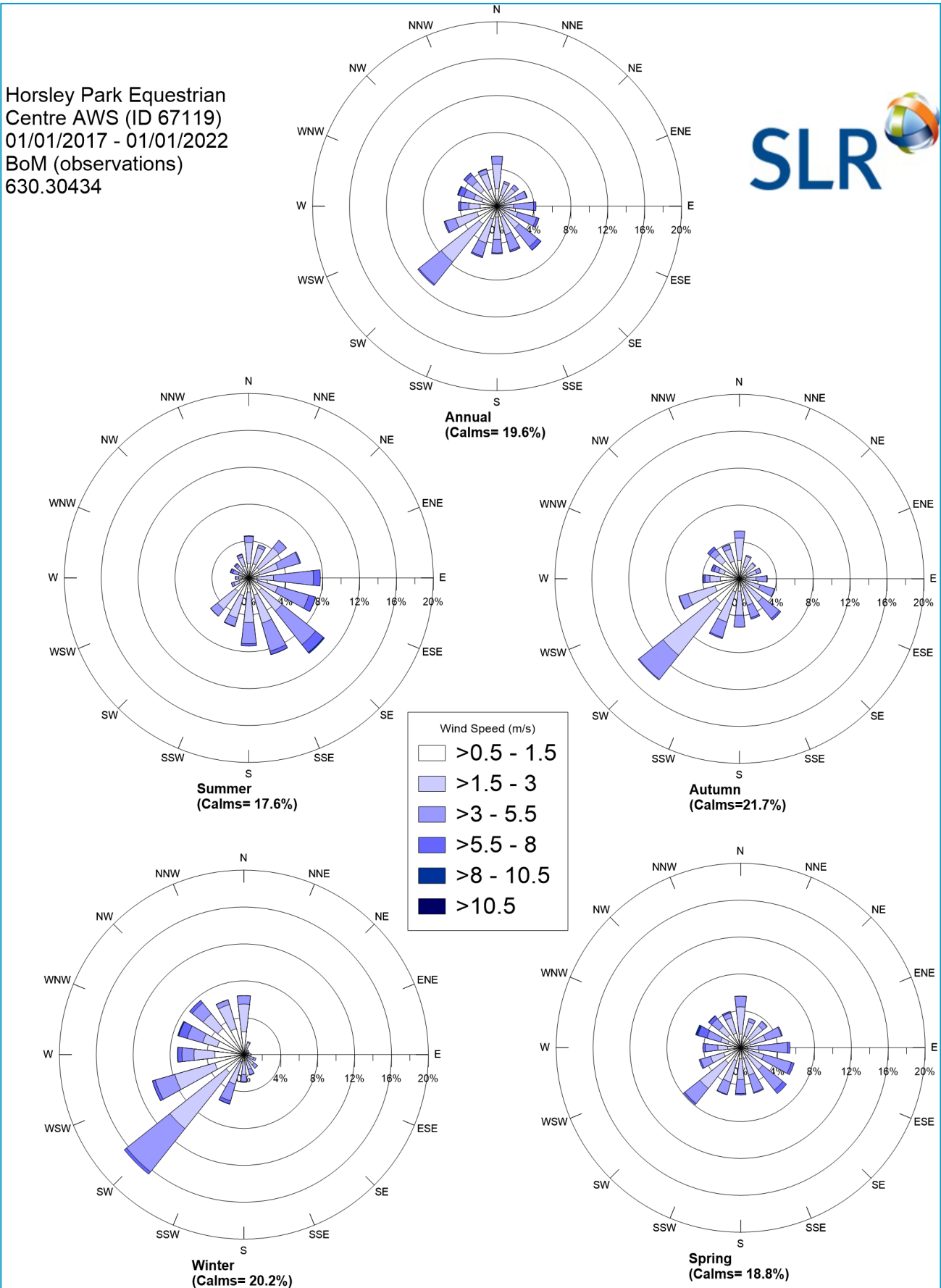
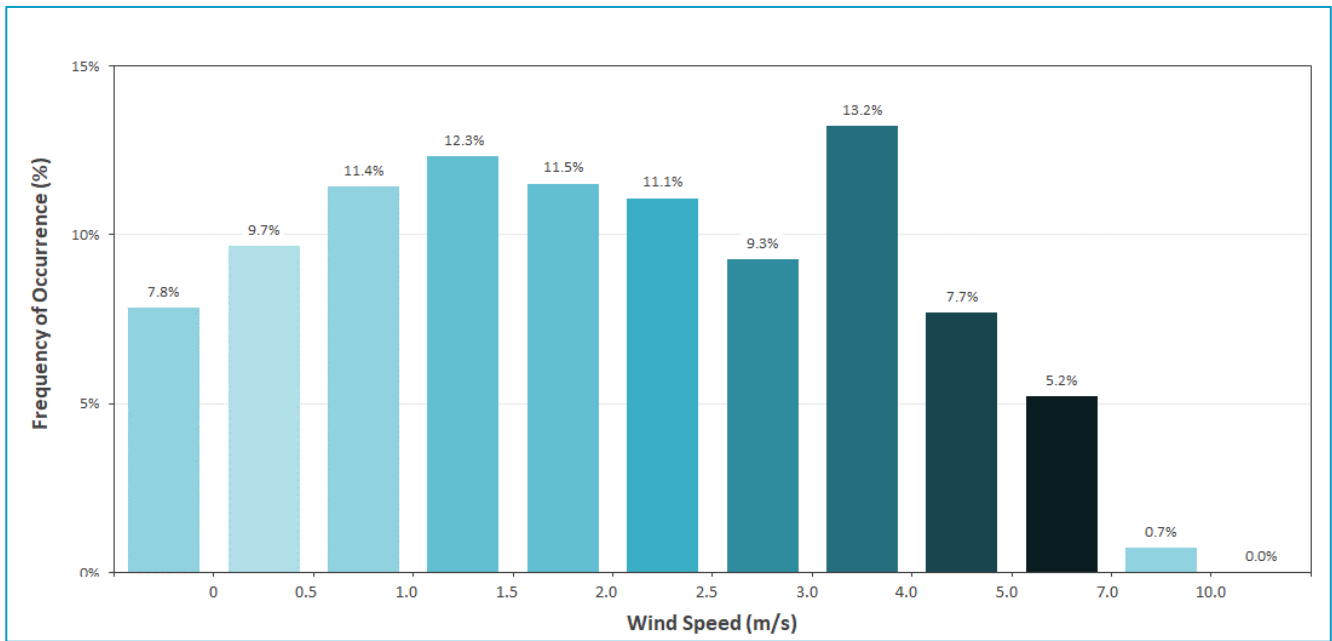


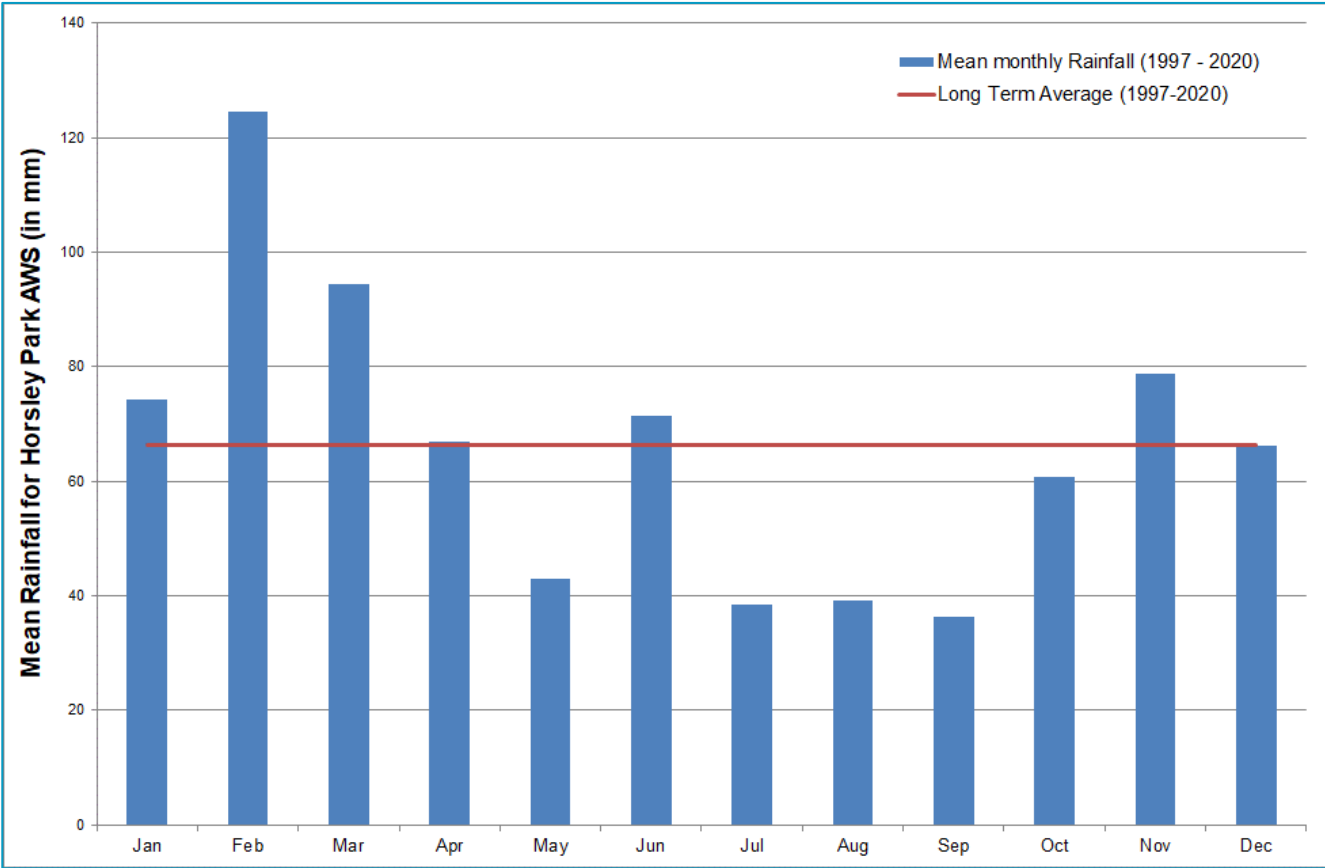
Figure A3 Wind Speed Frequency Chart for Horsley Park AWS – 2017-2021



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 A4**. 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 Site have the greatest potential to impact on receptors for the period of late autumn to early spring.

Figure A4 Long term Mean Rainfall for Horsley Park AWS – 1997 to 2021



APPENDIX B

CONSTRUCTION PHASE RISK ASSESSMENT METHODOLOGY

Step 1 – Screening Based on Separation Distance

As noted in **Section 3.2**, the nearest residential receptors are located approximately 140 m from the southern boundary of the Site. The nearest commercial receptors are located approximately 30 m to the south, 100 m to the east and 120 m to the north of the Site boundary.

The IAQM screening criteria for further assessment is the presence of a sensitive 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 residential receptors are located approximately 140 m of the boundary of the site further assessment is required.

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 m³, 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 m³ – 50,000 m³, potentially dusty construction material, demolition activities 10-20 m above ground level; and
- **Small:** Total building volume <20,000 m³, 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 m², 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 m² to 10,000 m², 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 m², 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 m³, piling, on site concrete batching; sandblasting.
- **Medium:** Total building volume 25,000 m³ to 100,000 m³, potentially dusty construction material (e.g. concrete), piling, on site concrete batching.
- **Small:** Total building volume less than 25,000 m³, 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.

Note: No significant demolition activities are proposed as part of the works.

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
Earthworks	Large	<p>IAQM Definition: Total site area greater than 10,000 m², 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>Relevance to this Project: <i>An estimated 52.2 ha (522,000 m²) site area is expected to undergo bulk earthworks.</i></p>
Construction	Medium	<p>IAQM Definition: Total building volume 25,000 m³ to 100,000 m³, potentially dusty construction material (eg concrete), piling, on site concrete batching.</p> <p>Relevance to this Project: <i>A warehouse and distribution building is proposed to be constructed on Lot 10 covering an area of 45,225 m² including 3,006 m² of office space.</i></p>
Trackout	Large	<p>IAQM Definition: 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>Relevance to this Project: <i>It is estimated that approximately 60 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 PM₁₀, 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 expected to be present continuously, or at least regularly for extended periods as part of the normal pattern of use of the land.	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 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.	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 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 ₁₀ (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 ₁₀ (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 PM₁₀.</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 PM₁₀ 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 PM₁₀ (as an annual average) experienced in the area of interest into account and is based on the air quality objectives for PM₁₀ 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 19.4 µg/m³ for PM₁₀) 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 ₁₀ conc.	Number of receptors ^{a,b}	Distance from the source (m)				
			<20	<50	<100	<200	<350
High	>25 µg/m ³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	21-25 µg/m ³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	17-21 µg/m ³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<17 µg/m ³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>25 µg/m ³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	21-25 µg/m ³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	17-21 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<17 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
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 nearest Site. 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*'. Additionally, these categorisations have been made taking into account the 5-year mean background PM₁₀ concentration of 20.8 µg/m³ recorded at Prospect AQMS (see **Section 6.2**).

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

ODOUR RISK ASSESSMENT METHODOLOGY

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.
- 1. **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"> • users can reasonably expect enjoyment of a high level of amenity; and • 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. <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"> • 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 • 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. <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"> • the enjoyment of amenity would not reasonably be expected; or • 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. <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 - CURRICULUM VITAE OF AUTHOR

CURRICULUM VITAE



SAHAR BAGHERI

SENIOR PROJECT CONSULTANT

Air Quality

QUALIFICATIONS

MSc	2016	Master's in Mechanical Engineering, Sharif University of Technology, Iran
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Personal Profile

Sahar is a Senior Air Quality Consultant working within the Air Quality team. She has over 5 years of environmental engineering experience. Sahar has acquired broad environmental experience including air quality and odour, impact assessments, emission inventories (including National Pollutant Inventory and National Greenhouse and Energy Reporting), air quality dispersion modelling (including GRAL, CALPUFF and AERMOD), air quality and odour monitoring, meteorological monitoring, meteorological modelling (TAPM & CALMET), greenhouse gas assessments, and greenhouse gas management plans.

Key Capabilities/Expertise

- Project Management
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- Meteorological Modelling (TAPM, CALMET, AERMET) and Dispersion Modelling (GRAL, CALPUFF, AERMOD)
- Emissions Inventory Development
- National Pollutant Inventory and National Greenhouse and Energy Reporting
- Field Odour Surveys and Dust, Ambient Air Quality, and Odour Monitoring
- Greenhouse Gas Assessments

PROJECTS

Prestons Repair Hub (2022)	Lead air quality consultant to undertake an air AQIA for the potential operational impacts within a proposed automotive repair centre.
M7 Business Park (2022)	Project manager to conduct an AQIA in support of a State Significant Development (SSD) application for an expansion of the M7 Business Hub using a qualitative approach.
Aspect Industrial Estate (2021 – 2022)	Air quality specialist engaged by Mirvac to prepare a Construction Air Quality Management Plan (CAQMP) for the Aspect Industrial Estate (AIE) to maintain acceptable levels of amenity for surrounding residents during construction activities and ensure compliance with relevant ambient air quality criteria for particulate matter at surrounding receptor locations.
South Creek West Rezoning (2022)	Project manager to provide a detailed quantitative assessment of the potential air quality impacts of the Bringelly Brickworks operations on the Northwest Precinct within the South Creek West Land Release Area. The assessment has been modelled using a combination of the TAPM, CALMET and CALPUFF models.

Moss Vale Sewage Treatment Plant Upgrade (2022)	Lead air quality consultant to undertake a detailed odour impact assessment for the proposed upgrade of the Moss Vale STP using the CALMET/CALPUFF modelling software.
Anzac Parade Air Quality Assessment (2021)	Air quality specialist to model the emissions from the closest main road using the GRAMM/GRAL modelling system and predict the incremental impact of these emissions across the proposed development of a mixed-use building.
Bombo Quarry Dust Monitoring (Ongoing)	Project manager for the ongoing monitoring and reporting for dust deposition at 3 monitoring locations in accordance with legislative requirements to pro-actively manage on-site operations and stockpile dust impacts on sensitive receptors.
Aussie Skips Dust Monitoring (Ongoing)	Air quality specialist to conduct air quality monitoring of deposited dust and metals for the ongoing operations associated with waste management by Aussie Skips Recycling Pty Ltd.
Compliance Monitoring (Lead, PM10 and TSP), Sydney Harbour Bridge, NSW, Australia (Ongoing)	Air quality consultant for the project involving repainting the iconic Sydney Harbour Bridge. The process includes stripping the old paint (containing lead), preparation of the surface and repainting. Lead concentration in the air along with the concentration of particulate (PM ₁₀ and TSP) is monitored in the project.
ACT No-Waste, Odour Monitoring (Ongoing)	Conduct a series of ambient odour field surveys to assess the intensity of odours in the area surrounding the Mugga Lane Resource Management Centre (MLRMC) Landfill. The project includes In-field measurements using photo-ionisation detector (PID) and/or gas detector measurements of surface gas and odour levels in the vicinity of the tarpaulin trials and collection of infield odour samples from the surface of landfill cells using a Flux Chamber technique and preparation of a report detailing the findings of the assessment as well as survey plots for each survey.
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APPENDIX J

Construction Traffic Management Plan

asongroup



Construction Traffic Management Plan

Lot 5A & 5B, Oakdale West Estate

Oakdale West Estate, Kemps Creek

24/01/2023

P1959r04v2



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Document Control

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Project	Lot 5A & 5B – Construction Traffic Management Plan
Client	Goodman Property Services (Aust) Pty. Limited
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Revision History

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02	24/01/2023	Issue II	J. Wong	J. Laidler

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APPENDICES

Appendix A. Risk Assessment

Appendix B. TGS Verification Checklist

Glossary

Acronym	Description
AGRD	Austrroads Guide to Road Design
AGTM	Austrroads Guide to Traffic Management
CC	Construction Certificate
Council	Penrith City Council
DA	Development Application
DCP	Development Control Plan
DoS	Degree of Saturation
DPE	Department of Planning and Environment
FSR	Floor space ratio
GFA	Gross Floor Area
HRV	Heavy Rigid Vehicle (as defined by AS2890.2:2018)
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
MOD	Section 4.55 Modification (also referred as a S4.55)
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
NHVR	National Heavy Vehicle Regulator
OC	Occupation Certificate
RMS Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
S4.55	Section 4.55 Modification (also referenced as MOD)
S96	Section 96 Modification (former process terminology for an S4.55)
SRV	Small Rigid Vehicle (as defined by AS2890.2:2018)
TDT 2013/04a	TfNSW Technical Direction, Guide to Traffic Generating Developments – Updated traffic surveys, August 2013
TfNSW	Transport for New South Wales
TGS	Traffic Guidance Scheme
TIA	Transport Impact Assessment
TIS	Transport Impact Statement
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

1 Introduction

1.1 Overview

Ason Group has been engaged by Goodman Property Services (Aust) Pty. Limited (Goodman) to prepare a Construction Traffic Management Plan (CTMP) relating to the construction of Lot 5A & 5B within the Oakdale West Industrial Estate (OWE) at Kemps Creek (the Site). A site plan and an overview of the proposed surroundings are provided in **Figure 1**.

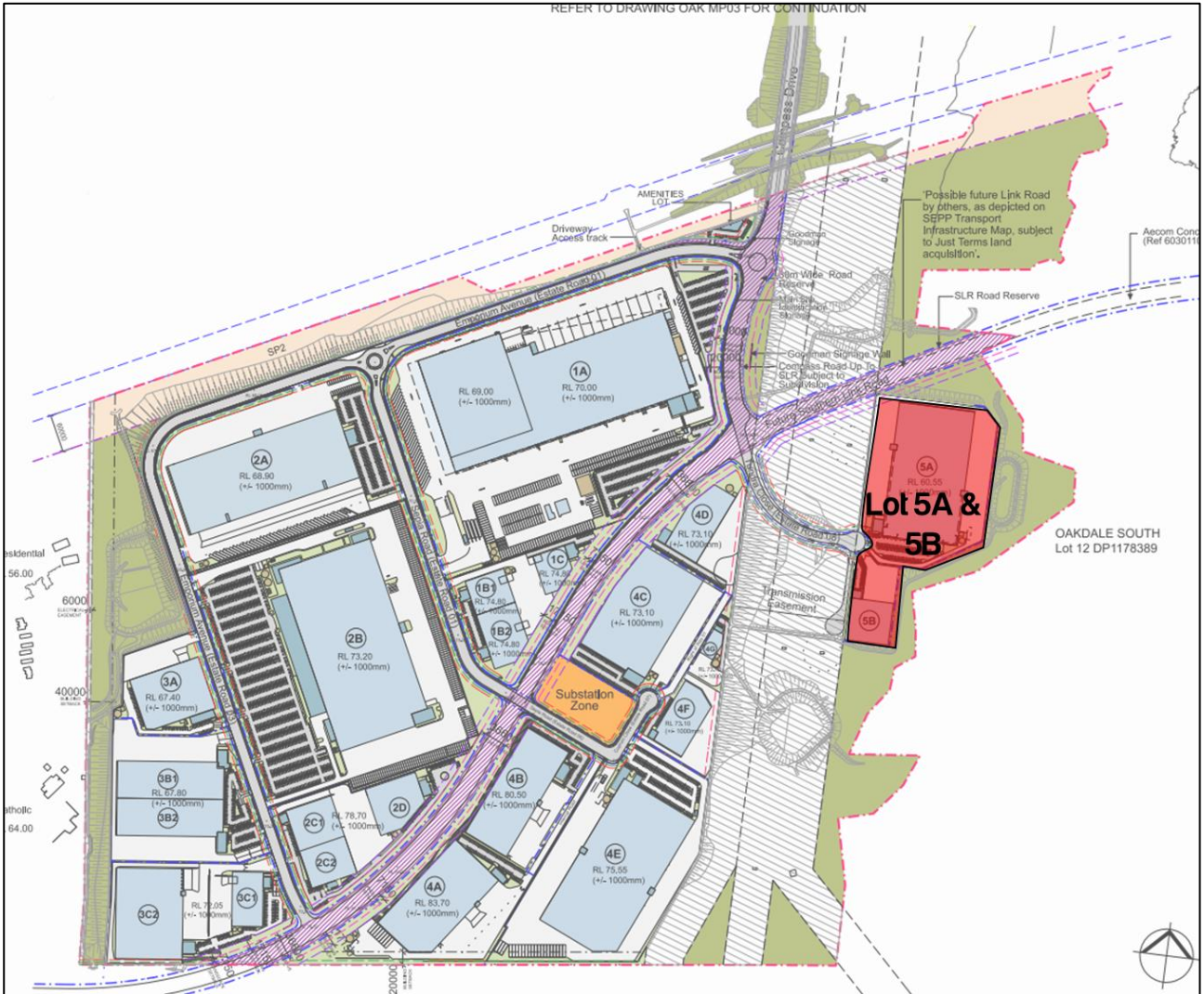


Figure 1: OWE Context Showing Lot 5A & 5B

1.2 Report Purpose

The purpose of this report is to detail a traffic management plan for construction that seeks:

- To minimise traffic impacts on the surrounding road network and adjacent landowners / occupiers,
- Ensure safety of workers, pedestrians, road users and any site-specific considerations (including schools and neighbours to the west),

- Provide appropriate warnings of changes in road / traffic conditions, and of personnel / workers and plant engaged in the works on or adjacent to roads accessible to the general public.
- Minimise disruptions to public transport.
- Provide information regarding the construction vehicle access routes and any changed road conditions (if applicable); and
- Communicate the arrangements for and impacts of any activities affecting traffic.

It is expected that this plan will be updated should any necessary changes to the currently proposed arrangements arise in the future. Any special events (if required) would be subject to a separate request for a specific permit not covered by this report. Ason Group is responsible for the preparation of this Plan only and not for its implementation, which is the responsibility of the Contractor.

This report has been prepared by consultants who hold the TfNSW (formerly RMS) Prepare a Work Zone Traffic Management Plan certification. Details of the accredited personnel are provided below:

- James Laidler SafeWork NSW No. TCT0031686

1.3 Site Context

There are existing works associated with the construction of Compass Drive and the OWE. For context, the works are generally summarised as follows:

- OWE is a staged development for warehousing and distribution hub. Stage 1 of the OWE comprises of estate wide earthworks and construction of road infrastructure in preparation of the construction of warehouses, however it currently excludes the actual construction of any warehouses.
- Compass Drive has been constructed as part of a State Significant Development. Compass Drive provides a connection between Lenore Drive and the future Southern Link Road (SLR). In the short-term Compass Drive will be a public road, owned by Council, providing local access to the future Oakdale West Estate and other industrial areas north of the Water NSW Pipeline.

Each of the above has been subject to a separate Construction Traffic Management Plan — versions referenced in preparing this CTMP:

- Ason Group, Construction Traffic Management Plan, Oakdale West Estate, Kemps Creek, 0129r06v19 CTMP_ Oakdale West Estate, Kemps Creek Issue IX, 06/04/2020
- Ason Group, *DA TA_Lot 3C, 5A & 5B, Oakdale West Estate*, P1959r01v03, dated 2/11/2022

The original SSD approval for the OWE (SSD 7348) was granted on 13 September 2019 and envisaged a total GFA of some 475,269 m² GFA (original approved GFA) across the entire Estate spanning 5 precincts. Since that approval, the Estate has gone through several modifications with the latest approval being granted for MOD 11.

For context, the Approved Oakdale West Estate (MOD 11) will generate the following peak hourly traffic volumes associated with future operation of the Estate. The below traffic volumes were approved as part of the Approved Oakdale West Estate (MOD 7).

- AM peak 1,326 veh/hr.
- PM peak 1,029 veh/hr
- Daily 11,249 veh/day

1.4 Statutory Requirements

The Site is part of the broader estate masterplan under SSD-7348, hence, the conditions outlined in the table below apply.

TABLE 1: EXPECTED COMPLIANCE TABLE

Reference	SSD Condition Requirement	Response
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	-
a)	details of: <ul style="list-style-type: none"> 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; 	Relevant requirements are outlined in this table. Other specific requirements are detailed in Section 4
b)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Refer to Section 7
c)	program to monitor and report on the: <ul style="list-style-type: none"> i) impacts and environmental performance of the development; and ii) effectiveness of the management measures set out pursuant to paragraph (c) above; 	Refer Section 7.1 of this Plan which outlines the requirement for this Plan to be updated regularly.
d)	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;	Refer Section 7.1 of this Plan which outlines the requirement for this Plan to be updated regularly.
e)	a program to investigate and implement ways to improve the environmental performance of the development over time	Refer Section 7.1 of this Plan which outlines the requirement for this Plan to be updated regularly.
f)	a protocol for managing and reporting any: <ul style="list-style-type: none"> (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 	Management and reporting protocols are outlined in the Construction Environmental Management Plan. Reference is also made to Section 5.5 of this Plan in relation to incident management.
g)	a protocol for periodic review of the plan.	Refer Section 7.1 of this Plan.

1.5 Stakeholder Engagement

Stakeholder engagement has been undertaken through consultation with Council in the preparation of the Site's CMTP. Subsequently, Council has provided comments which were received on 22 December 2022 via email and have been attached in **Appendix C**. Ason Group's responses to each comment have been outlined in the table below.

TABLE 2: COUCIL COMMENTS – 22 DECEMBER 2022

Item	Council's Comments	Ason Group's Responses
1	Approval to be obtained from Council's City Assets for special permits.	Noted. Refer to Section 2.1 .
2	Vehicles should not use Bakers Lane to access the Site.	Noted. Refer to Section 3.1 .
3	Traffic Guidance Scheme (TGS) shall maintain a suitable level of access past work areas for pedestrians and cyclists at all times.	Noted. Refer to Section 3.2 .
4	Regular engagement to be undertaken with Transport for NSW in regard to construction access requirements due to the Southern Link Road.	Noted. Refer to Section 4.1.3 .
5	Material loading and unloading shall occur within the construction site boundary.	Noted. Refer to Section 4.2.4 .
6	An application shall be submitted to Council for any activities that will require use of kerbside parking for the purpose of a Works Zone.	Noted. Refer to Section 4.2.5 .
7	Traffic Guidance Scheme shall be updated by "Prepare a Work Zone Traffic Management Plan" card holder to ensure they remain consistent with the set-up on-site.	Noted. Refer to Section 4.2.9 .
8	Effectiveness of the CTMP shall be monitored by the contractor.	Noted. Refer to Section 7.1 .
9	The delivery of oversized plant or structure that require special arrangements to transport along public roads will require approval from National Heavy Vehicle Regulator (NHVR) and Council.	Noted. Refer to Section 2.3 .
10	Temporary traffic control measures on public road/road related area under the care and control of Penrith City Council will require obtaining Road Occupancy Permit (ROP) from the Council. Any excavation and/or road opening works on public road/road related area will require obtaining a Road Opening Permit from Council.	Noted. Refer to Section 4.2.9 .

1.6 Site Location

At a regional level, the Site is located approximately 3 kilometres south of the nearest suburban area, Erskine Park, 18 kilometres west of Parramatta, and 37 kilometres west of the Sydney CBD. It is within the Local Government Area (LGA) of Penrith City Council. Within the context of the OWE, Lot 5A & 5B are located at the cul-de-sac of Tundra Close, with a total site area of 60,126 m².

1.7 Road Hierarchy

The road hierarchy in the locality is presented in **Figure 2** and summarised below for key roads.

1.7.1 Lenore Drive / Old Wallgrove Road

Lenore Drive is a recently upgraded sub-arterial route providing an east-west connection linking Old Wallgrove Road (OWR) to the east and Erskine Park Road to the west. It provides four lanes (two in each direction) within a divided carriageway with a shared path along the northern side of the road. It is subject to an 80 km/h speed zoning.

1.7.2 Compass Drive

Compass Drive is a high-capacity road and is part of a State Significant Development. Compass Drive provides a connection between Lenore Drive and the future Southern Link Road (SLR). In the short-term Compass Drive will be a public road, owned by Council, providing local access to the future Oakdale West Estate and other industrial areas north of the Water NSW Pipeline. It has a signalised intersection at both ends of Lockwood Drive and will be a four-lane dual carriageway arterial road with a speed limit of 60km/hr.

1.7.3 Emporium Avenue

Emporium Avenue has been recently dedicated to Council and therefore is considered a public road. Emporium Ave provides access to Precinct 1, Precinct 2 and Precinct 3, and links the Future Southern Link Road (SLR) to Compass Drive. It provides a single lane in each direction and has a posted speed limit of 50km/h.

1.7.4 Sepia Road

Sepia Road has been recently dedicated to Council and therefore is considered a public road. Sepia Road separates Precinct 1 and Precinct 2 and connects to the Future Southern Link Road (SLR). It provides a single lane in each direction and has a posted speed limit of 50km/h.

1.7.5 Tundra Close

Tundra Close provides 2 lanes of traffic (1 in each direction) within a divided carriageway with shared paths along the north and south boundaries of the road. Further, this road has a parking lane on either side of the road. It is subject to a 50 km/h speed limit.

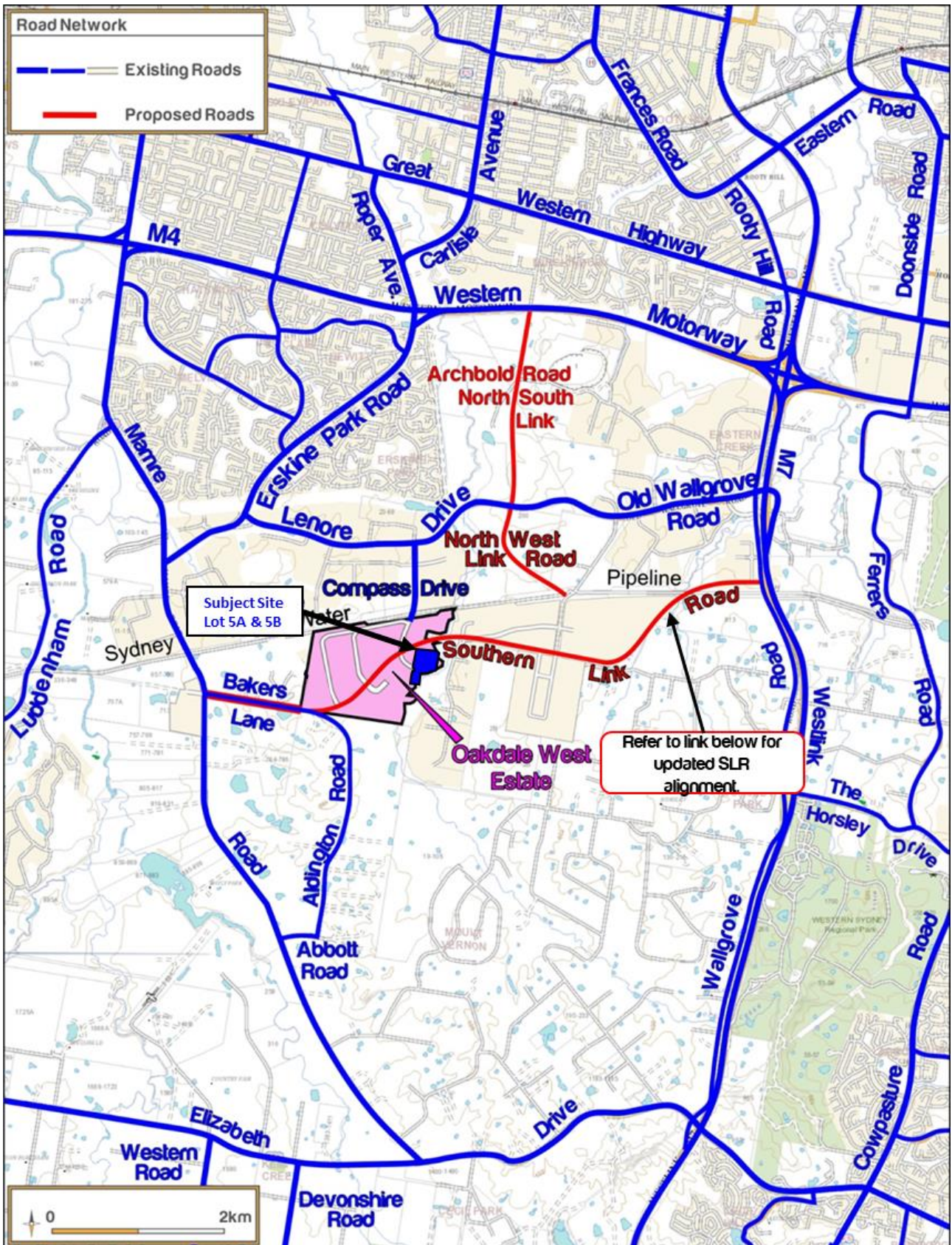


Figure 2: Road Hierarchy

<https://caportal.com.au/tfnsw/slr>

1.8 Project Representatives and Stakeholders

Through the preparation of this CTMP, the project representatives and stakeholders for this project are as follows.

TABLE 3 PROJECT REPRESENTATIVES AND STAKEHOLDERS

Name	Personnel	Role	Emails
Goodman Property Services (Aust)	Mack Bowman	Assistant Project Manager	Mack.Bowman@goodman.com
	Ben Milner	Head of Project Delivery	Ben.Milner@goodman.com
	Luke Ridley	Project Manager	Luke.Ridley@goodman.com
Ason Group	Ali Rasouli	Principal Traffic Engineer	ali.rasouli@asongroup.com.au
	James Laidler	Senior Traffic Engineer	james.laidler@asongroup.com.au
	Jasmine Wong	Graduate Traffic Engineer	jasmine.wong@asongroup.com.au

2 Overview of Works

2.1 Works Stages

For the purposes of this CTMP, these works will utilise Compass Drive and Tundra Close. The access and traffic management required is outlined later within this report. Recognising the purpose of this CTMP, it is estimated that the total duration of the construction works will be approximately 45 weeks from the commencement date. The following summarises key aspects of the construction stages:

2.1.1 Stage 1 – Excavation and Enabling Works

TABLE 4: STAGE SUMMARY – STAGE 1

Criteria	Response
Description of Key Activities	General earthworks, Construction of the temporary accesses, and Enabling works
Stage Length	2 weeks (1/03/2023 – 15/03/2023)
Max. Vehicle Size	20.0m Articulated Vehicles (Special Permits may be required for floating in excavation equipment. Special Permits would require approval from Council's City Assets.)
Vehicle Movement Frequency	Approximately 100 light vehicle movements / day + Approximately 90 heavy vehicle movements / day
Truck Access Requirements	Access shall be on Tundra Close
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	Y – upon written approval by the Planning Secretary
Contractor Parking	Y – Location varies depending on discreet work area(s). Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Wire mesh site boundary fencing and Type A hoarding
Public Transport Services Affected	Nil
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	Refer below.

2.1.2 Stage 2 – Structures

TABLE 5: STAGE SUMMARY – STAGE 2

Criteria	Response
Description of Key Activities	Construction of Warehouse and other structures within Site.
Stage Length	7 weeks (15/03/2023 – 30/04/2023)
Max. Vehicle Size	20.0m Articulated Vehicles (Special Permits may be required for floating in plant to bring in crane. Special Permits would require approval from Council's City Assets.)
Vehicle Movement Frequency	Approximately 100 light vehicle movements / day + Approximately 110 heavy vehicle movements / day
Truck Access Requirements	Access shall be on Tundra Close
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	Y – upon written approval by the Planning Secretary
Contractor Parking	Y – Location varies depending on discreet work area(s). Builder shall nominate contractor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Wire mesh site boundary fencing.
Public Transport Services Affected	Nil
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	Refer below.

2.1.3 Stage 3 – Internal Slab Concrete Pouring Works

TABLE 6: STAGE SUMMARY – STAGE 3

Criteria	Response
Description of Key Activities	Construction of warehouse internal base concrete slab
Stage Length	19 weeks (15/03/2023 – 30/07/2023)
Max. Vehicle Size	20.0m Articulated Vehicles
Vehicle Movement Frequency	Approximately 620 light vehicle movements / day + Approximately 190 heavy vehicle movements / day
Truck Access Requirements	Access shall be on Tundra Close
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	Y – upon written approval by the Planning Secretary
Contractor Parking	Y – Location varies depending on discreet work area(s). Builder shall nominate contractor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Wire mesh site boundary fencing.
Public Transport Services Affected	Nil
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	Y - 5A & 5B Carpark Vehicle Crossing & 5A& 5B Truck Entry & Exit Vehicle Crossing
Traffic Guidance Scheme	Refer below.

2.1.4 Stage 4 – External Finishes

TABLE 7: STAGE SUMMARY – STAGE 4

Criteria	Response
Description of Key Activities	Construction of hardstand, car park and landscaping works
Stage Length	23 weeks (30/07/2023 – 8/01/2024)
Max. Vehicle Size	20.0m Articulated Vehicles
Vehicle Movement Frequency	Approximately 460 light vehicle movements / day + Approximately 72 heavy vehicle movements / day
Truck Access Requirements	Access shall be on Tundra Close
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	Y – upon written approval by the Planning Secretary
Contractor Parking	Y – Location varies depending on discreet work area(s). Builder shall nominate contractor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Wire mesh site boundary fencing.
Public Transport Services Affected	Nil
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	Y - 5A & 5B Carpark Vehicle Crossing & 5A& 5B Truck Entry & Exit Vehicle Crossing
Traffic Guidance Scheme	Refer below.

2.2 Hours of Work

It is expected that the permitted hours of work would be as follows:

During Construction:

- 7:00AM – 6:00PM Monday – Friday.
- 8:00AM – 1:00PM Saturday

Work outside these hours may be undertaken (with prior consent) under the following conditions:

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

2.3 Access Arrangements

Emergency vehicle access to and from the Site will be available at all times while the site is occupied by construction activities. This process would be implemented through emergency protocols on the site which will be developed by the Contractor and shall be documented within the Contractor's Construction Management Plan.

Further, it is noted that the delivery of any oversized plant or structure that require special arrangements to transport along public roads will require approval from the National Heavy Vehicle Regulator (NHVR) and Council.

This is discussed in further detail below. At no stage will vehicles utilise Bakers Lane to access the Site.

3 Existing Conditions

3.1 Site Access

Access to the site shall be available on Tundra Close, as shown below. Vehicles should not use Bakers Lane to access the Site.

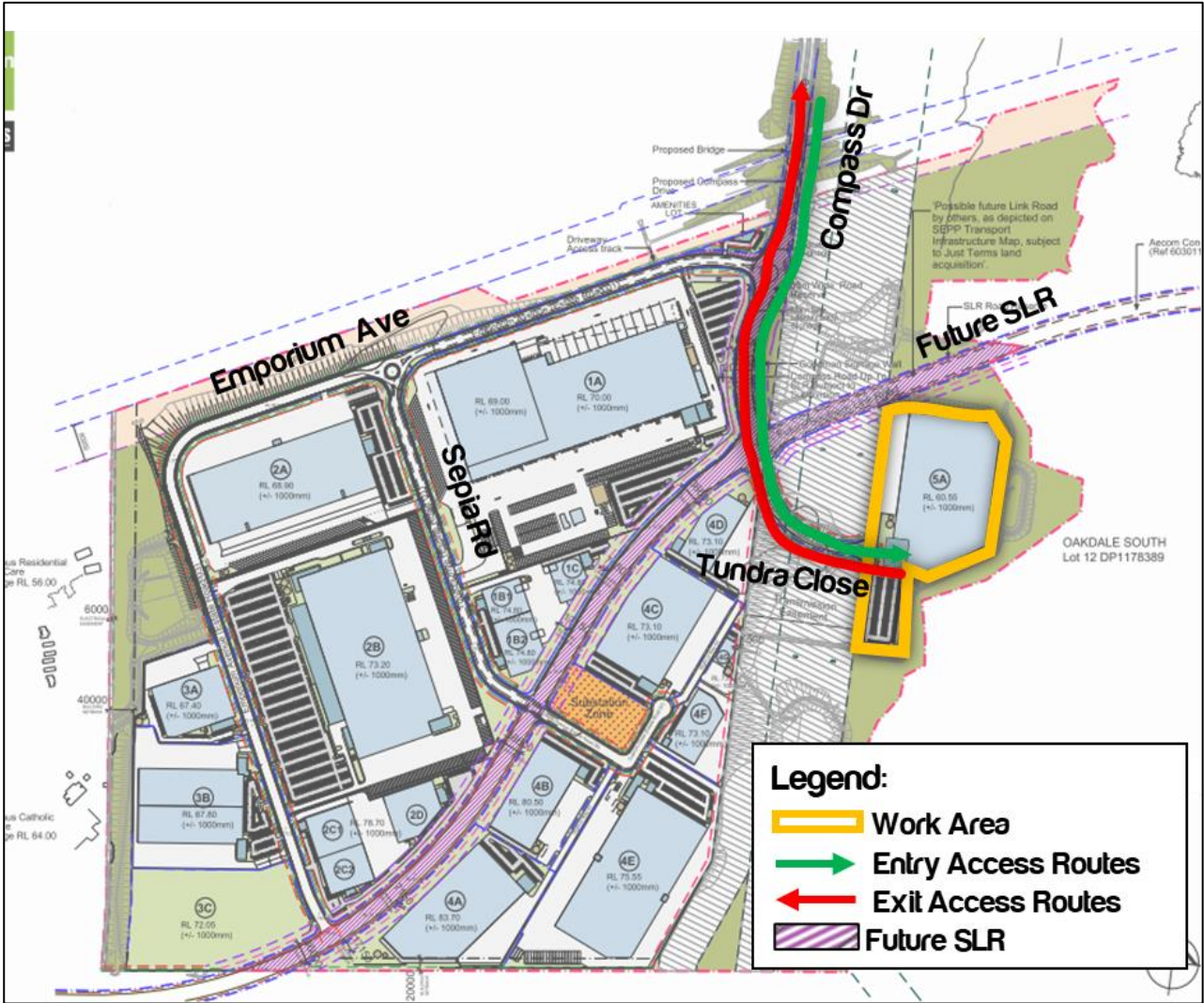


Figure 3: Access Arrangements

3.2 Active Transport Connections

A Shared Path (cyclists and pedestrians) is provided along the northern side of Lenore Drive and western side of Old Wallgrove Road, providing connections to the regional pedestrian and cycle networks. Compass Drive and the internal roads will include a 2.5-metre shared path for both pedestrians and cyclists.

Footpaths and cycle routes do not carry high volumes of pedestrians or cyclists. Notwithstanding, any TGS shall maintain a suitable level of access past work areas for pedestrians and cyclists at all times.

3.3 Public Transport Services

The introduction of a new bus route is confirmed to provide additional access for workers/ visitors within OWE. This new bus service commenced from 24 October 2021 and will provide direct access to and from St Marys Train Station. This introduction of a direct connection with St Marys Train Station increases the accessibility of the site via public transport services.

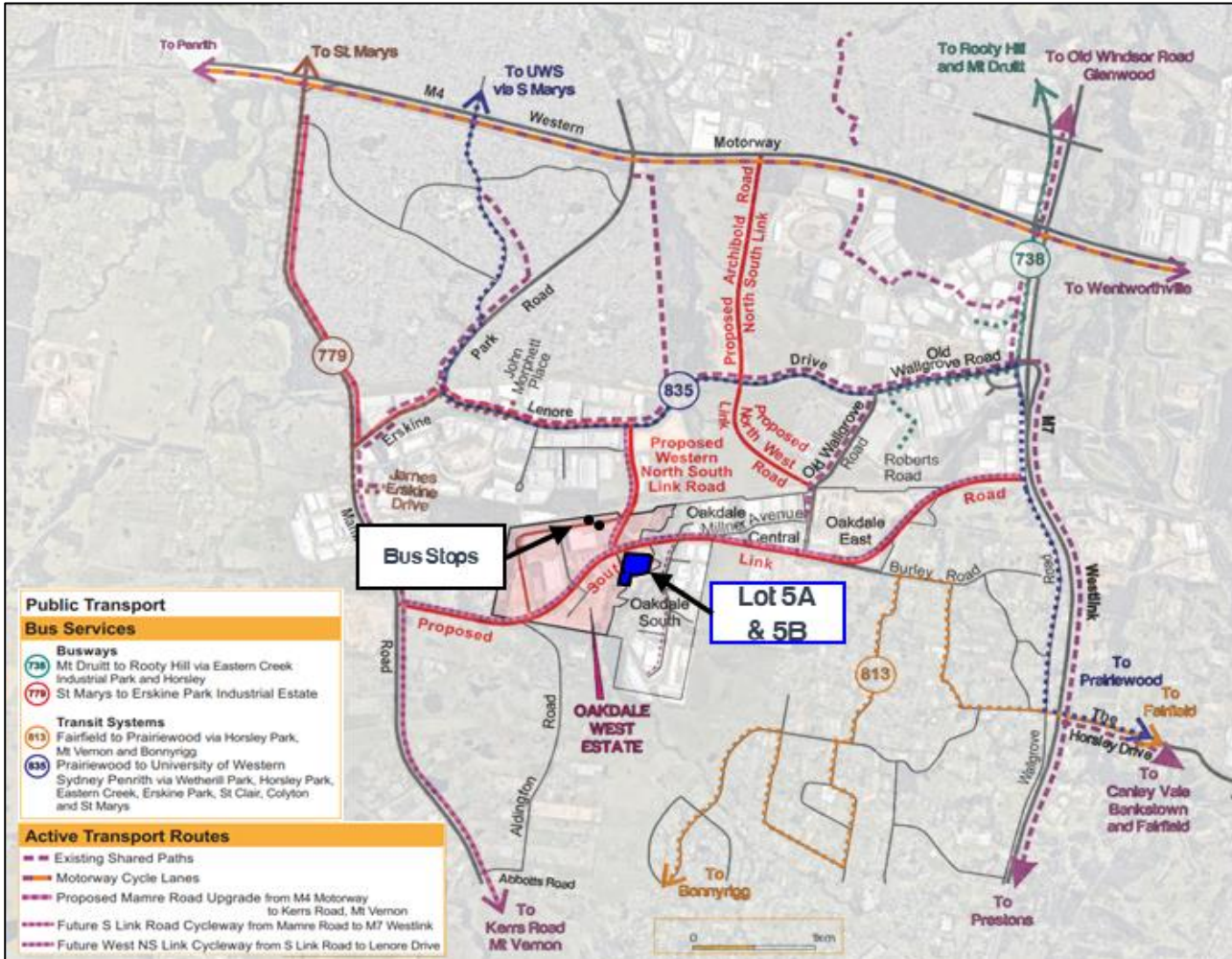


Figure 4: Existing Public Transport and Cycle Links

4 Management Plan

4.1 Traffic Movements

4.1.1 Background

The traffic report (Ason Group Ref: 1959r01v02) supporting the 5A & 5B submission, outlined the following relevant figures with regards to future operational traffic volumes associated with the Site:

- AM Peak 53 movements per hour (movements, in & out combined)
- PM Peak 53 movements per hour (movements, in & out combined)
- Daily Total 603 daily movements (movements, in & out combined)

For the purpose of this report, 1 truck is equal to 1 inbound movement plus 1 outbound movement which equals to a total of 2 movements.

4.1.2 Current Construction Traffic Estimates

The anticipated vehicle movements generated by the construction of the Site have been estimated having consideration of the likely requirements for construction staff, plant, equipment, and haulage. The anticipated construction schedule has been provided by the contractor, with the estimated traffic volumes are as follows:

- Lot 5A & 5B Construction Works – up to 1,080 light vehicle movements per day and 262 heavy vehicle movements per day shall access the Site, although not in the same time period per day. Notwithstanding, the estimated maximum daily construction vehicle generation is up to 1,342 vehicle movements per day.

For reference, the definitions of light and heavy vehicles are as follows.

- Light Vehicles: For the purpose of this report a light vehicle is a car, ute, or four-wheel drive that relates to the construction works of the site.
- Heavy Vehicle: For the purpose of this report, a heavy vehicle ranges from (but is not limited to) a 12.5m Heavy Rigid Vehicle (HRV) up to a 26.0m B-Double that relates to the construction works of the site.

For reference, a construction vehicle would relate to all contracted parties involved in day-to-day construction activities on site. This would include.

- All Vehicles making material deliveries to and from the Site.
- All Contractors and their sub-contractor's construction site vehicles
- All construction staff working on the projects arriving / departing the Site in private cars.

In turn, the following are exempt from the requirements of the CTMP (as they are not part of construction works within the Site).

- All Goodman staff and their design / management consultants
- Food vans / food deliveries by non-contracted parties
- Relevant Authorities / Agencies (including DPE or Penrith City Council/, and other stakeholders including Endeavour Energy, TransGrid, Sydney Water, NBN or others who have assets on the site)

- Members of the public who may drive in ad hoc.

4.1.3 Truck Movements & Contractor Parking

The construction access is from Tundra Close. Relevant truck routes are outlined within **Figure 3**. The implementation of the access route shall be done so in accordance with any and all conditions of consent received from Council and/or TfNSW.

It is expected that a schedule for deliveries of materials and goods will be established prior to that day, with Traffic Controllers maintaining radio contact with construction vehicles at all times. Thus, at no stage shall queuing occur on the public road network. In the event that vehicles were required to use a layover prior to arrival to site, it is expected that the vehicles shall laydown within Tundra Close before arriving to site in order to avoid any on-street queuing.

It is expected that future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 60 truck movements (30 in, 30 out) per day.

In preparing relevant details VMPs, the contractor should:

- Minimise interaction with other work areas, as far as possible.
- Where possible, separate truck movements from contractor car parking areas
- Prepare Traffic Control Plans where necessary to provide additional management of on-site vehicle movements.

It should be noted that TfNSW is yet to complete detailed design of the SLR. As such, it is unlikely that SLR works will commence during the timeframes envisaged by this CTMP. Nevertheless, regular engagement with TfNSW should be undertaken to coordinate any final design and/or construction access requirements.

4.1.4 TransGrid Easement

A TransGrid easement runs to the west of the Work Area which is subject to a number of restrictions. Whilst contractors associated with the subject works are not likely to impact this area, it is important to note that no vehicle circulation is permitted within 5 metres of any transmission structure or guywires unless otherwise pre-arranged. All endeavours shall be undertaken to limit vehicular movements with the easement areas for all construction works, wherever practicable.

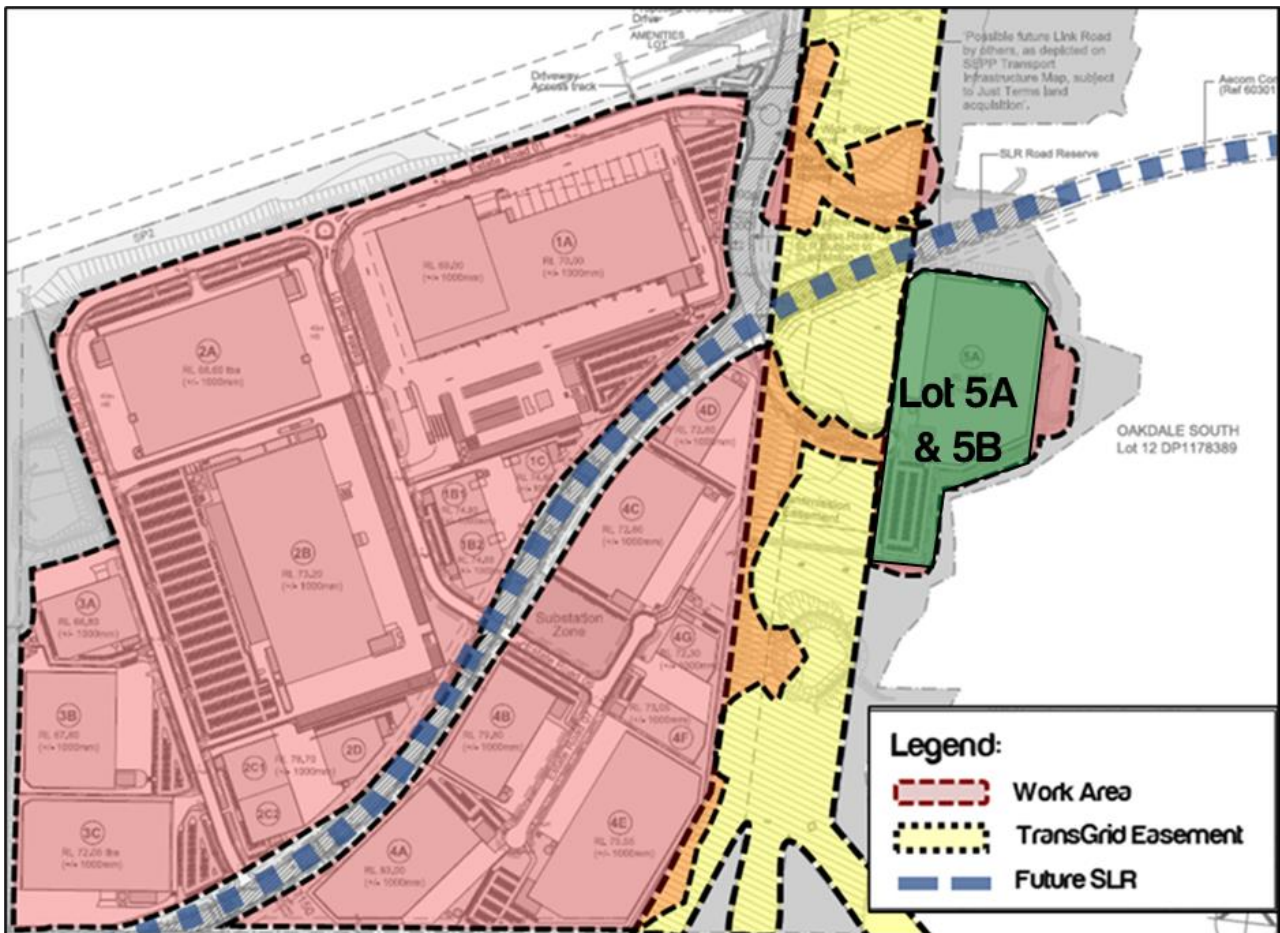


Figure 5: TransGrid Easement Within the Estate

4.2 Other General Requirements

4.2.1 Driver Code of Conduct

All drivers shall adhere to the Driver Code of Conduct, outlined in **Section 5**.

4.2.2 Contractor Parking

Contactors shall nominate the parking zones without obstructing any vehicle manoeuvre routes. The location of Contractor parking areas is expected to change as construction continues and encompasses various portions of the Site.

4.2.3 Access Road Management

Vehicles shall be tracked upon entry and exit of the Site's access to ensure that vehicles are abiding by both the timed restrictions and construction volume constraints.

4.2.4 Loading & Materials Handling

Handling of all materials throughout the construction shall adhere to the following.

- It is proposed that all material loading and unloading will occur within the construction site boundary.
- No loading is proposed to occur outside of the provisioned areas.
- Equipment, materials, and waste will be kept within the construction site boundary.

All materials handling shall be undertaken off the public roadway, however in the event materials handling are required from the roadway, then prior approval shall be sought and obtained from the relevant Authorities. Estate Roads that are currently in private ownership would require consent of the Estate Management and be subject to special management.

4.2.5 Work Zone Requirements

Any on-street works proposed by the Contractor such as hydrant fill points would be subject to approval by PCC prior to any filling.

A separate application would therefore be submitted to Council in the event that any special or discreet work activities are undertaken that will require the use of kerbside parking for the purposes of a Works Zone.

4.2.6 Fencing Requirements

Temporary exclusion fencing will be erected along the entire boundary of the site and will be maintained for the duration of the construction program. The fencing is to ensure unauthorised persons are kept out of the Site. Site access gates would be provided within Tundra Close and will be closed at all times outside of the permitted construction hours.

Careful consideration for pedestrian protection shall be included within relevant TGS's, as outlined below.

4.2.7 Pedestrian and Cyclist Management

Chain mesh construction fencing shall be provided along all site frontages accessible by the public to prevent unwanted pedestrian and/or cyclist access.

Pedestrians and cyclists using the footpath fronting the Site will be halted by an accredited Traffic Controller while construction vehicles are entering or exiting the Site. An expandable barrier (pedestrian boom gate or equivalent) would be installed on both sides of the driveway, to be operated when construction vehicles are on approach / ready to depart from the Site. Once the construction vehicles are clear from the footpath, the Traffic Controller can allow the pedestrians and cyclists to continue along their journey. One traffic controller will be allocated to each pedestrian barrier, which will remain closed when not in use and shall only be opened when required.

The Contractor shall make clear to Traffic Controllers that pedestrians have right of way and, as far as reasonable (mostly associated with exit vehicle movements). During peak times, only one truck is to ingress/egress the Site per footpath closure (holding of pedestrians and/or cyclists), and all queued pedestrian and/or cyclists must be cleared before another vehicle may have access to/from the Site.

Traffic Controllers are required to maintain radio communication with construction vehicle drivers at all times.

4.2.8 Engineering Construction Specifications

Any Signage and/or line marking to be installed as a result of these construction works shall be installed as per Council's Engineering Construction Specification for Civil Works document (October 2017).

4.2.9 Traffic Guidance Scheme's

Any Traffic Guidance Schemes (TGSs) shall be prepared and updated by an accredited person who holds a "Prepare a Work Zone Traffic Management Plan" card, in accordance with the TfNSW Traffic Control at Worksites Manual (Issue 6.1) and AS1742.3:2019.

All TGSs involving signage or impacts to public roads shall be approved by the Traffic Management Centre (TMC), prior to the works for which they relate. These TGSs shall be updated to respond to any changes to prevailing traffic conditions throughout the life of the works.

Further, temporary traffic control measures on public road/road related area under the care and control of Penrith City Council will require obtaining Road Occupancy Permit (ROP) from the Council. Any excavation and/or road opening works on public road/road related area will require obtaining a Road Opening Permit from Council.

5 Driver Code of Conduct

5.1 Objectives of the Driver Code of conduct

- To minimise the impact of earthworks and construction on the local and regional road network.
- Minimise conflict with other road users.
- Minimise road traffic noise; and
- Ensure truck drivers use project approved routes only.

5.2 Code of Conduct

The code of conduct applies to users driving any vehicle for work-related purposes. Drivers are to be issued with a copy of the Driver Code of Conduct, and must comply with all 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.
- Drivers must not utilise Bakers Lane for any reason while travelling to or from the Site.

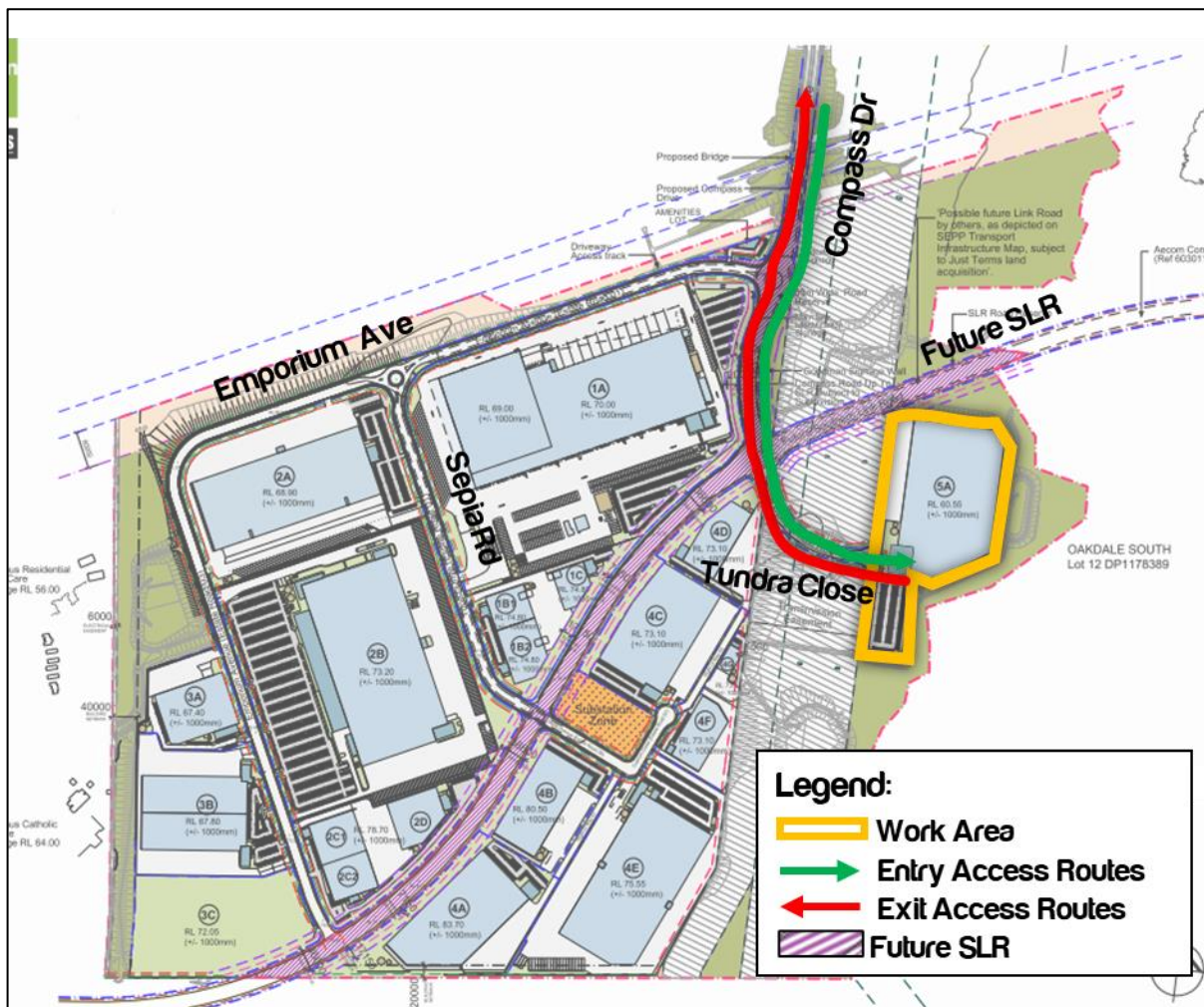
The below activities in any vehicles will be considered as a breach of conduct and will result in removal from site:

- 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
- The use of roads other than internal roads, and Compass Drive to arrive and/depart from the site to access the wider road network.
- Use of Bakers Lane is not permitted, for any reason.

5.3 Driver Responsibilities

All Drivers on site must:

- Abide with the following route to and from the Site. As such at no time shall a vehicle access the Site via Bakers Lane or Aldington Road for operational use



- 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.
- Ensure they have a current driver licence for the class of vehicle they are driving, and this licence is to be always carried.
- 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 oil, tyre pressures, radiator, and battery levels of company vehicles they regularly use.
- 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 routes outlined above.
- Be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW/ Australian Road Rules. Works must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline.
- 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 the approved site access/egress routes only.
- Follow speed limits as imposed within the estate.
- Keep loads covered at all times.

5.4 The Site Team Responsibilities

The Contractor is responsible in taking 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:

- Ensure that all drivers adhere to the designated heavy vehicle routes as required by the route designated above. If a driver accesses the Site contrary to the approved routes, then approval to drive to and from the Site will be revoked by Management.
- 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
- 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.

5.5 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.

5.6 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.

6 Transport Impact Assessment

6.1 Construction Traffic Generation

As discussed above, the construction works are expected to generate up to 1,342 vehicle movements per day. Vehicle movements will be spread generally throughout the day; however, the majority of works will typically generate peak hourly traffic before and after the 'network peak' periods (as outlined within Section 4.1.1).

Following the above, it is expected that stages are to overlap and will therefore increase the demand during each month. The below figure outlines the cumulative daily total for each month of the construction period.

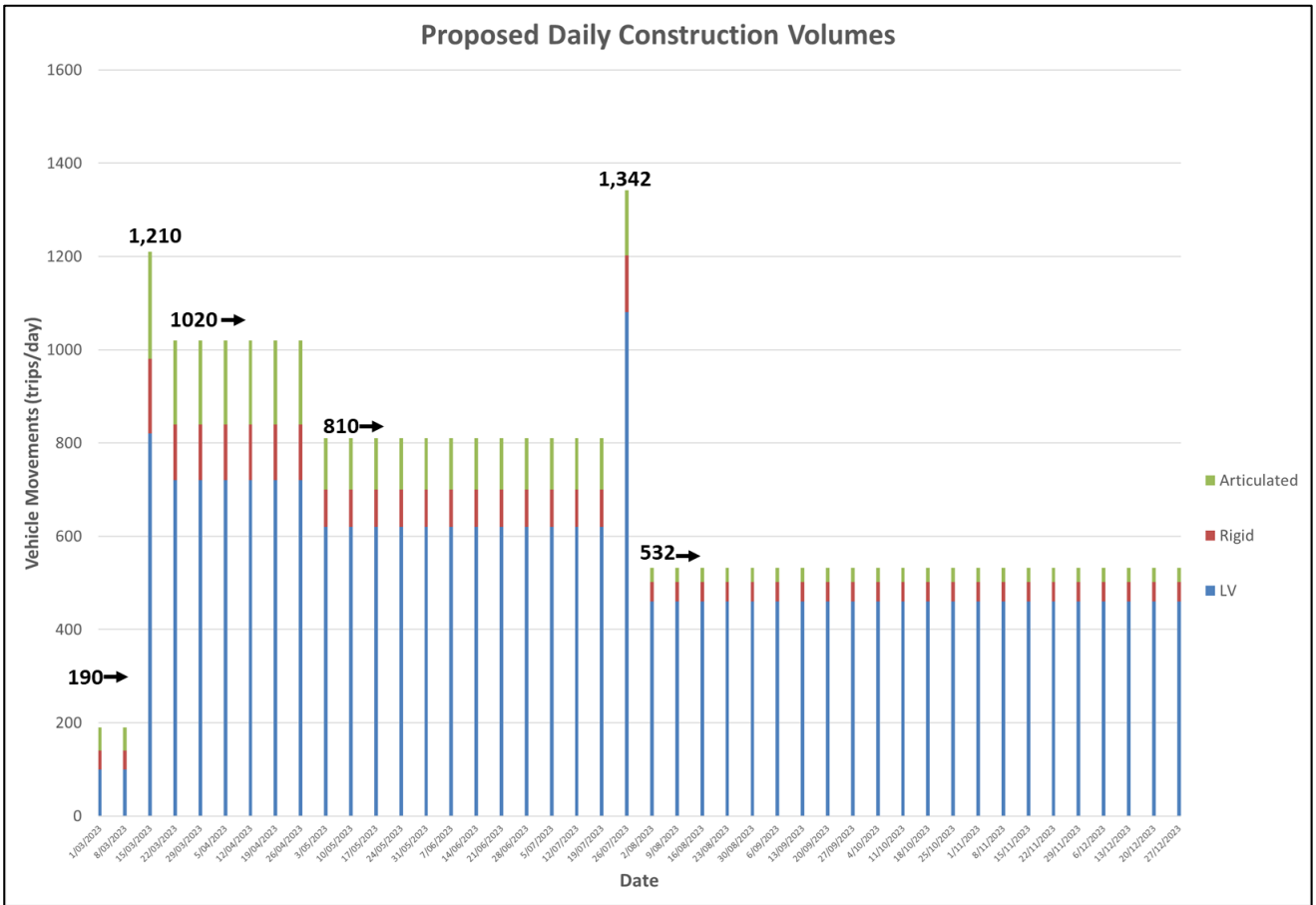


Figure 6: Construction Vehicle Volumes (Lot 5A & 5B)

6.2 Impacts on Surrounding Network

The impacts of construction traffic and the mitigating measures to be implemented are outlined below.

- **Construction Traffic within Compass Drive:** Construction traffic is substantially less than the approved future operational traffic volumes and will therefore not create any unacceptable impacts on the surrounding road network.
- **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

Plans (TGS's). A range of TGS's will be prepared 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 is to be undertaken to ensure that drivers are adhering to approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved.

In summary, based on the traffic numbers currently envisaged, the traffic impacts are considered acceptable.

6.3 Cumulative Impact

The above relates to construction traffic associated with Lot 5A & 5B works in isolation.

Noting that construction works for the remainder of the OWE infrastructure and Building works will still be underway, each contractor shall liaise regularly in order to avoid any conflict of large deliveries and to ensure that the cumulative construction impacts are minimised and do not exceed approved operational limits.

The following graph outlines the cumulative volumes of these projects against the approved daily volumes of the OWE once fully operational (being 11,249 veh/day (MOD 11)). Notwithstanding, the following table outlines the expected construction and operational volumes for the infrastructure and buildings within OWE at the time of the construction works outlined within **Section 2.1**.

TABLE 8: FORECAST CONSTRUCTION AND OPERATIONAL VOLUMES

Development	Approved OWE Volumes (MOD 11)	Forecast Daily Volumes ¹	Difference (Forecast – Approved)
Building 1A	11,249	1,310	-4,569
Building 1B & 1C		266 ²	
Building 2A		900	
Building 2B		1,870 ²	
Building 2C & 2D		180	
Building 3A		199 ²	
Building 3B		407 ²	
Building 4E		528 ²	
Building 5A & 5B		1,020	
Total		11,249	

Note: 1) Forecast construction volumes only relate to approved CTMP's within the OWE.

2) 1B & 1C, 2B, 3A, 3B, 4E are completed and operational

Based on the above, the cumulative volumes are significantly lower than the approved volumes, which suggests that the cumulative construction shall not create any unacceptable traffic impacts to the road network. As such, the existing infrastructure designed and constructed is sufficient to cater for the proposed traffic volumes.

Cumulative Daily Volumes (Operational & Construction)

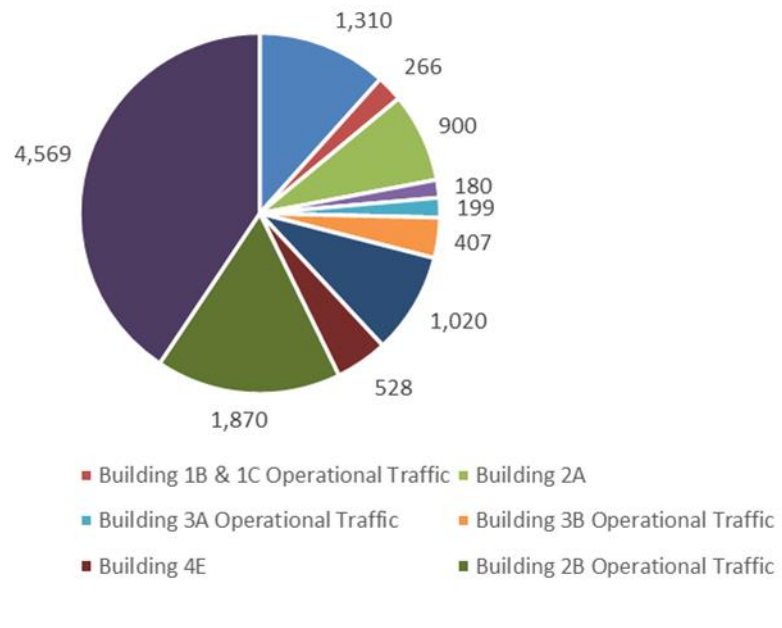


Figure 7: Cumulative Daily Construction and Operational Volumes

7 Plan Administration

7.1 Monitoring Program

This CTMP shall be subject to ongoing review and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator. As a minimum, 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 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.
- Reporting and monitoring of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved. This should be undertaken fortnightly during construction.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (Parking and access issues)
- To ensure TGSs are updated (if necessary) by “Prepare a Work Zone Traffic Management Plan” card holders to ensure they remain consistent with the set-up on-site.
- Regular checks undertaken to ensure all loads are entering and leaving site covered as outlined within this CTMP.
- A Dilapidation report shall be undertaken every periodically (once a month) to assess the condition of the road and note whether there has been any reduction in quality of the road as result of construction vehicles.

The development of a program to monitor the effectiveness of this CTMP shall be established by the Contractor. 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.

7.2 Contingency Plan

A contingency plan shall be established by the Contractor and is to be included in the overarching CEMP. Notwithstanding, **Table 9** outlines an indicative plan to be undertaken by the builder in the event that the monitoring program identifies the management plan is not effective in managing the construction impacts.

TABLE 9: CONTINGENCY PLAN				
Risk		Condition Green	Condition Amber	Condition Red
Construction Movements	Trigger	Construction traffic volume is in accordance with permissible and programmed volume and time constraints	Construction traffic volumes exceeds programmed volume but is within permissible volume constraints	Construction traffic volumes exceeds permissible volume and time constraints
	Response	No response required	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as:	As with Condition Amber, plus; <ul style="list-style-type: none"> • If it is concluded that construction activities were directly responsible for the exceedance,

			<ul style="list-style-type: none"> Review CTMP and update where necessary Provide additional training. 	<p>submit an incident report to government agencies.</p> <ul style="list-style-type: none"> Stop all transportation into and out of the site.
Queuing	Trigger	No queuing identified	Queuing identified within site	Queuing identified on the public road
	Response	No response required Continue monitoring program	Review the delivery schedule prepared by the builder. 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	<p>As with Condition Amber, plus</p> <ul style="list-style-type: none"> Review and investigate construction activities. If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Temporary halting of activities and resuming when conditions have improved. Stop all transportation into and out of the site. Review CTMP and update where necessary, provide additional training.
Noise	Trigger	Noise levels do not exceed imposed noise constraints	Noise levels in minor excess of imposed noise constraints	Noise levels greatly more than imposed noise constraints
	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	Minor inconsistencies with TGS to onsite operations	Near miss or incident occurring regardless of / as a result of the TGS being implemented
	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 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.
Dust	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 activities and respective control measures, where appropriate. Implement additional remedial measures, such as:</p> <ul style="list-style-type: none"> • Deployment of additional water sprays • Relocation or modification of dust-generating sources • Check condition of vibrating grids to ensure they are functioning correctly. • Temporary halting of activities and resuming when conditions have improved 	<p>As with Condition Amber.</p> <ul style="list-style-type: none"> • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Implement relevant responses and undertake immediate review to avoid such occurrence in future.

It is therefore proposed to incorporate the above items within the communications strategy. The contingency plan outlines the most effective methods to ensure that each item identified within the Monitoring Program is adhered to, resulting in the impacts to the wider community being minimised. It also represents the efforts undertaken to continually improve CTMP and ensure that the process being utilised are indeed best practice.

7.3 Communications Strategy

A communications strategy shall be established by the Contractor and would be included in the overarching CEMP (refer to the community consultation strategy prepared by SLR). The contractor is to notify the community liaison representative when traffic is expected to exceed the parameters set within “Condition Green” of **Table 9**. Notwithstanding, **Table 10** outlines an indicative communication strategy to ensure that adequate communication with key stakeholders have been met.

TABLE 10: COMMUNICATION STRATEGY

Risk	Stakeholder	Action
Warehouse Specific Disruption	<ul style="list-style-type: none">TfNSWPenrith CouncilTransport Management Centre (TMC)NSW PoliceEmergency ServicesGoodmanConstruction Crews	
Wider Traffic Specific Disruption	<ul style="list-style-type: none">TfNSWPenrith CouncilTransport Management Centre (TMC)NSW PoliceEmergency ServicesGoodmanConstruction CrewsSurrounding Residents / TenantsSchools and Aged Care Facilities in Bakers Lane	Stakeholder meetings Stakeholder emails

Appendix A. Risk Assessment

Building 5A & 5B, Oakdale West, Kemps Creek

Risk Assessment and Communication Tool

Project Number	1959		
Project Name	P1959r04v02 DA CTMP_Lot 5A & 5B, Oakdale West Industrial Estate		
Site Location	Tundra Close, Oakdale West Estate, Kemps Creek		
Date of Assessment	24 Nov 2022		
Revision	Issue 1		
Personnel			
Name	Company	Title	
Ben Milner	Goodman	Senior Project Manager	
Adrian Tesoriero	Goodman	Senior Project Manager	
Lachlan O'Reilly	Goodman	Project Administrator	
Caitlin D'Arcy	Goodman	Development Manager	
Ali Rasouli	Ason Group	Principal Traffic Engineer	
James Laidler	Ason Group	Senior Traffic Engineer	
Document Control			
Date Issued	Revision	Issued By	Checked By
24.11.2022	Issue 1	J. Laidler	

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

Consequence Description	
A - Minor	Could result in injury or illness not resulting in a lost workday 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 workday(s) or environmental damage can be mitigated and is not required to be notified under jurisdiction requirements where restoration activities can be accomplished.
C - Severe	Could result in permanent partial disability, injuries or illness that may result in hospitalisation of persons or environmental damage can be mitigated and is required to be notified under jurisdiction requirements.
D - Critical	Could result in permanent total disability or reversible environmental damage required to be notified under jurisdiction requirements.
E - Catastrophic	Could result in fatality or irreversible severe environmental damage required to be notified under jurisdiction requirements.

Likelihood Description	Design Likelihood
1 - Very unlikely	Industry experience suggests design failure is very unlikely. It can be assumed failure occurrence may not be experienced.
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 sometime during the life of the design.
4 - Likely	Industry experience suggests design failure is likely to occur during the life of the design.
5 - Almost certain	Industry experience suggests design failure is almost certain to occur during the life of the design.

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	Boundary fence will be provided as part of the main works. The design provides a defined separation between public areas and work area. Admin area is located in front of the site to minimise unauthorised visitor access	Design Solution	Main Contractor	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	Additional signage and implementation of Traffic Controllers shall be provided to separate vehicles and pedestrians as best possible.	Design Solution	Main Contractor	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	One-way manoeuvring around the site limits any interaction for oncoming vehicles to the access only, coupled with low speeds throughout the site.	Design Solution	Main Contractor	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	Main Contractor	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	Main Contractor	C	2	Medium
6	Misdirected access into wrong 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	Main Contractor	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	Main Contractor	C	2	Medium

Appendix B. TGS Verification Checklist

E.2 TGS verification checklist

TGS Verification must be undertaken after selecting or designing a TGS as a confirmation of appropriateness prior to approval for use. A PWZTMP or TGS qualified person must undertake this verification.

Completed by:			
Name:	James Laidler	Signature:	
Qualification	Senior Traffic Engineer PWZTMP #0052158569		
TGS details:			
TMP Reference:	P1959r04v02 DA CTMP_Lot 5A & 5B, Oakdale West Industrial Estate	TGS Reference:	
Date:	24/11/2022	Review type	<input type="checkbox"/> Site Inspection <input checked="" type="checkbox"/> Desktop Review
Sources used for desktop review	Near Map, Dated 21 Aug 2022		
Site details			
Street name:	Compass Drive	Confirmed posted speed limits:	60km/h
Street name:	Tundra Close	Confirmed posted speed limits:	50km/h
List unique site-specific Hazards / Risks identified on site			
E.g., utilities, infrastructure, vegetation, schools,			
n/a - straight section of road with good sight distance. - low volume of traffic at a cul-de-sac - no trees within the area - low speeds			

TGS details

Have the below been addressed on the TGS for this location?

Traffic volumes	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Volumes are low
Predicted queue length	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Noting the number of access points, the predicted queue length will minimal
Shoulder widths	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Roads Designed for B-doubles, therefore sufficient shoulder widths
Sight distances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Straight road with no obstructions and good sight distance
Existing infrastructure	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	No trees, poles, or other infrastructure
Transport services	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	The bus route will not be affected by the works
Pedestrian generators	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Pedestrians are given right of way as far as possible
Appropriate site access	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Roads Designed for B-doubles, therefore appropriate site access
Appropriate escape route for traffic controllers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	Details	No Traffic Controllers required for this TGS

Confirmation	
<p>Does TGS require adjustments within tolerances?</p> <p>If yes provide details TGS must include these adjustments with justification.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Comments or details of action taken:</p>	
<p>Does TGS require any additional changes or modifications?</p> <p>If yes provide details and return TGS to designer for additional changes or modifications</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Comments or details of action taken:</p>	
<p>Is TGS appropriate for use for works required at this location?</p> <p>If no provide details and, return TGS into file and select alternative, if design returned to designer for correction</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Comments or details of action taken:</p>	
<p>Have key TTM risks been addressed on site?</p> <p>If no, provide details and return TGS to designer for correction, review, and approval</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Comments or details of action taken:</p>	

Additional comments:

Reset forms - pages 269 to 272

Appendix C. Council Comments–22/12/2022

Jasmine Wong

From: Kathryn Saunders <kathryn.saunders@penrith.city>
Sent: Thursday, 22 December 2022 11:31 AM
To: Mack Bowman
Cc: Jacqueline Klincke
Subject: Council Review Comments - P-424641-K9V3- Lot 5A & Lot 5B - Construction Traffic Management Plan (CTMP) - Oakdale West Estate, Kemps Creek
Attachments: P1959r04v01 DA CTMP_Lot 5A & 5B, Oakdale West Industrial Estate.pdf

Hi Mack, Please see below traffic comments in relation to Precinct 5 CTMP. Should Council's Assets team provide advice, this will be forwarded in a separate email. Thank you.

Regards,

Kathryn Saunders
Principal Planner

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From: Phil Saverimuttu <Phil.Saverimuttu@penrith.city>
Sent: Thursday, December 22, 2022 10:15 AM
To: Kathryn Saunders <kathryn.saunders@penrith.city>
Cc: Jacqueline Klincke <jacqueline.klincke@penrith.city>
Subject: P-424641-K9V3- Lot 5A & Lot 5B - Construction Traffic Management Plan (CTMP) - Oakdale West Estate, Kemps Creek

Hi Kathryn

I have reviewed the Construction Traffic Management Plan submitted for Lots 5A & 5B, Kemps Creek.

The following comments are provided:

- Approval to be obtained from Council's City Assets for special permits.
- Vehicles should not use Bakers Lane to access the site.
- Traffic Guidance Scheme (TCS) shall maintain a suitable level of access past work areas for pedestrians and cyclists at all times.
- Regular engagement to be undertaken with Transport for NSW in regard to construction access requirements due to Southern Link Road.
- Material loading and unloading shall occur within the construction site boundary.

- An application shall be submitted to Council for any activities that will require use of kerbside parking for the purpose of a Works Zone.
- Traffic Guidance Scheme shall be updated by “Prepare a Work Zone Traffic Management Plan” card holder to ensure they remain consistent with the set-up on-site.
- Effectiveness of the CTMP shall be monitored by the contractor.
- The delivery of oversized plant or structure that require special arrangements to transport along public roads will require approval from National Heavy Vehicle Regulator (NHVR) and Council.
- Temporary traffic control measures on public road/road related area under the care and control of Penrith City Council will require obtaining Road Occupancy Permit (ROP) from the Council. Any excavation and/or road opening works on public road/road related area will require obtaining a Road Opening Permit from Council.

I hope this information helps.

Should you have any queries, please let me know.

Regards

Phil Saverimuttu
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APPENDIX K

Soil and Water Control Plan

PROPOSED INDUSTRIAL DEVELOPMENT – OAKDALE WEST ESTATE – BUILDING 5A & 5B

SOIL & WATER MANAGEMENT PLAN

November 2022 - Revision 0

Prepared for:



Prepared by:

ANDREW LITTLEWOOD

CPESC & Senior Soil Conservationist

Document Authorship Information

Project	Proposed Industrial Development – Oakdale West Estate – Building 5A & 5B, Lot 114 DP 1278027
Document	Soil & Water Management Plan – Construction of Building 5A & 5B
Document Author	Andrew Littlewood – Senior Soil Conservationist
Qualification	Certified Professional in Erosion and Sediment Control (CPESC No. 5988).
Relevant Training	<ul style="list-style-type: none"> SEEC and IECA (Australasia) – ‘Water Management on Construction sites’ & ‘Preparing and Reviewing Plans for Soil and Water Management’ – 2009 University of Western Sydney and Hawkesbury Global Ltd - Certificate of Attainment in Soil and Water Management for Urban Development - 2000
Experience – Years	22 years (2000 – 2022)
Current Employment	Director & Principal - Rubicon Enviro Pty Ltd (2016-2020)
Previous Employment	Senior Soil Conservationist & CPESC – TREES Pty Ltd (2008-2016)
Previous Employment	Erosion and Sediment Control Officer - Lake Macquarie City Council (2000 – 2007)
Professional Affiliations	Member of International Erosion Control Association (Australasia)

Document Status

Rev No.	Date	Revision Description	Prepared by	Reviewed		Approved	
				Name	Date	Name	Date
0	21/11/2022	Revision 0	A Littlewood				

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Appendices

Appendix A: Primary Erosion & Sediment Control Plan

Appendix A: Site Characteristics & Revised Universal Soil Loss Equation (RUSLE) Assessment

Appendix B: RUSLE Soil Assessment & Sediment Basin Calculations

Appendix C: Sediment Basin Management & Site Dewatering Procedure

Appendix D: Wet Weather Contingency Procedure

Appendix E: Progressive Erosion & Sediment Control Plans

Appendix F: Standard drawings

1.0 INTRODUCTION

1.1 Context

This Soil and Water Management Plan (SWMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the proposed construction of Building 5A & 5B at Lot 111 DP1262310 (the Project) on the Stage 1 Development of Oakdale West Estate (OWE). Building 5A & 5B is being constructed for the purposes of warehousing and distribution uses.

Goodman Group as developer of the OWE is in the process of gaining the relevant Council development approvals and has elected to prepare a CEMP for the Project. The CEMP has been developed in preparation for the award of a Construction Contract to a suitably qualified building contractor (Contractor) to undertake the construction of the Project.

This SWMP is required to support the CEMP, and has been prepared to address the requirements of:

- Department of Planning, Industry and Environment Development Application - State Significant Development 7348, including subsequent Modifications of Development Consent No's 1 to 10. In addition, this SWMP is contingent upon, and anticipated to comply with, the conditions of the imminent Modification of Development Consent No. 11 (Mod 11). The SWMP will be revised as required in response to any relevant Mod 11 condition revisions.
- The anticipated Conditions of Consent of a Development Application submitted to Penrith City Council. It is expected that the DA Conditions will mirror the conditions detailed in the recent Development Approval (DA20/0843 – Consent granted on 15 April 2021 for the construction of Building 3A).

1.2 Background

Goodman Group received approval on 13 September 2019 for the state significant development of Oakdale West Industrial Estate (OWE). OWE comprises a warehousing and distribution hub located at Kemps Creek in Western Sydney, NSW. The overall site a 154-hectare tract of land comprised of the combined parcels of land known as Lot 3031 DP 1168407, Lot 6 DP 229784, Lot 2 DP 84578, Lot 3 DP 85393, Lot 11 DP 1178389 off Bakers Lane, at Kemps Creek, extending to Lenore Drive, Erskine Park.

As part of the staged development of OWE, Goodman is seeking Development Consent from Penrith City Council for the development of a portion of Lot 111 DP1262310, which has a road frontage to the newly proclaimed public road known as Cuprum Close.

The relevant portion of the industrial development will entail the construction of Building 5A & 5B with an overall site area of 60 126m². Building 5A comprises of 25 915m² of warehousing space and 814m² of office facilities, whilst Building 5B comprises of 4661m² of warehousing space and 400m² of office facilities. Both buildings incorporate loading docks, parking facilities for cars, trucks and motorcycles and associated landscaping.

The EIS produced for NSW DPI&E - DA SSD 7348 (Department of Planning, Industry and Environment Development Application - State Significant Development 7348) has assessed the impacts of the project on surface water and soils. The EIS prepared by Urbis noted at Section 2.3 that:

Topography & landform

- *'Landform is relatively uniform, with undulating rises and alluvial flats bisected by narrow, ridge running from the south-west to the north-east of the site.'*

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- *No significant height variances with elevations from approximately 92m above AHD to approximately 50m at Ropes Creek in the east of the site.'*

Geology

- *'Underlying geology of the site is the Wianamatta Group formation (Bringelly Shale) and alluvium associated with Ropes Creek. Surface and sub-surface conditions are as follows:*
 - *Topsoil: Clay, depth 0.0-0.04 m;*
 - *Natural Soil: Clay, depth 0.04-0.5 m;*
 - *Bedrock: Sandstone, Sandstone and shale, depth 0.7-5.0 m.*

Soils

- *'Residual soils, characteristic of the Blacktown soil landscape, generally consist of shallow duplex soils over a clay base (OEH 2014).*
- *Overlying fluvial soils, part of the South Creek soil landscape, are associated with the alluvium across the low-lying terrain bordering Ropes Creek.*
- *No acid sulphate soils have been identified.'*

Surface Water, Hydrology and Flooding

- *'The OWE is located within the Hawkesbury-Nepean catchment.*
- *Ropes Creek, a third order stream, flows along the eastern boundary of the site in a northerly direction into South/Wianamatta Creek approximately 13 km north of the OWE.*
- *The landscape is characterised by a series of ridgelines incised with drainage lines flowing into Ropes Creek. The drainage system within the development site is in relatively poor condition, due to erosion and trampling by cattle.*
- *An unnamed modified watercourse is to the west of the OWE.*
- *The eastern portion of the site is subject to flooding (associated with Ropes Creek) and is variably affected by the 100-year average recurrence interval (ARI) flood event.'*

Groundwater

- *'Groundwater is expected to be relatively deep below the OWE site – no groundwater was encountered during geotechnical investigations which included boreholes drilled up to 15m below ground level.'*

Prior to the works commencing that are the subject of this SWMP, the site has had bulk earthworks undertaken by others under the approved SSD 7348 - Stage 1 Development. As a result of the preliminary bulk earthworks, the natural topography of the site has been altered, from mildly undulating footslopes slopes to being a graded pad with slight crossfall to the northern and eastern boundaries.

The overall disturbance footprint of approximately 6.01 hectares would present a moderate risk of increased sediment and contaminant impacts on water quality of local waterways due to runoff from the Project.

The EIS concluded potential impacts would be minimised through the employment of safeguards and management measures stated in Section 7.1 of the EIS.

1.3 Environmental management systems overview

The overall Environmental Management System for the project is described in the Construction Environmental Management Plan (CEMP).

The SWMP will form part of the selected Contractor's environmental management framework for the project, as described in the CEMP. Management measures identified in this Plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMS).

EWMS will be developed and signed off by environment and management representatives prior to associated works. Construction personnel will be required to undertake works in accordance with the identified mitigation and management measures. Works that are proposed in or near to identified Environmentally Sensitive Areas will have an EWMS prepared that details relevant environmental protection measures.

The Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared in consideration of the Primary Erosion and Sediment Control Plan (ESCP) attached to this SWMP as Appendix A. The ESCP describes the intentions and fundamental principles for erosion and sediment control management for the duration of the entire project.

The PESCPs will be developed by the Project environmental team in consultation with construction personnel, and with the assistance of the Project Soil Conservationist (Certified Professional in Erosion & Sediment Control - CPESC) when required.

They will be developed prior to any construction works commencing in the work zone and will be modified as required when:

- Site conditions evolve.
- Flow paths change.
- Construction activities that affect the characteristics of ground conditions change.

A Project Soil Conservationist (CPESC) will be engaged and consulted throughout construction to provide advice on erosion and sediment control design, installation, maintenance, and the development of PESCPs.

Used together, the CEMP, strategies, procedures, EWMS and PESCP form management guides that clearly identify required environmental management actions for reference by the Contractor's personnel and sub-contractors.

The review and document control processes for this Plan are described in the CEMP.

2.0 PURPOSE & OBJECTIVES

2.1 Purpose

The purpose of this Plan is to describe how the Contractor will manage and minimise soil and water impacts during construction of the project.

2.2 Objectives

The key objective of the SWMP is to ensure that the potential impacts to soil and water quality are minimised. To achieve this objective, the Contractor will be required undertake the following:

- Ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise erosion and sedimentation impacts and potential impacts to water quality in creeks, waterways, and groundwater along the project corridor.
- Ensure compliance with the Project's Development Application SSD 7348 Secretary's Environmental Assessment Requirements (SEARS)
- Ensure appropriate measures are implemented to address the relevant mitigation measures detailed in the EIS.
- Ensure compliance with expected Conditions of Consent of the Development Application currently being assessed by Penrith City Council. It is expected that the DA Conditions will mirror the conditions detailed in the recent Development Approval (DA20/0843 – Consent granted on 15 April 2021 for the construction of Building 3A).
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan.

2.3 Targets

The following targets have been established for the management of soil and water impacts during the project:

- Ensure compliance with the relevant legislative requirements and environmental safeguards.
- Meet New South Wales Environment Protection Authority (NSW EPA) water quality discharge parameters for all planned basin discharges.
- Manage downstream water quality impacts attributable to the project (i.e., maintain waterway health by avoiding the introduction of nutrients, sediment, and chemicals outside of that permitted by the NSW EPA and ANZECC guidelines).
- Ensure training on soil and water management is provided to all construction personnel through targeted training, site inductions and toolbox talks.

3.0 ENVIRONMENTAL REQUIREMENTS

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation and regulations relevant to soil and water management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act).
- *Environmental Planning and Assessment Regulation 2000*.
- *Protection of the Environment Operations Act 1997* (POEO Act).
- *Water Management Act 2000*.

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in the CEMP.

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Section 120 of the NSW POEO Act states that it is illegal to pollute waters. Under the POEO Act, 'water pollution' includes introducing litter, sediment, oil, grease, wash water, debris, and flammable liquids such as paint etc. into waters or placing such material where it is likely to be washed or blown into waters or the stormwater system or percolate into groundwater. All practicable steps should be taken to minimise the risk of pollution of waters. The EPL regulates pollution of waters including discharge points for the project.

3.1.2. Guidelines and standards

The main guidelines, specifications, and policy documents relevant to this Plan include:

- Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA, March 2004).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMICANZ 2000).
- Department of Environment and Conservation (DEC): Bunding & Spill Management. Insert to the Environment Protection Manual for Authorised Officers - Technical section "Bu" November 1997.
- Managing Urban Stormwater: Soils and Construction. Landcom, (4th Edition) March 2004 (reprinted 2006) (the "Blue Book"). Volume 1 and Volume 2.
- Volume 2A Installation of Services (DECCW 2008).
- Water quality guidelines for the protection of aquatic ecosystems for lowland rivers and estuaries. (ANZECC, 2000).

3.2 Environmental management measures

The environmental safeguards and management measures that are anticipated to be detailed in the Consent Conditions of the Development Application currently under assessment by Penrith City Council. This SWMP will be revised as necessary to address any changed or additional conditions imposed under DA Approval Conditions, that differ from those detailed in DA20/0843.

The environmental management measures relevant to this Plan are listed Table 3-1 below. This includes reference to required outcomes, the timing of when the commitment applies and the section of this Plan or other management system document which addresses the requirement.

Table 3-2: Management measures proposed for the Development Application currently under assessment by Penrith City Council that are relevant to construction soil and water management.

DA20/0843 Condition	Requirement	Timing	Mitigation & Management
Condition 13	Erosion and sediment control measures shall be installed prior to the commencement of works onsite	Commencement	<ul style="list-style-type: none"> • A SWMP and Primary ESCP will form part of the Contractors CEMP to be prepared for Building 5A & 5B Development. The CEMP will detail the standard and specific management and mitigation measures.
Condition 13	The erosion and sediment control measures are to be maintained in accordance with the approved erosion	Commencement duration and completion	<ul style="list-style-type: none"> • A SWMP and Primary ESCP will form part of the Contractors CEMP to be prepared for the Building 5A & 5B Development. The CEMP will detail the

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DA20/0843 Condition	Requirement	Timing	Mitigation & Management
	and sediment control plans for the development and the Department of Housing's "Managing Urban Stormwater: Soils and Construction" 2004.		standard and specific management and mitigation measures.
Condition 13	Certification that the erosion and sediment control measures have been installed in accordance with the approved erosion and sediment control plans for the development and "Managing Urban Stormwater: Soils and Construction 2004" shall be obtained and issued a minimum 2 days before any other site works are to commence, including earthworks and clearing of the site	Commencement	The Contractor to ensure certification that the erosion and sediment control measures have been installed in accordance with Condition 13 a minimum 2 days before any other site works are to commence, including earthworks and clearing of the site.
Condition 13	The approved sediment and erosion control measures are to be installed prior to and maintained throughout the construction phase of the development until the land, that was subject to the works has been stabilised.	Commencement duration and completion	The Contractor to install, monitor and maintain sediment and erosion control measures as detailed in Table 6.1 of the SWMP and Table 9 of the ESCP.
Condition 14	Mud and soil from vehicular movements to and from the site must not be deposited on the road.	Commencement duration and completion	The Contractor to ensure that sediment tracking controls are installed, monitored, and maintained as detailed in Table 9 of the ESCP.
Condition 17	All construction waste materials stored onsite are to be contained within a designated area such as a waste bay or bin to ensure that no waste materials are allowed to enter the stormwater system or neighbouring properties	Commencement duration and completion	The Contractor to ensure that waste management controls are installed, monitored, and maintained as detailed in Table 9 of the ESCP.

Environmental safeguards and management measures are included in the EIS in Section 9. The environmental management measures relevant to this Plan are listed Table 3-1 below. The Table 3.1 includes reference to required outcomes, the timing of when the commitment applies and the section of this Plan or other management system document which addresses the requirement.

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Table 3-2: Management measures from the EIS relevant to construction soil and water management

Issue	SSDA Component	Mitigation & Management
General Construction Management	Stage 1 Development	<ul style="list-style-type: none"> A CEMP to be prepared for the OWE Stage 1 Development capturing standard and specific management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
Earthworks	Stage 1 Development	<ul style="list-style-type: none"> Erosion and sediment controls included in SSDA package (Appendix E).
Soils & Water	Stage 1 Development	<ul style="list-style-type: none"> Erosion and sediment controls, as detailed in Appendix E and Appendix J of the EIS, to be implemented through CEMP. Stormwater to be treated to compliant levels prior to discharge. Gross Pollutant Trap (GPT) to be installed within each development site on the final downstream stormwater pit prior to discharge.
Groundwater	Stage 1 Development	<ul style="list-style-type: none"> Methods and management of any required dewatering required during construction works to be detailed in the CEMP.
Air Quality and Odour - Construction	Stage 1 Development	<ul style="list-style-type: none"> CEMP to include standard air quality control measures, contingency plans and response procedures and suitable reporting and performance monitoring procedures. 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

3.3 Construction Environmental Management Plan

The EIS Section 7.2 ‘*Construction Environmental Management Plan*’ outlines the requirements for the OWE CEMP to address construction methodology and associated management & mitigation measures, as follows:

‘The proposed OWE development would proceed in accordance with a detailed CEMP to be prepared for the site to capture both standard construction methodology, mitigation and management measures and specific measures recommended for the OWE proposal by technical assessments and studies.

The standard construction methodology to be followed in respect of the proposed development includes:

- Diversion of “clean” water away from the disturbed areas and discharge via suitable scour protection.*
- Provision of hay bale type flow diverters to catch drainage and divert to “clean” water drains.*

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- *Diversion of sediment laden water into temporary sediment control basins to capture the design storm volume and undertake flocculation (if required).*
- *Provision of construction traffic shaker grids and washdown to prevent vehicles carrying soils beyond the site.*
- *Provision of catch drains to carry sediment-laden water to sediment basins.*
- *Provision of silt fences to filter and retain sediments at source.*
- *Where future construction and building works are not proposed, the rapid stabilisation of disturbed and exposed ground surfaces with hydroseeding.*

The above measures would remain in place for the duration of the total construction period (Stages 1, 2 and 3) until such time as the individual development lots are completed. Regular inspection of erosion and sediment control measures and other construction mitigations would be undertaken by the site contractor in accordance with the protocols established under the CEMP.

The Contractor CEMP for Building 5A & 5B will be prepared prior to the commencement of construction works on the site and will detail measures that are in accordance with the OWE CEMP.

4.0 EXISTING ENVIRONMENT

The following sections summarise what is known about factors influencing soils and water quality within and adjacent to the project corridor. The key references in the Project EIS documents are Section 6.7 – Other Issues.

4.1 Topography and soil characteristics

Section 2.3 of the EIS for DA SSD 7348 describes the pre-existing topography and geology of the Project area as follows:

- *“Landform is relatively uniform, with undulating rises and alluvial flats bisected by narrow, ridge running from the south-west to the north-east of the site. No significant height variances with elevations from approximately 92m above AHD to approximately 50m at Ropes Creek in the east of the site.*
- *“Underlying geology of the site is the Wiananmatta Group formation (Bringelly Shale) and alluvium associated with Ropes Creek.*
- *Underlying geology of the site is the Wiananmatta Group formation (Bringelly Shale) and alluvium associated with Ropes Creek. Surface and sub-surface conditions are as follows:*
 - *Topsoil: Clay, depth 0.0-0.04 m;*
 - *Natural Soil: Clay, depth 0.04-0.5 m;*
 - *Bedrock: Sandstone, Sandstone and shale, depth 0.7-5.0 m.’*
- *Residual soils, characteristic of the Blacktown soil landscape, generally consist of shallow duplex soils over a clay base (OEH 2014).*
- *Overlying fluvial soils, part of the South Creek soil landscape, are associated with the alluvium across the low-lying terrain bordering Ropes Creek.*
- *No acid sulphate soils have been identified.’*

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The predominant soil landscape characteristics are described in general terms in the EIS, however, further reference to NSW Office of Environment & Heritage website resource 'eSPADE', identified the presence of a natural soil landscape unit within the project footprint. The 'South Creek' (sc) soil landscape unit occurs under the Project footprint and extends to the west and north of the Project

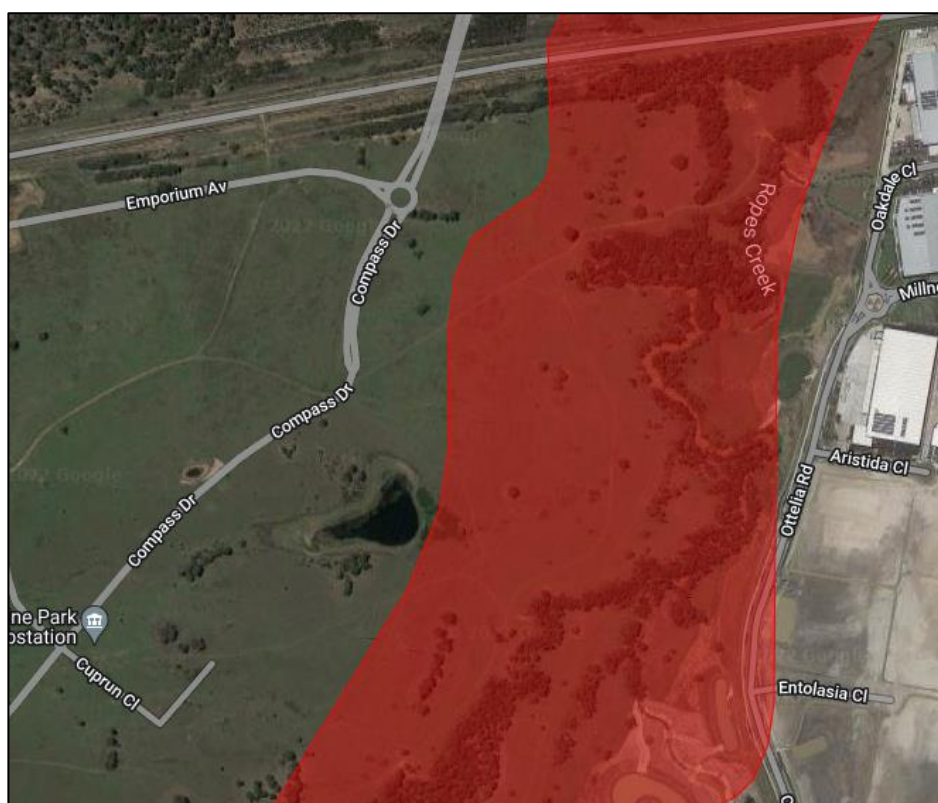
4.1.1. 'South Creek' (sc) landscape unit

The 'South Creek' (sc) soil landscape occurs within the present active floodplain of many drainage networks of the Cumberland Plain. This includes the South Creek, Eastern Creek, Ricabys Creek and Prospect Creek systems. This soil landscape is underlain by Quaternary alluvium derived from Wianamatta Group shales and Hawkesbury Sandstone.

This soil landscape occurs on floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain, with generally flat grades with incised drainage channels. The main soils are often very deep layered sediments over bedrock or relict soils. Structured Plastic Clays or Structured Loams occur in and immediately adjacent to drainage lines; while Red and Yellow podzolic are common on terraces, with isolated occurrence of Grey clays and Yellow Solodic soils.

The erosion hazard of the soil type is rated as potentially very high to extreme, as the soil landscape occurs on an active floodplain and is presently being reworked by fluvial processes. Other physical limitations of the landscape unit include hard setting soils, seasonal waterlogging, permanently high water tables (localised), water erosion hazard (localised), and surface movement potential. The chemical soil characteristics range from Extremely Acidic to Slightly Acidic (pH commonly ranging from 3.0 – 7.0), aluminium toxicity, low fertility, salinity, and generally low available water capacity.

Figure 4.1.1 – Extract map of the occurrence of the 'South Creek' (sc) soil landscape unit



4.2 Acid Sulphate Soils

Potential Acid Sulfate Soils are soils that have concentrations of iron sulphide layers that can oxidise when exposed to oxygen generating sulphuric acid. In general, these soils occur less than 5 metres elevation above sea level and are predominantly restricted to low-lying coastal areas, adjoining estuarine areas. More recently, acid sulphate soils have been identified in long-term, drought-affected inland areas where water levels have dropped in waterways and wetlands, exposing acid sulphate material that has subsequently oxidised.

Given the general elevation and the soil types described within the Project area, acid sulphate soils are unlikely to occur in the area. A review of the relevant Acid Sulfate Soil Risk Map (ASSMAC – DLWC 1998) confirmed the Project area falls outside the study area of this resource.

Further reference to the online soil mapping resource ‘*eSpade*’ (NSW Department of Environment & Heritage) indicate that the site is not situated in an area at risk of Acid Sulphate soils. The map indicates the closest known occurrence is in the upper reaches of the Parramatta River and Georges River to the east and southeast of the Project.

4.3 Surface water

As noted above, the Project site has had bulk earthworks undertaken by others which has altered the natural topography of the site from mildly undulating footslopes slopes to being a graded pad with slight crossfall to the northern and eastern boundaries. The preparatory earthworks have established cut off drains commencing on both the northern and southern boundaries, draining to a temporary sediment basin adjacent to Bio Retention Basin No. 5, which is adjacent to the eastern boundary of the site. The drainage pattern is ephemeral with runoff generated in response to prolonged rainfall or storm events.

4.4 Water Quality and Receiving Environment Assessment

The Project activities that have the potential risk of negative impacts on water quality parameters include:

- Establishing or relocating ‘dirty’ water drains and ‘clean’ water diversions
- Installing erosion and sediment controls.
- Minor earthworks, site preparation and temporary access roads.
- Trenching and earthworks for service installation.
- In-situ concrete works and concrete curing.
- Stormwater construction and drainage stabilisation.
- Dewatering ‘dirty’ water from site areas and sediment basin operations.
- Spills & leaks of fuels & oils from mobile and static machinery.
- Storage of chemicals, fuels & oils.
- Generation of building and construction waste.
- Importing, handling, stockpiling, and transporting materials & resources.
- Plant maintenance.
- General waste generation from compound/s & works areas.

The determination of the assessment of the anticipated earthworks duration, drainage patterns, the heavily modified existing receiving environments, and the attributes of the receiving waters in the vicinity of the Project have been assessed as ‘standard’ in accordance with Blue Book Volume 1- Sect. 6.3.4 – (f) & Volume 2D – Table 6.1.

4.5 Groundwater

The presence of groundwater primarily impacts on erosion and sediment control during construction with regard to piling, foundation earthworks, trenching for drainage and services, culvert construction, and sediment basin construction. The EIS prepared for DA SSD 7348 at Section 2.3 describes the groundwater characteristics of the Project area as follows:

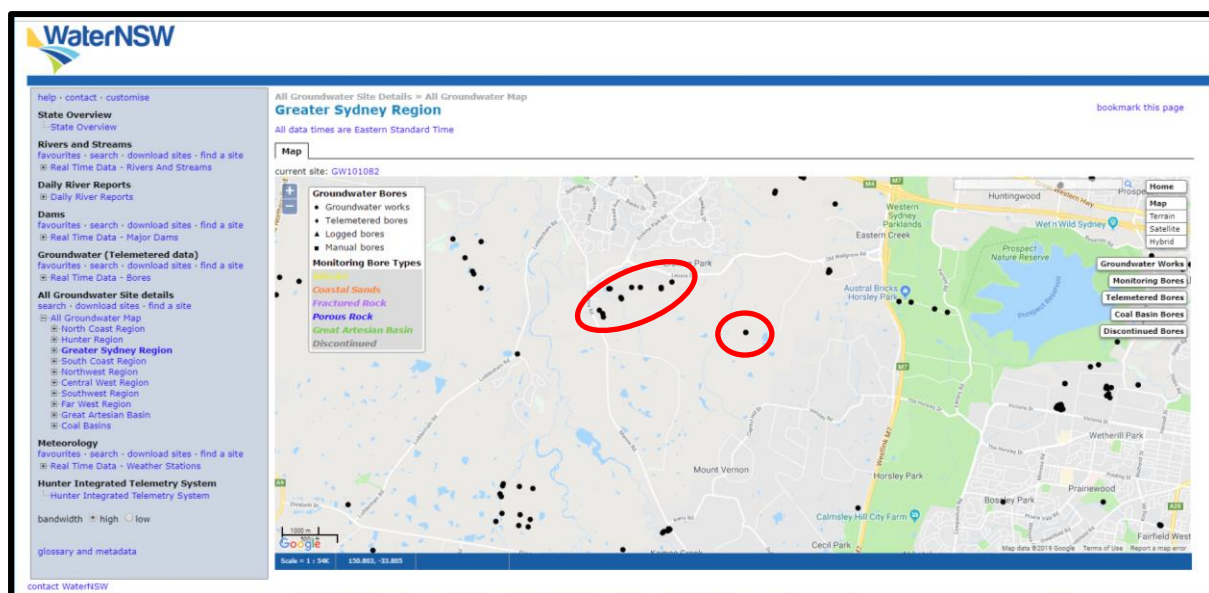
“Groundwater is expected to be relatively deep below the OWE site – no groundwater was encountered during geotechnical investigations which included boreholes drilled up to 15m below ground level.”

There are no obvious indicators of shallow groundwater sources, however the detectable presence of groundwater at or near the soil surface is highly dependent on seasonality and rainfall rates. Further assessment was undertaken the NSW Groundwater Bore Database (Department of Primary Industries – Water 2018).

The database was reviewed for information on existing groundwater bores in a three-kilometre radius of the Project area. Thirteen (13) groundwater sites were located in close proximity to the Project. Groundwater drill records for several sites were reviewed with final bore depths commonly being 50-60m below ground level. Groundwater table depths were not indicated.

In summary, the assessment indicates that groundwater is not likely to impact on the scope of the Project works.

Figure 4.5 – Extract map of the occurrence of groundwater bores in the Project vicinity.
(Note the nearest groundwater bores indicated are circled in red)



4.6 Rainfall

Rainfall data was assessed from the Horsley Park Equestrian Centre Automatic Weather Station (AWS), located approximately 5 kilometres south-east of the Project at Horsley Park. This data was recorded between 1997 to 2022. (Bureau of Meteorology, 2022). The Sydney Equestrian Centre AWS was also selected for the Project as it will provide real time weather monitoring during the proposed construction period.

Rainfall data collected shows that typically rainfall is higher during summer and autumn. Winter and spring are generally drier periods during the year. February is the wettest month, with an average rainfall of 124.5 millimetres. The mean annual rainfall total is 780.3mm, with a median average annual rainfall total of 724.7 millimetres respectively.

Table 4-5 below provides a summary of climate data at the weather station.

Table 4-6 - Summary of rainfall records

Summary of climate records from 1997 - 2022													
	Summer		Autumn			Winter			Spring			Summer	
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year
Mean rainfall (mm)	74.3	124.5	94.5	69.2	44.7	68.6	53.0	38.0	38.3	64.3	78.8	66.2	780.3
Median rainfall (mm)	65.2	94.4	66.3	58.0	33.8	50.2	26.0	26.6	26.2	49.6	57.2	63.8	724.7
Mean of rain days >1mm	7.8	7.6	8.8	6.7	5.2	6.1	5.5	4.0	5.0	6.1	7.2	7.2	77.2

Red = highest value blue = lowest value

4.7 Rainfall erosivity factor and design rainfall depth

The rainfall erosivity factor is a measure of the ability of rainfall to cause erosion (referred to as “R” in the Revised Universal Soil Loss Equation - RUSLE). The rainfall erosivity factor is used to determine the soil loss in tonnes per hectare over one year and is used in calculations when sizing construction sediment basins.

The rainfall erosivity factor which is referred to as the ‘R’ Factor has been assessed from an Intensity Frequency Duration Table (see below) prepared for the site based on the 2-year, 6 hours storm event of 9.13mm/hour. The R Factor value of 1892 is calculated from the 0.5 Exceedances per Year (EY), 6 Hour storm of 9.13mm/hour being ‘S’, where $R = 164.74(1.1177)^S S^{0.6444}$, as per the Blue Book - Appendix A2 & B.

As noted above at Section 4.3, the Project was assessed as ‘standard’ in accordance with Blue Book Volume 1- Sect. 6.3.4 – (f) & Volume 2D – Table 6.1. The nearest ‘Blue Book’ centre for detailed rainfall depths is Blacktown which is approximately 12kms north-east of The Project (Blue Book Volume 1- Table 6.3a). The 5-day 80th percentile rainfall depth for Blacktown is 24.6mm.

Table 4.7 - Intensity Frequency & Duration Table

11/12/22, 10:29 AM Rainfall IFD Data System: Water Information: Bureau of Meteorology

Australian Government
Bureau of Meteorology

Location

Label: Not provided
Latitude: -33.8313 [Nearest grid cell: 33.8375 (S)]
Longitude: 150.7946 [Nearest grid cell: 150.7875 (E)]

Very Frequent Design Rainfall Depth (mm) Issued: 12 November 2022

Rainfall depth for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology](#)

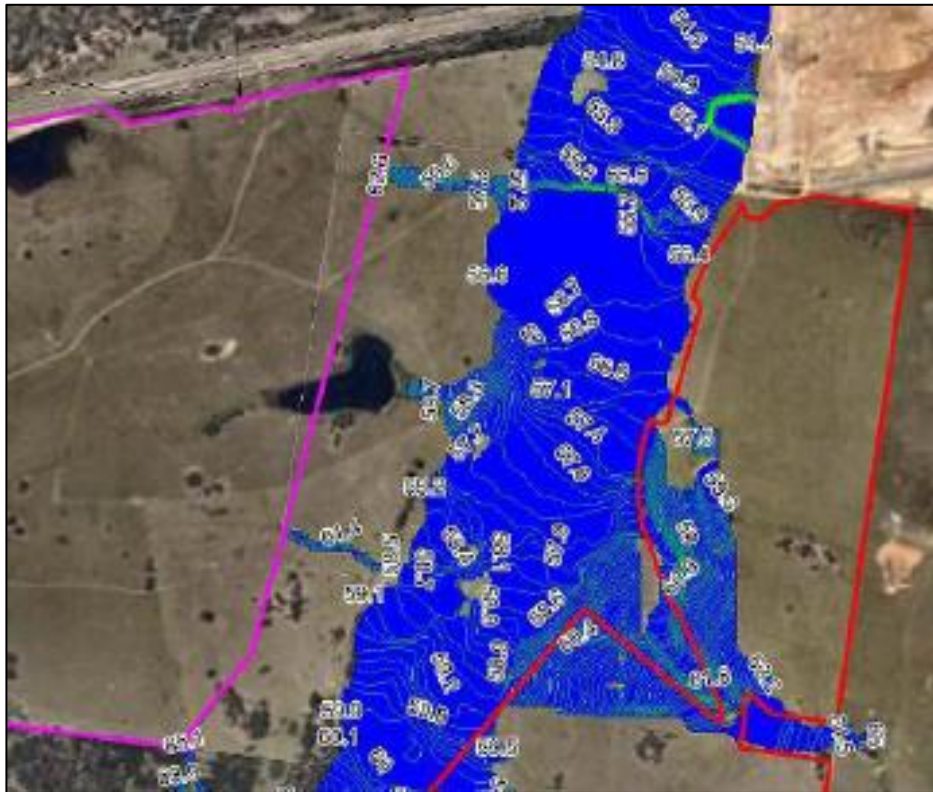
Duration	Exceedance per Year (EY)							
	12EY	6EY	4EY	3EY	2EY	1EY	0.5EY#	0.2EY*
1 min	0.817	0.942	1.17	1.33	1.58	2.03	2.57	3.31
2 min	1.39	1.63	2.01	2.28	2.66	3.32	4.15	5.24
3 min	1.89	2.21	2.75	3.14	3.68	4.61	5.79	7.33
4 min	2.32	2.72	3.41	3.90	4.59	5.80	7.31	9.30
5 min	2.70	3.17	3.98	4.57	5.41	6.87	8.69	11.1
10 min	4.11	4.83	6.13	7.07	8.44	10.9	13.9	18.0
15 min	5.09	5.97	7.57	8.75	10.5	13.6	17.3	22.5
20 min	5.83	6.84	8.67	10.0	12.0	15.6	19.9	25.7
25 min	6.44	7.55	9.55	11.0	13.2	17.1	21.8	28.2
30 min	6.96	8.15	10.3	11.9	14.2	18.4	23.4	30.2
45 min	8.18	9.57	12.0	13.8	16.5	21.4	27.0	34.6
1 hour	9.11	10.6	13.4	15.3	18.3	23.6	29.7	37.7
1.5 hour	10.5	12.3	15.4	17.6	20.9	26.9	33.7	42.5
2 hour	11.7	13.6	17.0	19.5	23.1	29.6	37.0	46.3
3 hour	13.4	15.6	19.5	22.4	26.5	34.0	42.3	52.7
4.5 hour	15.4	18.0	22.5	25.9	30.7	39.5	49.0	60.9
6 hour	17.0	19.9	25.0	28.7	34.2	44.1	54.8	68.1
9 hour	19.6	22.9	28.9	33.4	40.0	51.9	64.7	80.8
12 hour	21.5	25.3	32.1	37.2	44.7	58.4	73.1	91.9
18 hour	24.5	29.0	37.2	43.2	52.3	69.0	86.9	111

4.8 Flooding

The Flood Impact Assessment was prepared for the approved SSD 7348 Concept Proposal and Stage 1 development EIS (at Appendix P), detailing the flooding risks and characteristics of the Project area. The EIS flood modelling concluded that flood impacts were mainly confined to the Ropes Creek flood plain, and we note that preparatory earthworks has elevated the Project site above the 100-year ARI flood levels depicted in the EIS. The EIS does not propose any flood mitigation or management measures area during building construction.

We refer to the Figure 35, Page 145 of the EIS, partly reproduced below:

Table 4.8 - Extent of Flooding on OWE (Pre-Development)



4.9 Wind erosion hazard

The EIS prepared for DA SSD 7348 at Section 6.7.7. examines air quality, and potential for dust emissions due to wind erosion impacting the Project area. The EIS notes:

'Construction works can result in the generation of fugitive dust emissions with the potential to result in elevated TSP, PM10 and PM2.5 concentrations and dust deposition rates in the vicinity of the works. Ambient dust can be generated from the movement of vehicles and construction equipment, excavation and rehabilitation, demolition, clearing and grading, truck loading and unloading and wind erosion.....'

Air quality impacts from construction activities were assessed using a qualitative assessment methodology targeting key sources of construction emissions for mitigation and control. The assessment indicates a low risk of adverse air quality impacts at offsite receptors during construction works subject to standard management and mitigation measures which would be documented within the CEMP, along with contingency plans, response procedures and monitoring and reporting protocols. Mitigated dust deposition and human health impacts of the proposed construction works are anticipated to be negligible.'

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There is no known documented method for assessing or ranking wind erosion hazard in Australia. Sandy soils are more at risk of wind erosion due to the larger soil particles drying more rapidly than smaller particles and single grained particles are easier to detach by the wind.

The erosive power of wind increases exponentially with velocity and the length of unobstructed terrain (fetch) over which the wind flows is important in allowing the wind to gain momentum and increase its erosive power. Movement of highly erosive soils typically starts at a wind velocity of 25–30 kilometres per hour (km/hr) at a height of 0.3 cm above the soil surface.

The presence of soil surface cover (vegetation, aggregates, or mulch) is mitigating factor as surface roughness decreases the velocity of the wind at the soil surface. Alternatively, hydraulically applied soil binders can also be effective at mitigating dust emissions.

Wind speed data was assessed from Horsley Park Equestrian Centre AWS, This data was recorded between 1997 to 2022 (Bureau of Meteorology, 2022).

Mean wind speed data collected shows that windier conditions typically occur during Spring & early Summer. The 9am wind speeds indicate calmer conditions during the winter months, however, the mean 9am wind speeds show less variation between the seasons, with Autumn and Winter marginally calmer than other seasons. The 3pm wind speeds also indicate calmer conditions during the winter months, with a marked increase of wind speeds during Spring & Summer

Table 4-8 below provides a summary of wind data at the weather station.

Table 4-8 -Summary of wind speed data at Horsley Park Equestrian Centre AWS.

Summary of wind condition records from 1997 - 2022													
Summer		Autumn			Winter			Spring			Summer		
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Annual
Mean 9am wind speed (km/h)	10.1	9.7	8.9	10.5	10.7	10.3	10.8	11.7	12.2	12.5	11.8	10.7	10.8
Mean 3pm wind speed (km/h)	19.4	17.0	14.8	14.4	13.0	12.9	13.9	16.1	18.1	19.8	19.5	19.9	16.6

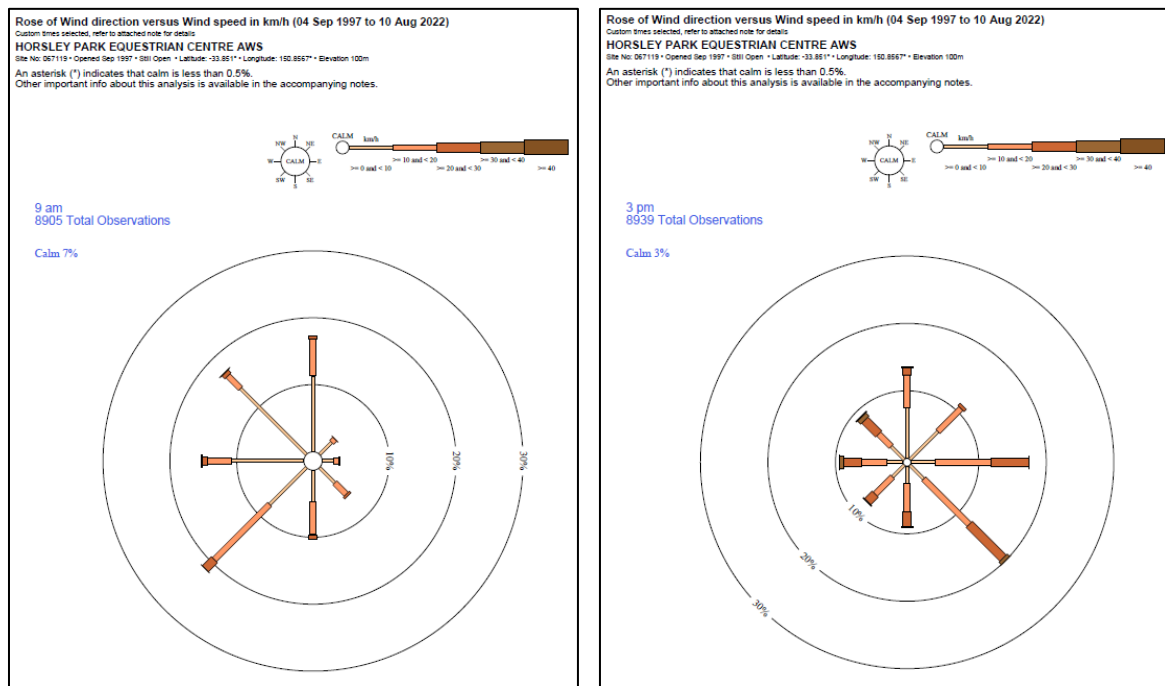
The following Figure 4.8 are the BOM wind rose diagrams that depict the mean 9am and 3pm wind speeds and directions recorded at the Horsley Park Equestrian Centre AWS.

The 9am wind rose indicates that south-westerly winds are most prevalent, however the wind speed velocities rarely exceed 30km/h. Northerly winds are the second most dominant winds, but again the wind speed velocities rarely exceed 30km/h.

The 3pm wind rose indicates that south-easterly winds remain the most prevalent wind direction, however the wind speed velocities rarely exceed 30km/h. Easterly winds are the second most dominant winds, with wind speed velocities rarely in excess of 30km/h.

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Figure 4.8 - 9am & 3pm wind speeds and directions recorded at the Horsley Park Equestrian Centre AWS



In summary:

- The Horsley Park Equestrian Centre AWS 9am and 3pm wind roses indicate that the median wind speeds in the area rarely exceed 30km/h, noting that the wind observations have been obtained at a height of several metres above ground level. It is anticipated that wind speeds will generally remain below 25km/h at 0.3m above the ground surface.
- The areas adjacent to the Project site would be generally regarded as being resistant to wind erosion due to the established structures and soil surface cover.
- The Project site has a protected, northerly facing aspect which will pose a slightly decreased risk of wind-borne dust impacts when compared to other OWE sites in the northern and western precincts.
- We refer the reader to the SWMP - Appendix A: ESCP – Table 9 for wind erosion & dust management and mitigation measures.

5 ENVIRONMENTAL ASPECTS AND IMPACTS

5.1 Construction activities

Key aspects of the project that could result in adverse impacts to soils and water include:

- Installation of preliminary erosion and sediment controls and establishment of off-site water diversions.
- Establishment of compounds, exclusion zones, stockpile areas, and soils treatment area/s.
- Minor earthworks, site preparation and site access/temporary access roads.
- Trenching and earthworks for service installation.
- In-situ concrete works and concrete curing.
- Asphalt paving activities.
- Operation of internal haulage and access routes.
- Stormwater construction and drainage stabilisation, including temporary sediment basins.
- Dewatering 'dirty' water from site areas and sediment basin operations.
- Importing, handling, stockpiling, and transporting materials & resources.
- Compound operation including fuel and chemical storage, refuelling and chemical handling.
- Storage of chemicals, fuels & oils.
- Spills & leaks of fuels & oils from mobile and static machinery.
- Plant maintenance.
- Generation of building and construction waste
- General putrescible waste from compound/s & works areas
- Noxious weed treatment including herbicide spraying.
- Topsoil replacement, revegetation, and landscaping
- Landscaping.

Refer also to the Aspects and Impacts Register included in the CEMP.

5.2 Impacts

The potential for impacts on soil and water will depend on a number of factors. Primarily, impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction might include:

- Exposure and disturbance of soils during earthworks, creating the potential for off-site transport of eroded sediments and pollutants.
- Alteration of surface and subsurface flows that could cause disturbances to hydrology and hydraulics.
- Off-site discharge of water containing sediment from dewatering activities.

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- Contamination of soils, and surface and groundwater from accidental spills or oil leaks. This might include grease or fuel from machinery and vehicles, construction sites or compounds, or spills of other chemicals that may be used during the course of construction.
- Disturbance of unidentified contaminated land e.g., pesticide/chemical concentrations in soil from historical land use practices, and subsequent generation of contaminated runoff.
- Litter and gross pollutants from construction activities.
- Erosion and sedimentation of active construction zones during construction of the project as a result of a large rainfall event or storm event.

Some impacts on soil and water attributable to the Project are anticipated. Relevant aspects and the potential for related impacts have been considered in a risk assessment in the CEMP.

A full list of management measures associated with soil and water are detailed in Section 6 of this Plan below.

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6 ENVIRONMENTAL CONTROL MEASURES

Specific measures and requirements to address soil and water management are outlined in in Table 6-1.

Table 6-1 - Management and mitigation measures

ID	Measure / Requirement	When to implement	Responsibility	Reference
General				
SW1	Training will be provided to all project personnel, including relevant sub-contractors on sound erosion and sediment control practices and the requirements from this plan through inductions, toolboxes, and pre-start briefings.	Pre-construction Construction	Project Manager / Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW2	A Project Soil Conservationist (CPESC) will be engaged and consulted throughout construction to provide advice and review SWMP preparation, erosion and sediment control design, installation, maintenance, and the development of PESCPs.	Pre-construction Construction	Project Manager / Environmental Site Representative	SSD Development Consent Condition D80 (a) Best Practice
SW3	EWMSs may be prepared and implemented to manage soil and water impacts that include but are not limited to: <ul style="list-style-type: none"> • Activities assessed as having high environmental risk: • Activities that impact on environmentally sensitive areas: • Activities that pose a risk to receiving water quality: • Earthworks including temporary stockpiling and disposal of excavated material and protocols for the management of contaminated material: • Work around drainage lines and where construction water may be discharged into natural waterways: • Construction and operation of sediment basins including connecting drainage for the associated catchment area; and drainage works. 	Construction	Project Engineer / Supervisor / Environmental Site Representative	Best Practice
SW4	Contaminated soils and Acid Sulfate Soils and / or Potential Acid Sulfate Soils are to be managed in accordance with the Erosion and Sediment Control Plan, which forms Appendix A of this SWMP.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
Erosion and sediment control				
SW5	A Primary Erosion and Sediment Control Plan (ESCP) has been prepared by the Soil Conservationist (CPESC) and are included in Appendix A of this Plan. The plan includes arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in wet weather. The Primary Erosion and Sediment Control Plan is to be referred to and considered when preparing progressive erosion and sediment control plans.	Pre-construction and construction	Environmental Site Representative / Project Soil Conservationist	SSD Development Consent Condition D80 (a) EIS Section 5.2 - Table 27: SEARs reference table & Section 7.1 – Table 43

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ID	Measure / Requirement	When to implement	Responsibility	Reference
SW6	Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared and implemented in advance of construction. PESCPs will be updated as required.	Pre-construction and construction	Environmental Site Representative / Project Soil Conservationist	SSD Development Consent Condition D81 EIS Section 5.2 - Table 27: SEARs reference table & Section 7.1 – Table 43
SW7	Hardstand material, rumble grids, wheel wash facilities or similar will be provided at exit points from construction areas onto public roads to minimise the tracking of soil and particulates onto public roads.	Pre-construction / Construction	Project Engineer / Supervisor	SSD Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2 Penrith City Council – Development Application DA20/0843 Condition 14
SW8	Site compounds, access tracks, stockpile sites and temporary work areas will be designed and located to minimise erosion.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	SSD Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table & Section 7.1 – Table 43 Penrith City Council – Development Application DA20/0843 Condition 13 & 14
SW9	Works will be programmed to minimise the extent and duration of unstabilised soil surfaces.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	SSD Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2 Penrith City Council – Development Application DA20/0843 Condition 13
SW10	Clean and dirty water runoff will be adequately separated to avoid mixing where possible through the use of diversions, clean water drains, and the early installation of permanent drainage infrastructure.	Pre-construction / Construction	Supervisor	SSD Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2

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ID	Measure / Requirement	When to implement	Responsibility	Reference
SW11	Stabilisation will be implemented for dormant areas exposed for four weeks or more (including stockpiles and batters); by providing soil surface protection (i.e. geotextile fabric, stabilised mulch, soil binder or spray grass)	Construction	Project Engineer / Supervisor	SSD Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2 Penrith City Council – Development Application DA20/0843 Condition 13
SW12	Drains, banks, or diversions will be formed (and stabilised where required) to direct runoff from disturbed areas to sediment basins or to areas with adequate sediment control devices, and away from watercourses or tributary drainage lines. Lip berms and batter chutes with velocity dams will be progressively formed and maintained on fill formations.	Construction	Project Engineer / Supervisor	SSD Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2 Penrith City Council – Development Application DA20/0843 Condition 13
SW13	Staged re-vegetation and/or other permanent stabilisation will be implemented in Site areas as work proceeds.	Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2
Stockpiles				
SW14	Stockpiles will be: <ul style="list-style-type: none"> • located in designated stockpile sites, above 10-year flood levels, • located at least 5 m from likely areas of concentrated water flows and drainage lines, • Topsoil stockpiles formed to heights to no greater than 2 m, and all other soil materials to be no higher than 5m, and batter slopes to be no steeper than 2:1, • established so that any slump of the stockpile will not affect erosion and sediment control measures or infringe on specified minimum clearance requirement, • covered or otherwise protected from erosion where stockpiles will be in place for more than 20 days, or temporary stockpiles that are susceptible to wind or water erosion, within 5 days of forming each stockpile. • Managed to avoid contamination with noxious weeds and cross-mixing with other stockpiled materials. Weed growth on stockpiles will be monitored and suppressed as required. 	Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD Development Consent Condition D80 (c) EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1

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ID	Measure / Requirement	When to implement	Responsibility	Reference
Sediment basins				
SW15	Construction sediment basins will be designed and constructed in accordance with the requirements and procedures detailed in the Blue Book Volume's 1 & 2D. The construction sediment basin design/s, restoration and revegetation methodology will be formulated and/or reviewed by the Project Soil Conservationist.	Pre-construction / Construction	Project Soil Conservationist / Supervisor	SSD Development Consent Condition D81 Managing Urban Stormwater: Soils and Construction Volume 1 & 2D
SW16	All sediment basins will have depth indicators installed that clearly show the sediment storage zone together with basin identification signage basin number.	Construction	Project Engineer / Supervisor / Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volume 1
SW17	Run-off from areas within catchments (that are controlled by sediment basins) is to be diverted to the sediment basins in stabilised drainage lines where possible.	Construction	Supervisor	SSD Development Consent Condition D81 EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW18	Suitable all-weather access will be constructed and maintained to sediment basins to allow for basin testing, treatment, discharge, and maintenance.	Pre-construction / Construction	Project Engineer / Supervisor / Environmental Site Representative	Best Practice Managing Urban Stormwater: Soils and Construction Volume 1
SW19	Water quality basins shall be flocculated with an appropriate approved flocculant (eg. gypsum) using an early dosing system to minimise the settling time of suspended dispersible and small sediment particles and to maximise the efficiency of the basins.	Construction	Supervisor	SSD Development Consent Condition D81 & D82 EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW20	Prior to discharging any water from a sediment basin, representative water samples will be obtained and tested to ensure that it meets the NSW EPA water quality criteria.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD Development Consent Condition D81 & D82 EIS Section 6.7.4. Managing Urban Stormwater: Soils and Construction Volume 1
SW21	Flocculant or coagulant (whether gypsum or another approved material) will be applied to settle suspended sediments within 24 hours of the conclusion of each rain event causing runoff. The cycle time to treat, dewater and return the maximum	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997

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ID	Measure / Requirement	When to implement	Responsibility	Reference
	storage capacity to any individual construction water quality basin prior to the next rainfall event shall not exceed 5 days.			SSD Development Consent Condition D81 & D82 EIS Section 6.7.4. & Section 7.1 – Table 43 Managing Urban Stormwater: Soils and Construction Volume 1
SW22	Subsequent to the initial series of basin sample tests, where a statistical correlation can be demonstrated between turbidity and Total Suspended Solids (TSS), an application will be made to the Principal to allow for the discharge of supernatant waters based on turbidity measurements before confirmatory laboratory data is available.	Construction	Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volume 1
SW23	A sediment basin management register will be maintained for each sediment basin that records: <ul style="list-style-type: none"> • personnel approving the dewatering activities, • time & date, • water quality test results and estimated volumes for each discharge. 	Construction	Environmental Site Representative / Project Engineer	SSD Development Consent Condition D81 & D82 Best Practice Managing Urban Stormwater: Soils and Construction Volume 1
Dewatering				
SW24	Personnel responsible for approval and/or carrying out dewatering activities will be adequately trained and inducted on the dewatering procedures and requirements.	Construction	Environmental Site Representative / Supervisor	Best Practice Managing Urban Stormwater: Soils and Construction Volume 1
SW25	Water to be discharged from site will be discharged in accordance with a Site Dewatering Procedure. In accordance with NSW EPA water quality criteria, the water quality parameters for discharge from site discharge points will be: <ul style="list-style-type: none"> • Total Suspended Solids <50mg/L • pH 6.5 - 8.5 • Oil & grease – not visible. 	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD Development Consent Condition D81 & D82 Managing Urban Stormwater: Soils and Construction Volume 1
SW26	A site dewatering register will be maintained for site areas (other than sediment basins) that require treatment, dewatering and discharge to off-site areas. The register will record: <ul style="list-style-type: none"> • dewatering procedure, • date and time for each discharge at each location, • water quality test results for each discharge, • personnel approving the dewatering activities 	Pre-construction / Construction	Environmental Site Representative / Project Engineer	NSW POEO Act 1997 SSD Development Consent Condition D81 & D82 Managing Urban Stormwater: Soils and Construction Volume 1

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ID	Measure / Requirement	When to implement	Responsibility	Reference
	<ul style="list-style-type: none"> evidence of discharge monitoring, or risk assessment and mitigation measures used to eliminate the risks of pollution or erosion. 			
SW27	Water captured in sediment basins and other site works areas will be reused for dust suppression, compaction, or other construction activities where possible. If a proposed source, other than a town water supply or natural water source, procedures will be developed for regular testing to ensure that the water is suitable for the purpose and is not hazardous to health and the environment.	Construction	Environmental Site Representative / Project Engineer / Supervisor	EIS Section 7.1 – Table 43 Managing Urban Stormwater: Soils and Construction Volume 1
SW28	<p>All dewatering activities will be subject to prior approval from relevant project personnel. The dewatering activities will be monitored to ensure:</p> <ul style="list-style-type: none"> intake suction devices are positioned to prevent extraction or disturbance of settled sediments, no erosion is occurring at discharge locations and/or downstream areas, no inadvertent or intentional controlled discharge of untreated waters occurs. 	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD Development Consent Condition D81 & D82 Managing Urban Stormwater: Soils and Construction Volume 1
Site stabilisation and restoration				
SW29	Management and procedures for site stabilisation will be in accordance with the primary Erosion and Sediment Control Plan at Appendix A of this SWMP.	Construction	Environment Manager / Project Soil Conservationist	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW30	The rehabilitation of disturbed areas will be undertaken progressively as construction stages are completed and in accordance with procedures detailed in the Blue Book Volume's 1 & 2D.	Construction / Post construction	Environmental Site Representative / Supervisor	SSD Development Consent Condition D80 (c) EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW31	<p>Restoration of these areas includes:</p> <ul style="list-style-type: none"> topsoiling of the areas, seeding, planting, watering, and maintenance, removal of temporary erosion control devices and of accumulated sediments, removal of unused construction materials and waste materials. 	Construction / Post construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
Spill prevention and response				
SW32	Management for spill prevention and response will be in accordance with the CEMP. An Emergency Spill Response Procedure has been developed in the CEMP.	Pre-construction / Construction	Environmental Site Representative / Supervisor / Project Manager	NSW POEO Act 1997 SSD Development Consent Condition D82 & D109
SW33	Emergency wet and dry spill kits will be kept on site at locations described within the Emergency Spill Response Management Procedures (i.e., at compounds). All personnel will be made aware of the spill kit locations and will be trained in their use.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD Development Consent Condition D82

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ID	Measure / Requirement	When to implement	Responsibility	Reference
SW34	A schedule of all hazardous materials kept on site during construction will be maintained for the duration of the project.	Construction	Environmental Site Representative / Supervisor	Best Practice
SW35	The ancillary facilities will be managed within the ESCP. The following measures will be included to limit sediment and other contaminations entering receiving waterways: <ul style="list-style-type: none"> • Chemicals will be stored within a sealed or bunded area not within 5 m of any aquatic habitat, any areas of concentrated water flow, flood prone or poorly drained areas, or on slopes steeper than 1:10 • Vehicle movements will be restricted to designated pathways where feasible and appropriate controls will be in place where plant is stored • Areas that will be exposed for extended periods, such as car parks and main access roads, will be stabilised where feasible. 	Contractor	Construction	NSW POEO Act 1997 SSD Development Consent Condition D82 & D110
SW36	All spills and associated environmental incidents are to be reported in accordance with the CEMP, and where applicable, in accordance with Section 148 of the NSW POEO Act 1997.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997
Monitoring and inspections				
SW37	Nominated project personnel will conduct site inspections of erosion and sedimentation controls at least weekly.	Construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW38	All disturbed areas, revegetated/stabilised areas and all permanent and temporary erosion and sediment control works will be inspected: <ul style="list-style-type: none"> • At least weekly • Immediately before extended site shut down • At the conclusion of all rainfall events exceeding 10mm and during periods of prolonged rainfall as soon as practicable. 	Construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW39	Any rectification measures which are identified will be addressed and / or recorded to ensure appropriate rectification within the nominated timeframe. The timeframe for rectification works is based on a risk assessment of deficiencies in controls, being: <ul style="list-style-type: none"> • High: within 24 hours of inspection, • Medium: within 3 working days of inspection; and, • Low: within 3 working days of inspection. 	Construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW40	Monitoring of rainfall events (with observations of rainfall in millilitres) will be undertaken daily during normal workdays.	Construction	Environmental Site Representative	Best Practice Managing Urban Stormwater: Soils and Construction Volume 1

7 COMPLIANCE MANAGEMENT

7.1 Roles and responsibilities

The Contractor's Project Team's organisational structure and overall roles and responsibilities are outlined in CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to soil and water management issues. The induction training will address elements including:

- Existence and requirements of this sub-plan.
- Relevant legislation.
- Incident response, management, and reporting.
- Roles and responsibilities for soil and water management.
- Water quality management and protection measures.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in soil and water management. Examples of training topics include:

- ERSED control installation methodology.
- Sediment basin construction.
- Sediment basin operation.
- Sediment basin maintenance.
- Working near or in drainage lines.
- Emergency response measures in high rainfall events.
- Preparedness for high rainfall events.
- Lessons learnt from incidents and other event e.g., high rainfall/flooding.
- Spill response.
- Stockpile location criteria.

Further details regarding staff induction and training are outlined in the CEMP.

7.3 Monitoring and inspection

Regular monitoring and inspections will be undertaken during construction. Monitoring and inspections will include, but not be limited to:

- Immediate areas and drainage lines adjacent to the Project area
- Construction sediment basin water quality prior to discharge.
- Weekly and post rainfall inspections to evaluate the effectiveness of erosion and sediment controls measures in accordance with Table 6-1.

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Table 7-3 Inspection Schedule

Activity	Frequency	Location	Responsibility	Record
Environmental Site Inspection	Weekly	Site wide	Environmental Site Representative	Site inspection log
Rainfall Inspection (10mm or greater rainfall).	Prior to rainfall event, during event, within 24 hours after the event	Site wide	Environmental Site Representative	Site inspection log

Additional requirements and responsibilities in relation to inspections, in addition to those in Table 6-1, are documented in the CEMP.

7.4 Licences and permits

The water quality discharge criteria for the project are listed below, in Table 7-4.

Table 7-4 Discharge water quality criteria

Parameter	Criteria	Sampling method	Frequency
pH	6.5 –8.5	Probe	Daily during any discharge
Turbidity	TBA following correlation with TSS results	Probe or Grab Sample	Likely to be required daily during any discharge
Total Suspended Solids*	50 mg/L	Grab Sample	Daily during any discharge
Oil and Grease*	No visible	Visual inspection	Daily during any discharge

Any other relevant licences or permits will be obtained in the lead up to and during construction as required.

7.5 Weather monitoring

A rain gauge to be installed in the main compound will be used in the monitoring of rainfall events. The Wet Weather Contingency Procedure is detailed in the Project ESCP at Appendix D.

7.6 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental mitigation and management measures, compliance with this plan and other relevant approvals, licences, and guidelines. Audit requirements are detailed in the CEMP.

7.7 Reporting

Reporting requirements and responsibilities are documented in the CEMP.

8 REVIEW AND IMPROVEMENT

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

8.2 SWMP update and amendment

The processes described in the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Any revisions to the SWMP will be in accordance with the process outlined in the CEMP.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure located within the CEMP.

Appendix A
Erosion and Sediment Control Plan

APPENDIX L

Erosion and Sediment Control Management Plan

PROPOSED INDUSTRIAL DEVELOPMENT – OAKDALE WEST ESTATE – BUILDING 5A & 5B

EROSION AND SEDIMENT CONTROL PLAN

November 2022 - Revision 0

Prepared for:



Prepared by:

ANDREW LITTLEWOOD

CPESC & Senior Soil Conservationist

Document Authorship Information

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Appendices

Appendix A Site Characteristics & Revised Universal Soil Loss Equation Assessment

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Appendix E Progressive Erosion & Sediment Control Plans

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Oakdale West Estate: Building 5A & 5B – Erosion and Sediment Control Plan

1 Introduction

This Primary Erosion and Sediment Control Plan (Sub-plan) has been prepared as Appendix A in accordance with the Project Soil and Water Management Plan (SWMP).

The Sub-plan has been prepared to reduce the potential for risk of environmental impacts caused by erosion and sedimentation associated with project activities.

2 Purpose

The purpose of this Sub-plan is to outline the planning, methodologies, techniques, and monitoring to minimise the potential environmental impacts of erosion and sedimentation arising from the Project construction activities.

3 Scope

The scope of the Primary ESCP will:

- Provide a strategy and framework for construction to be planned, implemented, and maintained to mitigate any adverse environmental impacts,
- Propose control measures and management procedures to be implemented during construction, to avoid or minimise potential adverse impacts to soils, surface water and groundwater.

This Primary ESCP has been prepared in accordance with the requirements of the 'Blue Book' being a collective of:

- Managing Urban Stormwater: Soils and Construction 4th Edition Volume 1 – Landcom, reprinted 2006,
- Volume 2A: Installation of Services – NSW Department of Environment & Climate Change (DECC), 2007,
- Volume 2C: Unsealed Roads – NSW Department of Environment & Climate Change (DECC), 2007,
- Volume 2D: Main Road Construction – NSW Department of Environment & Climate Change (DECC), 2007.

4 Objectives

The key objectives of the Primary ESCP are to:

- Identify potential impacts to soil and water quality such as erosion and sedimentation arising from construction activities,
- Outline the soil and water management strategy for the construction phase of the development,
- Promote the adoption of sound principles and criteria for planning and implementation of erosion and sediment controls,
- Ensure the design and construction of controls is undertaken in accordance with the relevant guidelines,
- Minimise the adverse risks to soils and water by detailing mitigation measures and strategies,
- Provide an outline of a monitoring, inspection, and reporting framework for the ongoing assessment of adherence to the ESCP.

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5 Performance Criteria & SSD Development Approval Condition Compliance

The performance criteria for the ESCP are to:

- Limit potential for adverse environmental impacts on downstream waterways, riparian zones, and other identified sensitive areas,
- Minimise the risk and subsequent occurrence of erosion and sedimentation, to mitigate the impacts on project areas, sensitive areas, and downstream environments,
- Prevent the occurrence of pollution incidents causing environmental harm,
- Maintain existing downstream waterway attributes and water quality parameters,
- Manage erosion and sedimentation with sound management practices of effective planning and formation of relevant controls
- Ensure compliance with legislative & regulatory requirements, and to maintain liaison and communication with statutory authorities and/or delegates.

5.2 SSD Development Approval Condition Compliance and Penrith City Council - Development Application DA20/0843 Compliance

The following Table 5.2 details this ESCP's compliance with the State Significant Development (SSD) Consent Condition requirements for SSD 7348 Development Consent, and also the anticipated Conditions of Consent of a Development Application submitted to Penrith City Council.

Table 5.2

SSD 7348 Development Consent Condition	ESCP Section & Page
D80(a) – <i>'Erosion and Sediment Control Plan must.... be prepared by a suitably qualified and experienced person(s);'</i>	See <i>'Document Authorship Information'</i> – Page 2
D80(b) – <i>'Erosion and Sediment Control Plan must....be generally consistent with the Erosion and Sediment Control Plans in the RTS and those prepared by the contractor for each sequence of the works, as approved by the PCA.'</i>	See Section 3 - <i>'Scope of ESCP'</i> – Page 4. The ESCP has been prepared in accordance with the requirements of the Managing Urban Stormwater - Soils and Construction 4th Edition, Volumes 1, 2A & 2D, known as the 'Blue Book'
D80(c) – <i>'Erosion and Sediment Control Plan must.... include detailed erosion and sediment controls developed in accordance with the relevant requirements of Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline;'</i>	<ul style="list-style-type: none"> • See Section 8 – <i>'Erosion Control Measures and Sediment Control Methods'</i> – Table 8 – Page 10, • See Section 9 – <i>'Soil & Water Management Activities & Controls'</i> Table 9 – Page 13
D80(d) – <i>'Erosion and Sediment Control Plan must.... include procedures for maintaining erosion and sediment controls in efficient working order for the duration of construction, to ensure Stage 1 complies with Condition D82.'</i>	<ul style="list-style-type: none"> • See Section 7.6 <i>'Erosion and Sediment Control Training for Site Personnel'</i> – Page 8, • See Section 7.7 <i>'Inspection and Maintenance'</i> – Page 8
Anticipated Conditions of Consent of the Development Application with Penrith City Council	ESCP Section & Page
Condition 13 – <i>'Erosion and sediment control measures shall be installed prior to the commencement of works onsite.'</i>	See Section 9 – <i>'Soil & Water Management Activities & Controls'</i> - Table 9 – Page 13: <i>'Planning, permits & personnel'</i> - Point 1,3 & 5.

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Anticipated Conditions of Consent of the Development Application with Penrith City Council	ESCP Section & Page
Condition 13 – <i>‘The erosion and sediment control measures are to be maintained in accordance with the approved erosion and sediment control plans for the development and the Department of Housing’s “Managing Urban Stormwater: Soils and Construction” 2004.’</i>	<ul style="list-style-type: none"> • See Section 7.7 – <i>‘Inspection and Maintenance’</i> • See Section 9 – <i>‘Soil & Water Management Activities & Controls’</i> Table 9 – Page 13
Condition 13 <i>‘Certification that the erosion and sediment control measures have been installed in accordance with the approved erosion and sediment control plans for the development and “Managing Urban Stormwater: Soils and Construction 2004” shall be obtained and issued a minimum 2 days before any other site works are to commence, including earthworks and clearing of the site.’</i>	See Section 9 – <i>‘Soil & Water Management Activities & Controls’</i> - Table 9 – Page 13: <i>‘Planning, permits & personnel’</i> - Point 1,3 & 5.
Condition 14 <i>‘Mud and soil from vehicular movements to and from the site must not be deposited on the road.’</i>	See Section 9 – <i>‘Soil & Water Management Activities & Controls’</i> - Table 9 – Page 13: <i>‘Clearing, site establishment, topsoil stripping & stockpiling’</i> - Point 6, 14, 15, 16, 17, & 18.
Condition 17 <i>‘All construction waste materials stored onsite are to be contained within a designated area such as a waste bay or bin to ensure that no waste materials are allowed to enter the stormwater system or neighbouring properties.’</i>	See Section 9 – <i>‘Soil & Water Management Activities & Controls’</i> - Table 9 – Page 13: <ul style="list-style-type: none"> • <i>‘Clearing, site establishment, topsoil stripping & stockpiling’</i>- Point 21. • <i>‘Soil & Water pollution control’</i> – Points 2-4

6. Guidelines, Standards and Procedures

Name of Document/Publication	Author	Published
Acid Sulfate Soil Manual	ASSMAC	1998
Approved Methods for the Sampling and Analysis of Water Pollutants in NSW	NSW EPA	2004
Australian and New Zealand Guidelines for Fresh and Marine Water Quality	ANZECC and ARMCANZ	2000
Bunding & Spill Management	NSW DEC	1997
Environmental Best Management Practice Guideline for Concreting Contractors	NSW DEC	2004
Guidelines for the Management of Acid Sulphate materials: Acid Sulphate Soils, Acid Sulphate Rock and Monosulphidic Black Ooze	NSW RTA	2005
Guideline for Environmental Management - Spraying Bituminous Materials	VIC EPA	2002
Guideline for Handling Liquids	NSW DECCW	2007
Managing Urban Stormwater (‘Blue Book’): Soils and Construction Volume 1, 4 th Edition	NSW Landcom	2004
‘Blue Book’ - Volume 2A Installation of Services	NSW DECCW	2008
‘Blue Book’ - Volume 2D Main Roads Construction	NSW DECCW	2008
Noxious and environmental weed control handbook	NSW DPI	2014

7. Environmental Planning

Erosion and sediment control planning is based on the principle that preventing erosion where possible provides the best environmental outcomes, is more economical, and effective than controlling the capture of sediment. This is a significant goal, given the Project topography, drainage patterns and soils that have a significant proportion of sodic soils that are highly erodible.

7.1 Construction Activities

The scope and anticipated duration of the Project works present risks of environmental impacts to the environment. Key aspects of the project that could result in adverse impacts to soils and water include:

- Installation of preliminary erosion and sediment controls and establishment of off-site water diversions,
- Establishment of compounds, exclusion zones, stockpile areas, and soils treatment area/s,
- Minor earthworks, site preparation and site access/temporary access roads,
- Trenching and earthworks for sub-soil services & utility installation,
- In-situ concrete works and concrete curing,
- Asphalt & concrete paving activities,
- Operation of internal haulage and access routes,
- Stormwater construction and drainage stabilisation, including temporary sediment basins,
- Dewatering 'dirty' water from site areas and sediment basin operations,
- Importing, handling, stockpiling, and transporting materials & resources,
- Compound operation including fuel and chemical storage, refuelling and chemical handling,
- Storage of chemicals, fuels & oils,
- Spills & leaks of fuels & oils from mobile and static machinery,
- Plant maintenance,
- Generation of building and construction waste,
- General putrescible waste from compound/s & works areas,
- Noxious weed treatment including herbicide spraying,
- Topsoil replacement, revegetation, and landscaping,
- Landscaping.

7.2 Impacts

The possible impacts on soil and water from the activities described include:

- Unnecessary disturbance of existing areas outside the Project footprint,
- Erosion of soils that degrade the water quality of runoff to downstream receivers, dependant flora and fauna, and sensitive areas,
- Degraded soil or water quality from exposure to contaminated soils or ASS material, or run-off from these soils,
- Contamination of soils, and surface and groundwater from accidental spills or oil leaks,
- Disturbance or degradation of groundwater aquifers,
- Litter and gross pollutants from construction activities
- Atmospheric dust pollution affecting air quality of areas surrounding the Project.

7.3 'Blue Book' receiving waters classification and design criteria

The recommended minimum design criteria for temporary erosion and sediment control measures are based upon an assessment of the sensitivity of receiving environments. Reference to Project EISs describes the surrounding environmental sensitivity and land uses. In accordance with the SWMP assessment, the attributes of the receiving waters in the vicinity of the Project have been assessed as 'standard'. The design criteria adopted will be in accordance with Blue Book Volume 1- Sect. 6.3.4 – (f) & Volume 2D – Table 6.1. however, we have elected to adopt the 5-day - 80th percentile rainfall depth for Blacktown of 24.6mm.

7.4 Key Management Strategies

The following list outlines the Key Management Strategies that will be implemented to mitigate potential erosion and sediment impacts:

- Specialist expertise and advice will be sought from an accredited Project Soil Conservationist (CPESC) in regard to the broad spectrum of erosion and sediment control issues, including but not limited to site establishment, temporary access routes, off-site water diversion, on-site drainage, sediment basin construction/operation/decommissioning, soil handling and storage, water management, stabilisation, and rehabilitation/revegetation of Project areas,
- Implementation of structured erosion and sediment control training program for all relevant site personnel in the form of inductions, toolbox talks and workshops/training presentations,
- Minimising the extent and duration of construction disturbance,
- Control and diversion of off-site water flows around or across site,
- Control and diversion of on-site flows to installed sediment controls and sediment basins,
- Conservation of topsoils for site rehabilitation and revegetation,
- Implementation of progressive erosion methods & techniques throughout various work stages,
- Construction and management of suitable sediment controls including sediment filters, traps, sumps and basins,
- A thorough inspection and maintenance program to monitor, record and schedule actions for maintenance and upgrades of controls, rectification works, and sediment removal and handling,
- Establishing a procedure to monitor forecast weather events and implementing response plans for significant wind or rainfall events and flooding,
- Timely and progressive stabilisation of disturbed areas prior to final landscaping,
- Monitoring stabilisation measures and promoting prompt & effective revegetation and permanent stabilisation.

7.5 Preparation of Progressive Erosion and Sediment Control Plans (PESCP's)

This ESCP will be supplemented with Progressive Erosion and Sediment Control Plans (PESCP's) prepared as required for the relevant work areas. The PESCP's illustrate the strategy for erosion and sediment control and provides detail on structures and controls to be implemented in concert with construction activities. The PESCP's will outline structural and non-structural measures to:

- Intercept and divert clean water runoff around worksites,
- Prevent erosion,
- Limit the movement of sediment,
- Remove or filter sediment from runoff,

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- Detain or control the discharge of runoff from site,
- Promote timely rehabilitation or stabilisation of disturbed areas.

There are a number of control measure options available for selection and use. The selection of controls will be in accordance with sound management practices to achieve the desired outcomes.

The PESCP's will be revised as necessary to address changes in the site conditions and nature of works. The PESCP's will be formulated in conjunction with construction personnel prior to the commencement of specific onsite activities. The plans will be prepared to manage the various works or construction stages such as:

- Compound, access, stockpile operations, and construction facilities,
- Bulk earthworks for road formation, drainage, services, etc.,
- Major off-site and on-site water drainage works or structures such as diversions, drains, outfalls, and treatment/sediment basins,
- Construction activities such as paving, kerbing/guttering, stormwater drainage and outlets, etc.,
- Stabilisation of disturbed areas, access and works areas, and perimeter areas,
- Decommissioning of temporary erosion and sediment controls.

The formulation of Environmental Work Method Statements (EWMS) will be sub-ordinate to the requirements of the primary ESCP, supplement the PESCP's, and will outline methods and strategies for works in critical areas such as clearing & grubbing, topsoil stripping & earthworks, works around watercourses & culvert works, construction & operation of sediment basins, drainage works and dewatering.

7.6 Erosion and Sediment Control Training for Site Personnel

Prior to the commencement of onsite activities, all site personnel will be instructed to observe site constraints and be made aware of environmental controls, in particular:

- Avoidance of disturbing or damaging 'No-Go' zones,
- Effects of erosion and sedimentation and off-site or downstream impacts,
- Environmental legislation, responsibilities, and 'due diligence,'
- Correct establishment and maintenance of erosion and sediment controls,
- 'End-of-day' site maintenance, emergency procedures, and spill response,
- Personnel to monitor, review and improve controls as appropriate.

Key construction personnel would undertake additional environmental training including a specific training session for erosion and sediment control addressing:

- Environmental impacts,
- Relevant legislation,
- Principles and techniques of erosion and sediment control,
- Preparation of PESCP's.

The structure and content of the Erosion and Sediment Control training would be developed in conjunction with Project management and construction personnel.

7.7 Inspection and Maintenance

A self-auditing program will be established for erosion and sediment control based on a check sheet developed for the site. A site inspection using the developed check sheet will be undertaken by relevant Project personnel:

- At least weekly,
- Immediately before extended site shut down or prior to forecast rainfall exceeding 10mm,
- At the conclusion of all rainfall events exceeding 10mm 20mm. and during periods of prolonged rainfall as soon as practicable).

The self-audit will include:

- Noting the condition of installed erosion and sediment controls onsite,
- Detailing maintenance requirements (if any) for installed erosion and sediment controls,
- Recording the volumes of sediment removed from sediment controls and sediment traps, where applicable,
- Recording the location to where extracted sediments are disposed.

8. Erosion Control Measures and Sediment Control Methods

The formulation of the ESCP assumes that controls will generally be installed in the following progression:

- Installation of preliminary erosion and sediment controls and exclusion fencing to nominated areas of initial works and establishing exclusion zones,
- Establishing any temporary roads and machinery access points in addition to those existing,
- Installation of stabilised site access, site compound and facilities,
- Forming temporary drains or banks to maximise diversion of off-site flows away from works area to watercourses, existing drainage lines or to temporary drainage diversion structures,
- Construction of on-site water diversion drains or banks to direct runoff to the installed sediment controls,
- Installation of diversion drains/banks upslope and sediment controls down slope of proposed topsoil and spoil stockpile areas,
- Bulk earthworks such as cut excavations, filling, trenching, and engineered formation are controlled with a suite of erosion controls such as exclusion bunding, surface stabilisation treatments, trench stops, batter berms/chutes, contour banks, check dams, etc.,
- Drainage and run-off from site areas directed to adequately designed and constructed sediment controls with regular maintenance and repair as required,
- Completed areas are progressively stabilised as soon as practical with emphasis on critical areas such as drainage outlets, batters, etc.,
- Sediment controls are to be maintained until adequate soil surface protection levels (>70% ground cover) are achieved in the catchment.

The erosion and sediment control measures required for Project areas during the various construction areas will be determined by reference to the guidance and measures detailed in Appendix D – in the Blue Book Volumes 2A - 2D – DECC 2007. Commonly employed methods and techniques that may be likely to be utilised on the Project are detailed in the following table:

Table 8

Erosion Control – Raindrop Impact	
Situation	Control measure or method
Soil surface protection - Vegetation	<ul style="list-style-type: none"> • Temporary vegetation (cover crop only) • Permanent vegetation – introduced (exotic) pasture species or native (endemic) species
Soil surface protection - Batter protection	<ul style="list-style-type: none"> • Organic rolled erosion control products (RECP's) such as jute mesh, jute mat, coir fibre blankets • Non-organic RECP's such as non-woven geotextile membrane or heavy grade plastic sheeting. •
Soil surface protection - Mulching	<ul style="list-style-type: none"> • Hydromulch or hydraulic bonded-fibre matrix • Straw mulching with bitumen tack • Rock or gravel mulch
Soil surface protection - geobinders	<ul style="list-style-type: none"> • Organic tackifiers • Co-polymer emulsions • Bitumen emulsion •
Erosion control - Concentrated Water Flow	
Up-slope diversions	<ul style="list-style-type: none"> • Excavated channel-type bank • Back push-type bank or windrow • Catch drains •
Soft armour channels	<ul style="list-style-type: none"> • Trapezoidal or parabolic shape design drain cross sections • Organic rolled erosion control products (RECP's) such as jute mesh, jute mat, coir fibre blankets • Non-organic RECP's such as non-woven geotextile membrane or heavy grade plastic sheeting • Organic tackifiers & co-polymer emulsions • Bitumen emulsion • Hydro mulch • Standard or reinforced turf
Hard armour channels	<ul style="list-style-type: none"> • Loose rock – hard quarry rock • Rock-filled wire mattresses • Grouted rock • Cast in-situ concrete • Underlays utilising heavy grade plastic lining or geotextile lining
Check dams	<ul style="list-style-type: none"> • Stacked rock • Sandbags and aggregate filter bags • Geotextile covered straw bales • Coir logs

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Table 8

Situation	Control measure or method
Batter drainage	<ul style="list-style-type: none"> • Geotextile lined or heavy grade plastic chutes • Pipes and Half pipes • Loose-rock rip rap • Concrete (pre-cast or on-site) • Rock-filled wire mattresses
Grade control structures and flumes	<ul style="list-style-type: none"> • Geotextile lined or heavy grade plastic chutes • Pipes and Half pipes • Concrete chutes • Loose-rock rip rap • Gully pits and field inlets • Sandbag drop structures • Rock-filled wire gabions and mattress structures
Outlet dissipation structures	<ul style="list-style-type: none"> • Loose-rock rip-rap apron diffusers • Rock-filled wire mattresses • Pinned geotextile aprons • Level spreaders
Revetments and retaining walls	<ul style="list-style-type: none"> • Rip rap • Rock-filled wire gabions and mattresses
Sediment control - Sheet Flows	
Vegetative filters	<ul style="list-style-type: none"> • Turf strips
Sediment barriers/filters	<ul style="list-style-type: none"> • Sediment fencing • Topsoil berms stabilised with vegetation or geotextile with filter outlets at intervals • Excavated and geotextile lined sediment traps • Geotextile covered rock or gravel windrows • Coir logs
Site exit points	<ul style="list-style-type: none"> • Shaker grids with paved or rock aprons and sediment sumps • Wheel wash equipment and designated/controlled areas
Sediment control - Concentrated Flows	
Sediment traps	<ul style="list-style-type: none"> • Sediment basins • Stacked rock with geotextile • Excavated and geotextile lined sediment traps • Straw bale or sandbag structures • Gully pit, field inlet and kerb inlet traps

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9 Soil & Water Management Activities & Controls

The following table outlines the environmental management and mitigation measures proposed to be implemented, together with responsibilities and frequency of actions:

Table 9

Planning, permits & personnel		
Environmental Management Controls	Person Responsible	Timing / Frequency
1. All necessary licences, permits and approvals required by legislation will be obtained prior to works commencing.	Project Manager / Supervisor / Environmental Site Representative	Duration
2. Copies of any relevant licences, permits and approvals will be kept on site for inspection upon request or otherwise, as required.	Project Manager / Supervisor / Environmental Site Representative	Site establishment
3. All works and site activities will comply with the explicit requirements of any relevant licence, permit or approval.	Project Manager / Supervisor / Environmental Site Representative	Duration
4. Recordings and data from site inspections, testing, audits, and monitoring will be retained, with associated documentation maintained to demonstrate remedial action/s have occurred.	Project Manager / Supervisor / Environmental Site Representative	Duration
5. Erosion and sediment control planning is required prior to the commencement of works. The approved CEMP & SWMP is supplemented by concept Progressive Erosion & Sediment Control Plans (PESCP's) which have been developed in accordance with the requirements of ' <i>Soils and Construction: Managing Urban Stormwater</i> ' 4 th Edition. - Landcom 2006.	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration
6. The CEMP & SWMP & construction PESCP's may be supplemented by site-specific Environmental Management Plans (EMP's) which would be developed in response to a significant environmental issue emerging. The EMP's would outline the relevant environmental risks and issues, mitigation of potential risks, and detail strategies for remediation and/or management.	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration
7. The induction of employees and contractors to include a component promoting environmental awareness, legislative requirements & penalties, and basic erosion and sediment control tasks	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration
8. Toolbox talks will regularly focus on specific works, associated risks, potential impacts, and mitigation measures. Specific erosion and sediment control awareness training and workshops will be undertaken by personnel with direct involvement with erosion and sediment control.	Supervisor / Environmental Site Representative	Site establishment & duration

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Environmental Management Controls	Person Responsible	Timing / Frequency
9. Promote planning for seasonal restrictions for high-risk areas and/or activities ((i.e., late summer/autumn rainfall events for culvert works or cold winter temperatures affecting revegetation)	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration
Clearing, site establishment, topsoil stripping & stockpiling		
1. Exclusion areas ('No Go' zones) to be identified, delineated where practical, and personnel instructed to avoid disturbance in these areas.	Supervisor / Environmental Site Representative	Site establishment
2. Temporary fencing or barricading such as parawebbing or perimeter tape is to be utilised on the perimeter with accompanying signage as required.	Supervisor / Environmental Site Representative	Site establishment
3. Areas of proposed works with identified noxious weed infestations to be treated with appropriate herbicide, in accordance with product directions. The weed treatment will occur in sufficient time prior to disturbance to ensure complete 'die back' prior to topsoil handling.	Supervisor / Environmental Site Representative	Site establishment
4. In areas requiring weed control, spray drift will be mitigated by conducting spraying activities in calm weather and application by hand sprayer unit where practical.	Supervisor / Environmental Site Representative	Site establishment
5. The extent of earthworks will be demarcated to the footprint necessary for the proposed works.	Supervisor / Environmental Site Representative	Site establishment & duration
6. Construct erosion resistant access routes, site access/egress points, and compound roads to be formed and stabilised as early works. Car parking areas and frequently utilised areas should be stabilised (e.g., geotextile with asphaltic millings, rock aggregate overlay, bitumen chip seal or similar) to prevent soil churning, where required. Any rock or aggregate required for vehicle access should be clean and free from soil or other contaminants.	Supervisor / Environmental Site Representative	Site establishment & duration
7. Temporary drains, banks or diversions are to be formed and stabilised to divert concentrated 'clean' flows around disturbed works areas.	Supervisor / Environmental Site Representative	Site establishment & duration
8. The installation of preliminary sediment controls such as perimeter sediment fencing, excavated sediment traps, check dams, coir log/straw bale filters, etc, will be implemented prior to disturbance within the catchment.	Supervisor / Environmental Site Representative	Site establishment
9. The stockpile locations are to avoid concentrated surface flows or areas subject to inundation during wet weather.	Supervisor / Environmental Site Representative	Site establishment & duration
10. The long-term soil stockpile locations are to be located 5 metres away from major drainage lines. The stockpiles will not be established in areas subject to concentrated surface flows, waterlogging or prolonged inundation during wet weather.	Supervisor / Environmental Site Representative	Site establishment & duration

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Environmental Management Controls	Person Responsible	Timing / Frequency
11. Stockpiles should be stabilised if they are to remain in place for more than 20 days. Rolled Erosion Control Products (RECP's such as geotextile, jute mesh, coco fibre mat, etc) or soil binders can be used on smaller stockpiles, however, larger stockpiles should be formed into crowned structures to minimise erosion and be subsequently stabilised with cover crop seeding or applied geobinders. Plastic covers should only be utilised for short term cover for wind or storm protection.	Supervisor / Environmental Site Representative	Site establishment & duration
12. Maintain minor benches or contour berms on fill batter formations until profiling for topsoiling is imminent.	Supervisor / Environmental Site Representative	Duration
13. Temporary scour protection lining for major 'dirty' drains for steep or long drains to sediment basins or other controls.	Supervisor / Environmental Site Representative	Duration
14. Access to the works area, and movements on the site during construction will be limited to the defined access and project areas, where possible. Minimise vehicle movements & speed on unsealed areas and access tracks.	Supervisor / Environmental Site Representative	Duration
15. Earthworks and hauling, and vehicular movements to be limited in wet conditions.	Supervisor / Environmental Site Representative	Duration
16. Appropriate sediment tracking controls such as an aggregate/geotextile apron, shaker grid, etc will be installed at exit points from the site, where required.	Supervisor / Environmental Site Representative	Duration
17. The adjoining local road network to be regularly monitored for tracked sediments with affected areas cleaned as soon as possible in a safe manner.	Supervisor / Environmental Site Representative	Duration
18. Vehicles transporting bulk materials such as soils and fill are to correctly cover loads to prevent loss of load and/or dust generation on public roads.	Supervisor / Environmental Site Representative	Duration
19. Imported quarry product and fill materials required for construction are to be clean, and free of contaminants (i.e., weeds, waste, liquids, etc).	Supervisor / Environmental Site Representative	Duration
20. Water carts are to regularly spray access tracks, works areas, & temporary stockpiles, during dry weather conditions.	Supervisor / Environmental Site Representative	Duration
21. Bunded or controlled areas for re-fuelling, material stockpiling, (and contaminated soil treatment area if required) are to be formed prior to commencement of those works in the relevant risk areas.	Supervisor / Environmental Site Representative	Site establishment & duration
22. The progress of earthworks will minimise slope lengths and gradients where practical utilising contour berms, batter berms, diversion banks, etc.	Supervisor / Environmental Site Representative	Duration
23. Personnel to ensure visual dust monitoring is maintained during works, and dust suppression is undertaken regularly.	Supervisor / Environmental Site Representative	Duration

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Environmental Management Controls	Person Responsible	Timing / Frequency
24. Minimise earthworks, soil handling and general disturbance during periods of strong and/or gusty winds.	Supervisor / Environmental Site Representative	Duration
25. Apply water sprays for dust suppression where works, soil handling and/or potentially contaminated soils are generating dust.	Supervisor / Environmental Site Representative	Duration
Drainage and water management		
1. Construct diversion drains or banks upslope of proposed works to direct off-site water flows to existing drainage or adequately stable vegetated areas.	Supervisor / Environmental Site Representative	Duration
2. Immediately line any constructed off-site water diversion with appropriate RECP's, OFM's and/or geobinders. Temporary spillways and associated structures to be suitably stabilised for the volume and turbulence of flows.	Supervisor / Environmental Site Representative	Duration
3. Sheet flows in work areas have erosion measures such as surface roughening, scribed drains and/or contour banks to reduce slope lengths. Flows from diversions to have velocities controlled and directed to sediment controls.	Supervisor / Environmental Site Representative	Duration
4. Temporary 'dirty' water drainage will be adjusted progressively to maximise flows to sediment filters and traps.	Supervisor / Environmental Site Representative	Duration
5. Permanent storm water drains and outlet structures will be stabilised as soon as possible following completion.	Supervisor / Environmental Site Representative	Duration
6. Check dams are to be constructed from geotextile/aggregate bags, sandbags, staked coir logs/straw bales or geotextile/rock formations to reduce flow velocities in unlined drains and other areas of concentrated flow (i.e., against diversion banks). Check dams are to be installed at the required intervals in drains with the frequency of the dams increasing as the grade increases.	Supervisor / Environmental Site Representative	Duration
7. Trenching works on grade will be controlled with methods detailed in the 'Blue Book' – Volume 2A' - Section 6.	Supervisor / Environmental Site Representative	Duration
8. Flooded excavations, ponded water, etc will be extracted as required and utilised for site purposes or treated to achieve acceptable water quality prior to discharge.	Supervisor / Environmental Site Representative	Duration
9. Flooded excavations and groundwater encountered in ASS areas or potentially contaminated areas will be tested and assessed prior to being extracted for treatment & subsequent discharge or conveyed to a licensed liquid waste facility.	Supervisor / Environmental Site Representative	Duration
10. Site water that is to be discharged directly to a flow line, drain, watercourse, etc, will be tested, treated, and recorded prior to discharge.	Supervisor / Environmental Site Representative	Duration
11. Water quality should meet the following minimum criteria prior to discharge to any waterway or drainage line: <ul style="list-style-type: none"> • Total suspended solids (TSS) – less than 50 mg/L • pH – 6.5 to 8.5 • oil and grease – not visible and less than 10 mg/L 	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 5A & 5B – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
12. Dewatering devices or transfer pumps will be positioned to ensure that settled sediments are not disturbed or extracted. Discharge of concentrated, treated flows to lands will occur in well vegetated areas with diffusers or level spreaders to prevent erosion. Flows transferred from in-stream works to downstream areas be released in a diffused manner.	Supervisor / Environmental Site Representative	Duration
13. The appearance of water quality at the discharge outlet will be regularly monitored for any increase in turbidity, and dewatering suspended until acceptable water quality levels are regained	Supervisor / Environmental Site Representative	Duration
14. Adequately designed and constructed concrete washout facilities will be constructed in a suitable location away from drainage lines and 40m from waterways. Concrete wash down to occur directly into lined receptacles or formed washouts.	Supervisor / Environmental Site Representative	Duration
Sediment Controls		
1. Commonly used sediment control devices are outlined in Section 8 – Table 8, and some construction details are shown in the Standard Drawings shown at Appendix F. Alternative controls or methods may be employed in certain circumstances for practicality or efficiency purposes. Alternative controls or methods must demonstrate efficacy and be in accordance with the intent and objectives of the 'Blue Book'.	Supervisor / Environmental Site Representative	Duration
2. Substitute materials may be utilised in the construction of erosion or sediment controls where functionality is not affected.	Supervisor / Environmental Site Representative	Duration
3. Sediment fencing, non-woven geotextile, mulch berms, etc, will be installed on down slope work boundaries, down slope of stockpiles, cut/fill batters, access tracks, etc, to filter sheet flows.	Supervisor / Environmental Site Representative	Duration
4. Sediment filters will be formed from rock & shade cloth/geotextile structures, aggregate & geotextile filter bags, coir logs, etc, to control concentrated on-site water flows as required	Supervisor / Environmental Site Representative	Duration
5. Excavated sediment traps may be utilised at critical locations at the toe of the contributing catchment. They will be desilted at 60% capacity and are to be dewatered prior to the onset of further rainfall.	Supervisor / Environmental Site Representative	Duration
6. The excavated sediment traps should be regarded as a secondary control, relying on retention of coarse sediment in upslope controls within the construction area.	Supervisor / Environmental Site Representative	Duration
7. Aggregate filter bags or sandbag inlet traps are to be deployed on roadside pit inlets or other inlets to the drainage system.	Supervisor / Environmental Site Representative	Duration
8. Gully pit inlets will be protected with filter inlet controls formed from sediment fence, filter bags, straw bales & geotextile, coir logs, etc.	Supervisor / Environmental Site Representative	Duration
9. The sediment captured by control devices is to be removed when 30% of capacity is reached. Regular desilting is also to maintain catchment and settling capacity, and to reduce re-entrainment of settled materials in subsequent rain events.	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 5A & 5B – Erosion and Sediment Control Plan

Soil Contamination		
Environmental Management Controls	Person Responsible	Timing / Frequency
10. 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.	Supervisor / Environmental Site Representative	Duration
11. 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.	Supervisor / Environmental Site Representative	Duration
12. Potentially contaminated excavated material that are required to be removed from site are to be assessed and classified in accordance with the Protection of the Environment Operations Act 1997 and ' <i>Waste Classification Guidelines: Parts 1 and 2</i> ' (DECC 2008)'.	Supervisor / Environmental Site Representative	Duration
13. Excavated soils and materials (that have been assessed, classified, treated, and re-assessed on site) will be re-used as fill material on site where appropriate.	Supervisor / Environmental Site Representative	Duration
14. Vehicles transporting potentially contaminated soils both on internal access tracks and public roads will correctly cover loads to mitigate dust generation or spillage.	Supervisor / Environmental Site Representative	Duration
15. The ground disturbance and machinery/vehicle movements in potentially contaminated areas will be minimised to essential works.	Supervisor / Environmental Site Representative	Duration
16. Earthworks, soil handling and general disturbance in potentially contaminated areas are to be avoided during periods of strong and/or gusty winds.	Supervisor / Environmental Site Representative	Duration
17. Water sprays are to be utilised to mitigate dust from contaminated soils in works areas, contaminated soil handling or temporary stockpile areas.	Supervisor / Environmental Site Representative	Duration
Soil & Water pollution control		
1. All waste will be handled, stored and disposed of in accordance with the ' <i>Waste Classification Guidelines: Parts 1 and 2</i> ' (DECC 2008)'.	Supervisor / Environmental Site Representative	Duration
2. Waste construction materials such as steel, concrete, etc will be removed to an appropriate recycling facility, to a suitable location for appropriate re-use, or to a licensed waste disposal facility.	Supervisor / Environmental Site Representative	Duration
3. All putrescible, construction, and food wastes are to be immediately captured and stored correctly, prior to removal to a licensed waste facility. Putrescibles and food wastes will be removed from site on a least a weekly basis.	Supervisor / Environmental Site Representative	Duration
4. The effluent from concrete wash down is to be captured by an excavated wash out pit lined with an impervious membrane at least 5 metres away from any waterway or major drainage lines. The pit is to be protected by a diversion bund to prevent entry of site run-off that may subsequently displace alkaline water/slurry. Concrete washouts to be covered for the duration of significant or prolonged rainfall.	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 5A & 5B – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
5. The water levels in concrete washout pits will be monitored and dewatered regularly. The water pH will be tested and treated where it is outside the parameters of pH 6.5-8.5. Where suitable pH is attained, the water can then be used site purposes.	Supervisor / Environmental Site Representative	Duration
6. The site machinery 'lay-up' area, re-fuelling areas and chemical storage areas are to be located at least 5 meters away from major drainage line.	Supervisor / Environmental Site Representative	Duration
7. The re-fuelling and servicing of machinery is to be undertaken at approved premises off-site where possible. Onsite refuelling and servicing only to occur with appropriate spill control measures at hand, or where established or temporary bunded areas are available.	Supervisor / Environmental Site Representative	Duration
8. Mobile plant, machinery and vehicles are to be regularly inspected and maintained to manufacturer's specifications.	Supervisor / Environmental Site Representative	Duration
9. Appropriate spill kits are to be always kept on site and any spillage is to be immediately cleaned up. In the event of a large or hazardous spill, contact will be made with emergency and relevant authorities, where required.	Supervisor / Environmental Site Representative	Duration
10. All site personnel will be instructed about emergency spill procedures, spill kit locations and requirements. The location of spill response kits will be established close to works or operations areas.	Supervisor / Environmental Site Representative	Duration
11. Storage of liquid construction materials (chemicals, fuels, oils, etc) will be provided in appropriately bunded areas on site to prevent leaching into soils, leaking or other transfer of material into waterways.	Supervisor / Environmental Site Representative	Duration
12. Containment bunds are to be monitored regularly and captured materials removed as required to ensure bund capacity is maintained.	Supervisor / Environmental Site Representative	Duration
13. Bunded areas will satisfy requirements of the relevant Australian Standards and 'Bunding and Spill Management (DEC, 1997)'	Supervisor / Environmental Site Representative	Duration
14. The requirements of the Australian Dangerous Goods Code will be observed for storage and transport of any hazardous materials. The compatibility of all chemicals, pesticides and fuels transported and stored will be assessed to avoid potential risk from reactions, explosion, etc.	Supervisor / Environmental Site Representative	Duration
15. All chemicals, pesticides and fuel will be stored and transported in approved containers. Chemicals, pesticides and fuels are to be labelled correctly and clearly, including using approved warning symbols etc.	Supervisor / Environmental Site Representative	Duration
16. A MSDS register and will be maintained and be readily accessible on site for all hazardous chemicals transported, handled, or applied.	Supervisor / Environmental Site Representative	Duration
17. An adequate record or log of all environmentally hazardous chemicals received, used and/or disposed of will be maintained.	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 5A & 5B – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
18. Substitution of less hazardous materials or chemicals or modifying methods of use/storage etc. will be implemented where possible.	Supervisor / Environmental Site Representative	Duration
19. The quantities of hazardous materials and chemicals stored or used will be minimised as far as practical.	Supervisor / Environmental Site Representative	Duration
20. Sensitive areas (i.e., drainage lines) will be identified before utilising or applying chemicals. Where sensitive areas are identified, appropriate guidance and relevant restrictions will be formulated for chemical use or applications.	Supervisor / Environmental Site Representative	Duration
21. The application methods and dilution ratios specified in manufacturer's directions and/or associated MSDS will be observed by personnel.	Supervisor / Environmental Site Representative	Duration
Stabilisation		
1. Promote efficient staging planning for early stabilisation of perimeter or completed areas. (i.e., stabilisation of permanent drains, batters, Sealing & paving, and decommissioning of temporary controls)	Supervisor / Environmental Site Representative	Duration
2. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.	Supervisor / Environmental Site Representative	Duration
3. Suitable design and construction techniques are to be selected for stabilisation of relevant areas such as drain linings, batter treatments, etc.	Supervisor / Environmental Site Representative	Duration
4. 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.	Supervisor / Environmental Site Representative	Duration
5. 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', SWMP & ESCP requirements.	Supervisor / Environmental Site Representative	Duration
6. Any aggregate placed for vehicle access or as a work platform should be removed to a suitable location for recycling, appropriate re-use, or to a licensed waste disposal facility.	Supervisor / Environmental Site Representative	Duration
7. Cover crop seeding to occur dependent on the seasonal conditions and timing of final landscaping.	Supervisor / Environmental Site Representative	Duration

Appendix A

Site Characteristics & Revised Universal Soil Loss Equation Assessment

Site Characteristics Table & Revised Universal Soil Loss Equation (RUSLE) Data

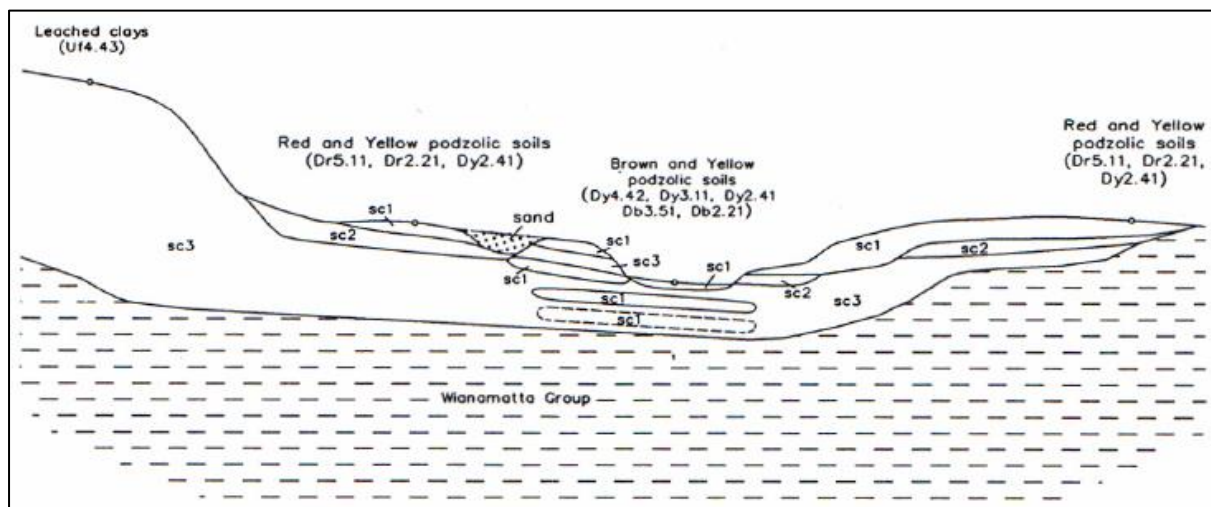
Location	Oakdale West Estate -Building 5A & 5B
Construction duration	<12 months earthworks – 80 th ile adopted (Sect. 6.3.4 – (f). Blue Book)
Erosion Hazard	High (On slopes >11%) (Sect 4.4.1 & Figure 4.6 – Blue Book)
Soil Loss Class	Class 1 (Very Low on slopes <6% ranging to Moderate on slopes <15%) (Sect 4.4.2. & Table 4.2 – Blue Book)
Batter Restrictions	Yes Generally, >20m batter length @ 2H:1V ranging to >30m @ 3H:1V (Sect 4.4.2 – (a) & Figure 4.7 – Blue Book)
Seasonal erosion hazard	No (Sect 4.4.2 – (c), Figure 4.9 & Table 4.3 – Blue Book)
Soil texture group	
South Creek (sc) Soil Landscape: Very High to Extreme Erosion Hazard landscape	sc1—Brown apedal single-grained loam
	sc2—Dull brown clay loam
	sc3—Bright brown clay
	Associated Soil Materials: Dark brown sand which is a sandy layer that occurs on the surface as splay deposits in some swales
USCS Class	CL (Low Plasticity Clays)
Soil erodibility factor – K factor	0.05 (0.055 Adopted) (Appendix C – Table 19 – Penrith Soil Landscapes – Blue Book)
Sediment Type	Type F & D (Type D Adopted) (Appendix C – Table 19 – Penrith Soil Landscapes – Blue Book)
Soil hydrologic group	Group C/D (Group D adopted) (Appendix C – Table 19 – Penrith Soil Landscapes – Blue Book)
80th %ile, 5-day rainfall event	24.6 mm - Blacktown (Sect 6.3.4 – Table 6.3a - Blue Book)

Site Characteristics Table & Revised Universal Soil Loss Equation (RUSLE) Data

Location	Oakdale West Estate -Building 5A & 5B
Rainfall Intensity - millimetres per hour	9.13mm/hour (2 Year, 6 Hour storm – BOM IFD Table)
Rainfall Erosivity – R factor	1892 (Calculated from 2-year EY, 6 Hour storm, where S=9.13mm/hour and where $R = 164.74(1.1177)^{sS^{0.6444}}$ Blue Book - Appendix A2 & B)
Volumetric runoff coefficient - Cv	0.50 (Blue Book – Appendix F: Table F2)
Grade	<5% After bulk earthworks: Grade is approximately 1%
Slope Length	80 metres adopted
LS Factor	Variable
Erosion control practice factor – P factor	1.3
Ground cover – C Factor	1.0
Sediment Storage Zone Volume design	2 months soil loss (Sect 6.3.4.- I (ii) - Blue Book)

Typical Soil Profile diagrams

South Creek (sc) Soil Landscape



Appendix B

RUSLE Catchment Assessment & Sediment Basin Calculations

1. Erosion Hazard and Sediment Basins

Site Name: Oakdale West Estate

Site Location: Building 5A & 5B

Precinct/Stage: Stage 5

Other Details: Building 5A & 5B Construction Area

Site area	Sub-catchment or Name of Structure						Notes
	1%/80						
Total catchment area (ha)	6.01						
Disturbed catchment area (ha)	6.01						

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	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						Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5						See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	80						
x-day, y-percentile rainfall event (mm)	24.6						
Rainfall R-factor (if known)	1892						
IFD: 2-year, 6-hour storm (if known)	9.13						Only need to enter one or the other here

RUSLE Factors

Rainfall erosivity (R-factor)	1892						Auto-filled from above
Soil erodibility (K-factor)	0.055						RUSLE LS factor calculated for a high nit/intermit ratio.
Slope length (m)	80						
Slope gradient (%)	1						
Length/gradient (LS-factor)	0.19						
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)	0.5						See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	26						
Soil Loss Class	1						See Table 4.2, page 4-13
Soil loss (m ³ /ha/yr)	20						Conversion to cubic metres
Sediment basin storage (soil) volume (m ³)	20						See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m ³)	739						See Sections 6.3.4(i) for calculations
Sediment basin total volume (m ³)	759						

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

Appendix B

Sediment Basin Management & Dewatering Procedure

Sediment Basin Management & Dewatering Procedure

1.1 Purpose

The purpose of the Sediment Basin Management & Dewatering Procedure (the Procedure) is to detail the actions to be taken in regard to site dewatering in general and specific measures for the construction and maintenance of sediment basins including steps to be taken prior to any discharge.

Adherence to the methodology outlined in procedure will ensure that works are carried out in accordance with industry standard and environmental conditions.

1.2. Scope

The Procedure applies to the following works:

- Sediment basin management and maintenance; and
- Dewatering of excavations and construction water generally, and
- Acid sulfate leachate ponds in the event that acid sulfate soils or rock is encountered.

1.3. Objectives

The objectives of this Procedure are to:

- Ensure all Project personnel are aware of the requirements of this procedure,
- Detail personnel responsible for undertaking actions relating to sediment basin, construction dewatering and acid sulfate leachate management on the site,
- Providing a uniform, controlled methodology and clear criteria for water releases from the site,
- Implement industry standard methods for managing sediment basins and dewatering in accordance with best practice guidelines such as Managing Urban Stormwater Soils and Construction (Landcom 2004) and Acid Sulfate Soil Manual (ASSMAC 1998),
- Ensure water discharges from site are compliant with:
 - the NSW EPA Water Quality Criteria,
 - Managing Urban Stormwater Soils and Construction (Landcom 2004),
 - Approved Erosion and Control Plan, and
- Comply with environmental requirements of the Project, including all legal requirements and contractual obligations.

The procedure shall ensure appropriate environmental protection measures are in place relating to sediment basins, construction water management (dewatering of excavations, culverts, etc) and management of leachate collected in ponds from acid sulfate material stockpiles.

Sediment Basin Management & Dewatering Procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
Planning		
A copy of this Sediment Basin Management and Discharge Procedure will be kept on site and be made available to all relevant project personnel	Supervisor / Environmental Site Representative	Site Establishment / Duration
All relevant project personnel will be made aware of this document during the site induction and again in Toolbox Talks and targeted training sessions.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Training and Awareness		
Training, instruction and equipment familiarisation for environmental personnel undertaking water quality monitoring, equipment calibration and maintenance will be the responsibility of the Environmental Site Representative. This will be completed prior to the initial use of equipment or as new equipment arrives on site.	Environmental Site Representative	Site Establishment / Duration
Training sessions will be conducted with Supervisors, Foreman, and Environmental Work Crew and relevant personnel. The training will address <ul style="list-style-type: none"> • Construction of Sediment Basins • Preliminary post-rainfall inspections • Testing and recording • Treatment methods and recording • Details of the Water Discharge Permit • Dewatering requirements, methods, and recording • Maintenance requirements, methods, and recording • Storage, Handling and Application of Flocculants 	Supervisor / Environmental Site Representative	Site Establishment / Duration
Any personnel that are responsible for monitoring pumps during dewatering activities, and that have not undertaken training described above, will undertake a specific toolbox talk to ensure awareness of requirements.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Construction of Sediment Basins		
Refer to the relevant PESCPs for the location of the sediment basin/s.	Supervisor / Environmental Site Representative	Site Establishment / Duration
The location and design criteria (volume – length, width & depth) for the sediment basin/s will be outlined in the relevant PESCP. The following criteria will be observed: <ul style="list-style-type: none"> • All requirements of Landcom's - Managing Urban Stormwater: Soils and Construction Volume 1 (the Blue Book). Refer to Section 6.3.3 volume 1 of the Blue Book for detailed design of the sediment basin. • Impervious clay to be used where required in construction of the internal basin invert and embankments. • Inlet and outlet structures will be appropriately constructed to cater for the nominated rainfall event. • Markers will be present to indicate sediment storage volume and to ensure adequate capacity levels are available. 	Supervisor / Environmental Site Representative	Site Establishment / Duration
Sediment basins will be constructed in a way that predominantly only site run-off is collected, and clean water is diverted around them. Earthworks will be conducted in a way so as to avoid ponding of water.	Supervisor / Environmental Site Representative	Site Establishment / Duration

Sediment Basin Management & Dewatering Procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
The sediment basin/s to be constructed prior to any earthworks or topsoil stripping in the catchment being undertaken. Necessary clearing to access the basin location and associated earthworks will occur with appropriate erosion and sediment controls installed.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Where applicable, the formation of operational sediment basins will be partially or fully constructed in early stages of works and managed as a temporary sediment basin to capture construction runoff.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Effective diversions such as drains, and berms will be implemented to ensure that the diversion of site runoff is maximised to basins during all stages of construction.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Water Quality Testing, Treatment & Criteria for Discharge		
Captured water to be discharged from sediment basins must meet the following criteria: <ul style="list-style-type: none"> • pH between 6.5 – 8.5 • TSS < 50mg/L and • Oil and grease - no visible trace. 	Supervisor / Environmental Site Representative	Duration
<u>Correlation between TSS and Turbidity</u> A correlation between TSS and turbidity may be developed for the basin/s to allow discharge based on turbidity levels. This correlation will be submitted to the relevant Approval Authority for approval prior to implementation. If approved, a TSS sample will be taken from every tenth discharge and tested to confirm compliance with required criteria. These results will be used to check and revise the correlation. If these tests indicate an exceedance of TSS criteria, discharges on the basis of turbidity measurements will be suspended until the correlation can be re-established and approved.	Environmental Manager/ Environmental Site Representative	Duration
Potential contamination of any basin or ponded waters will be considered prior to discharge. Where the main source is from storm water, TSS and oil and grease are considered to be the likely pollutants. Where groundwater is a significant contributing source, influence from ASS/PASS, or other contaminants will be considered as potential pollutants and additional testing in the form of pH and metals may be undertaken.	Supervisor / Environmental Site Representative	Duration
Water Treatment		
The drain inverts upslope from sediment basin inlets will be pre-dosed with suitable flocculants/coagulants (Gypsum or Calcium Chloride broadcast in the drain invert and/or Anionic Polyacrylamide gel blocks suspended in cages in locations of turbulent water flow.) to pre-treat run-off before it enters the basin during rainfall	Supervisor / Environmental Site Representative	Duration
The implementation of rain-activated, passive dosing units will deploy suitable liquid flocculants/coagulants during prolonged rainfall events to promote rapid coagulation/flocculation of sediment laden water in the treatment forebay of sediment basins.	Supervisor / Environmental Site Representative	Duration
Onsite reuse of ponded stormwater or infiltrated groundwater should always be the first dewatering option considered. Onsite reuse may include application for dust suppression, earthworks compaction and vegetation establishment.	Supervisor / Environmental Site Representative	Duration
If water is to be used for construction purposes (e.g., compaction, dust control) no treatment is required. However, the water should be removed to re-secure design capacity of sediment basins within 5 days.	Supervisor / Environmental Site Representative	Duration

Sediment Basin Management & Dewatering Procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
All sediment basins to be inspected for capacity and water quality daily on workdays and within 24 hours (out of site hours) following cessation of a rain period.	Supervisor / Environmental Site Representative	Duration
<p>Before any de-watering of site areas, excavations, etc, the parameters of pH, T.S.S. and oil and grease are to be tested and meet the following criteria:</p> <ul style="list-style-type: none"> • pH between 6.5 – 8.5 • TSS < 50mg/L; and • Oil and grease < 10mg/L (and no visible trace). <p>Treatment should commence as soon as practical following cessation of a rain to allow enough time for settlement of suspended solids.</p>	Supervisor / Environmental Site Representative	Duration
<p>Records of water quality management must be maintained, and the required records include:</p> <ul style="list-style-type: none"> • The date(s) on which the sample was taken, • The time(s) at which the sample was collected, • The name of the person who collected the sample. 	Supervisor / Environmental Site Representative	Duration
<p>pH</p> <p>Treatment should be undertaken as follows:</p> <ul style="list-style-type: none"> • Test basin water with a suitable pH meter. No action is required if the pH reading is between 6.5 and 8.5 • Lime to be added if pH below 6.5 or Hydrochloric Acid (32% Muriatic) or Sulfuric Acid to be added if pH above 8.5 • Determine volume of water to be treated in the sediment basin. • Determine the percentage of lime or acid required by taking a 10-litre sample of basin water and adding a known amount of lime or acid (initially 0.004%). If the pH is still not acceptable, vary the amount of lime or acid until within the limits. • Once the required percentage has been determined, calculate the actual amount of lime or acid to be added by multiplying the volume of water in the basin by the determined percentage. • Add the required amount of lime or acid to the basin and mix the water in the sediment basin well • Treat for pH prior to T.S.S. 	Supervisor / Environmental Site Representative	Duration
<p>Total Suspended Solids</p> <ul style="list-style-type: none"> • Test the sediment basin water initially for NTU using a turbidity tube, nephelometer (Turbidity tester) or by comparing with water samples contained in jars with representative readings up to 100mg/l. • When the comparative NTU readings indicate T.S.S. levels are <50mg/l obtain a grab sample in accordance with approved sampling methods. The water sample to be promptly analysed by a laboratory that is NATA certified in T.S.S. testing. • No further treatment action is required if T.S.S. results are <50mg/l. 	Supervisor / Environmental Site Representative	Duration

Sediment Basin Management & Dewatering Procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
<p><u>Total Suspended Solids</u></p> <ul style="list-style-type: none"> • Test the sediment basin water initially for NTU using a turbidity tube, nephelometer (Turbidity tester) or by comparing with water samples contained in jars with representative readings up to 100mg/l. • When the comparative NTU readings indicate T.S.S. levels are <50mg/l obtain a grab sample in accordance with approved sampling methods. The water sample to be promptly analysed by a laboratory that is NATA certified in T.S.S. testing. • No further treatment action is required if T.S.S. results are <50mg/l. • If basins require flocculation (e.g., T.S.S. >50mg/l), a flocculant/coagulant is to be utilised at the determined dosage initially, then treated with incremental doses should more flocculant be required. • Basins should be monitored daily after flocculation until desired TSS is achieved and to assist in determination of optimal dosage levels. <p>Methods of application to include:</p> <ul style="list-style-type: none"> • broadcast by shovels on small sumps and excavations is acceptable. This method requires spreading powdered coagulants (i.e., gypsum, calcium chloride, etc) evenly and thinly (i.e., “dusting”) over as much of the water surface as possible. • For sediment basins or areas with a large water surface area. The powdered or flake style coagulants should be pre-mixed thoroughly in a drum with clean water and sprayed over the maximum surface area of water as possible. • When spraying coagulant mixtures, the mixture should hit the water at between 10 to 20 degrees to increase surface areas exposure to the water column. • Alternative water treatment utilising liquid flocculants/coagulants will require the assessed dosage to be pre-mixed and discharged into the basin. Following dosing, the basin water is to be gently re-circulated for a suitable period (2-4 hours) to allow chemical reaction time, and to keep precipitated flocculant/coagulant in suspension a sufficient time to collect the maximum quantity of fine suspended particles into floc clusters. • The process outlined may need to be repeated if acceptable water quality is not achieved initially. <p><u>Oil and Grease</u></p> <ul style="list-style-type: none"> • Examine surface of water for evidence of any sheen or discolouration. • No action if no visual contamination. • Oil absorbent material to be spread if there is contamination (e.g., cell-u-sorb). Leave basins to compensate for 24 to 48 hours. 	<p>Supervisor / Environmental Site Representative</p>	<p>Duration</p>

Sediment Basin Management & Dewatering Procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
After retesting, and once the above field tests indicate, the water quality is acceptable, pumping or siphoning can commence with the water extraction inlet protected to prevent extraction of sediment.	Supervisor / Environmental Site Representative	Duration
Discharging Water		
Where possible ponded water and sediment basin water will be reused on site for compaction, dust suppression, and irrigation.	Supervisor / Environmental Site Representative	Duration
The whole process of water quality management in sediment basins will be completed within 5 days of cessation of a rain period.	Supervisor / Environmental Site Representative	Duration
Water may be discharged from site where the tested water quality meets NSW EPA criteria and the Site Representative gives approval. The discharge outlet will be constructed to prevent erosion and scour.	Supervisor / Environmental Site Representative	Duration
The Supervisor is to ensure that treated water has been re-tested for pH and turbidity (NTU) in-situ immediately prior to discharge.	Supervisor / Environmental Site Representative	Duration
The preferred method for dewatering a sediment basin is by the use of a static siphon system with sufficient flow capacity to discharge the volume of supernatant water within a reasonable timeframe (i.e., 12 to 24 hours). The siphon inlet is to be positioned so that settled sediments are not extracted during dewatering. The siphon system is to be installed above the sediment basin embankment and <u>not</u> within the basin spillway.	Supervisor / Environmental Site Representative	Duration
Where sediment basins are to be <u>dewatered by pump</u> , suitable inlet protection devices (i.e., float & housing or extraction tube) will be provided to prevent the extraction of settled sediments within the basin. The flows from the pump outlet and basin are to be constantly monitored during discharge.	Supervisor / Environmental Site Representative	Duration
Only personnel who have undertaken the relevant training and been approved by the Supervisor may operate pumps and discharge sediment basins. During dewatering <u>pumps</u> must be always monitored to ensure that settled sediment is not disturbed or extracted, and that water is discharged in a diffused manner to prevent erosion.	Supervisor / Environmental Site Representative	Duration
A Sediment Basin Management Register will be maintained for each basin that details discharge volumes, dates, water treatment. The Sediment Basin Management Register will be updated when treated water is discharged from the basin.	Supervisor / Environmental Site Representative	Duration
Maintenance		
<p>Maintenance of the sediment basins will be ongoing for the duration of the Project and will comprise the following:</p> <ul style="list-style-type: none"> • The sediment storage capacity limit will be defined through the installation of a marker inside the basin. Sediment will be removed from the basin in accordance with the maintenance schedule, or when the accumulated sediment exceeds 60% of the sediment storage zone. • Sediment removed from basins may be reused on site by incorporating into spoil. • All sediment that will not be reused on site will be disposed of in locations that it will not be conveyed back into the construction areas or watercourses. • Maintenance inspections will be undertaken, and the results incorporated into the Weekly Environmental Inspection Checklist. 	Supervisor / Environmental Site Representative	Duration

Sediment Basin Management & Dewatering Procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
The stormwater capacity of sediment basins will be reinstated within 5 days of the cessation of a rainfall event that causes runoff to occur	Supervisor / Environmental Site Representative	Duration
Assessment and use of Coagulants & Flocculants		
<p>Coagulation is the neutralisation and/or destabilisation of electrical charge on suspended soil colloids, whereas flocculation utilises bridging type interactions involving polyelectrolyte chains adsorbing to multiple colloid particles and aggregates through electrostatic charge interactions.</p> <p>The following procedure will be implemented to determine the suitability and effectiveness of the various water treatment products.</p> <ul style="list-style-type: none"> • The product will be sourced from a reputable and traceable supplier together with MSDS and any other supporting documentation. • Controlled 'jar testing' will be undertaken using site sourced water from the sediment basin. The jar testing will establish the site-specific dosing rates for any given products. • Initial dosing will be undertaken incrementally up to the site specific/determined dosing rate if the basin water responds to a lower dose in the 'real world' application. • Settling rates in the basin will be assessed to determine the efficiency of each product. • On site water sampling and testing will progressively assess the water's pH and turbidity in NTU's prior to lab testing. • NATA certified lab testing for TSS, NTU & pH will be completed prior to any dry weather/controlled discharge to downstream waterways. 	Supervisor / Environmental Site Representative	Duration
<p>The range and type of suitable flocculants/coagulants (including typical dosing rates described as product required to water volume) that may be utilised include:</p> <ul style="list-style-type: none"> • Calcium Sulphate (Gypsum - powder) – 300ppm (30kg/100m3) • Anionic Polyacrylamide (gel blocks) – 200ppm (20kg/100m3) • Calcium Chloride (solid - flakes), – 200ppm (20kg/100m3) • Aluminium Chlorohydrate (liquid) – 40ppm (4L/100m3) • PAC23 (poly aluminium chloride 23% - solution) - 50ppm (12.5L/100m3) 	Supervisor / Environmental Site Representative	Duration
Storage and Handling of Flocculants		
Environmental Management Controls	Person Responsible	Timing / Frequency
Gypsum and agricultural lime will be stored on site as either bagged or bulk product. Storage of bulk gypsum and agricultural lime will be covered, within erosion and sediment controls in a position where run on water will not erode the stockpiles.	Supervisor / Environmental Site Representative	Duration
All treatment chemicals particularly acids and basics will be stored in appropriately bunded and covered locations that are locked to prevent unauthorised access.	Supervisor / Environmental Site Representative	Duration
All chemicals on site will be stored with MSDSs for ease of reference in the event of a spill or irritation/injury to handlers.	Supervisor / Environmental Site Representative	Duration
Requirements of the Material Safety Data Sheets (MSDSs) will be met to ensure compatible storage with other chemicals to ensure safety.	Supervisor / Environmental Site Representative	Duration

Sediment Basin Management & Dewatering Procedure

Monitoring and Record Keeping		
Environmental Management Controls	Person Responsible	Timing / Frequency
<p>All sediment basins will be inspected on a weekly basis as a minimum, with any defects or maintenance requirements reported immediately.</p> <p>Sediment basins will be inspected immediately after rainfall events to assess:</p> <ul style="list-style-type: none"> • Water Storage capacity and water quality treatment requirements prior to discharge • Following treatment and discharge from the sediment basin the sediment storage capacity and requirement for clean out will be assessed. 	Supervisor / Environmental Site Representative	Duration
Records to be kept of the rainfall events, inspections undertaken, field tests undertaken, dosage rates and when basin water is released etc.	Supervisor / Environmental Site Representative	Duration
The results of all inspections, including inspection reports will be retained in the site environmental inspection register	Supervisor / Environmental Site Representative	Duration
<p>All discharges will be recorded on a discharge permit which will include:</p> <ul style="list-style-type: none"> • Volume to be discharged • Treatment details (e.g., Coagulant/ flocculant used, dosage, duration, and treatment date) • Water quality monitoring results (including date and time of testing) • Discharge water quality results • Date and time of discharge 	Supervisor / Environmental Site Representative	Duration
Pumped discharge of any water off site will be monitored regularly to ensure that tested water quality meets all applicable criteria.	Supervisor / Environmental Site Representative	Duration
Decommissioning Construction Sediment Basins		
Construction sediment basins will remain in place until all upstream areas have been stabilised to achieve a 'C' Factor of 0.05 which equates to 70% groundcover as per Blue Book 7.1	Supervisor / Environmental Site Representative	Duration
All operational sediment basins will be desilted and reformed as per design requirements prior to completion of major works within the catchment.	Supervisor / Environmental Site Representative	Duration
<p>Construction Sediment basins will be removed by restoring the ground disturbed by the construction of the basin similar to pre-existing conditions. This will be achieved by:</p> <ul style="list-style-type: none"> • Removing all redundant basin equipment such as basin markers, siphons, spillway linings, etc. • Spreading and compacting the embankment material in the basin area • Disturbed ground will be compacted to at least the relative density of the material in the ground adjacent to it. 	Supervisor / Environmental Site Representative	Duration

3. Procedure Review

The procedure will be regularly reviewed as part of the CEMP audit requirements. This document will be updated when needed in response to audit findings or changes to site conditions. The Environmental Site Representative will modify the procedure where improvements are identified.

Appendix C
Sediment Basin Management and Discharge Record

Sediment Basin Management and Discharge Record

Date Inspected		Basin/discharge point ID:	
Date of last rainfall event:		Amount of rainfall received:	
Estimated basin level in %?		Approximate volume of water in basin prior to treatment:	
Initial turbidity reading of the basin in NTU's		Initial pH of the basin? (range of 6.5 -8.5 required)	
The initial amount of acid/lime used if pH correction is required.		Date & time of acid/lime dosing	/ /
			am/pm
Subsequent amount of acid/lime used if pH correction is required.		Date & time of acid/lime dosing	/ /
			am/pm
Type of flocculant or coagulant product used (and typical dosing volume)	Yes	No	Flocculant or coagulant product used
Calcium Sulphate (Gypsum - powder) 300ppm (30kg/100m3)			/ /
			am/pm
Anionic Polyacrylamide (gel blocks) 200ppm (20kg/100m3)			/ /
			am/pm
Calcium Chloride (solid - flakes) 200ppm (20kg/100m3)			/ /
			am/pm
Aluminium Chlorohydrate (liquid) 40ppm (4L/100m3)			/ /
			am/pm
PAC23 (poly aluminium chloride 23% - solution) 50ppm (12.5L/100m3)			/ /
			am/pm
Aluminium Sulphate (crystals) 200ppm (20kg/100m3)			/ /
			am/pm
Turbidity reading of the basin in NTU's		Laboratory TSS Result: (if applicable)	
Time and Date of dewatering (i.e., siphon valve opened for discharge or commencement of pump operation)			/ /
			am/pm
Supervisor responsible for discharge:	Name:		
Date:	Signed:		
Comments? (E.g., next rainfall predicted – slight, moderate, severe?) Was rainfall received during treatment period affecting basin (start a new sheet)			

Appendix D

Wet weather contingency procedure

Wet weather contingency procedure

1.1 Purpose

The purpose of the Wet Weather Contingency Procedure (the Procedure) is to detail the actions to be taken by construction personnel in response to an imminent severe rainfall event as forecast by the Australian Government - Bureau of Meteorology (BOM). The procedure provides guidance for monitoring BOM rainfall & storm event forecasts and other resources, to assist with Project preparations to minimise adverse site impacts where practical.

Adherence to the methodology outlined in procedure will ensure that works for wet weather contingency planning & implementation will be carried out in accordance with contract specifications and to maximise adherence to environmental obligations.

The purpose of the Wet Weather Contingency Procedure is to:

- Identify rainfall events which may cause significant precipitation over the site areas which would result in flash flooding and/or exacerbate erosion and sediment impacts,
- Include monitoring procedures of the Bureau of Meteorology (BOM) weather forecasts to predict severe rainfall events,
- Ensure emergency procedures are developed for the management of work areas, facilities and materials in a severe rainfall event that has the potential to impact areas of the Site,
- Ensure hazardous chemical & fuel/oil storage and stockpile areas are positioned in locations to limit the potential for adverse impacts from major runoff flows and/or flash flooding,
- Outline control measures for the protection of water quality in the event of a flood over the site,
- Ensure progressive stabilising methods for areas that may be potentially affected by flash flooding and/or significant scouring & erosion are implemented.

1.2. Scope

The Procedure applies to the following:

- Weather forecast monitoring and works planning,
- Implementation, monitoring and maintenance of erosion and sediment controls,
- Stockpile and hazardous materials storage,
- Sediment basin management, dewatering and maintenance.

1.3. Objectives

The objectives of this Procedure are to:

- Ensure all Project personnel are aware of the requirements of this procedure,
- Detail personnel responsible for undertaking actions relating to works planning, erosion and sediment control management, sediment basin management & construction dewatering on the site,
- Comply with environmental requirements of the Project, including all legal requirements and contractual obligations.

Wet weather contingency procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
Planning		
A copy of this Wet Weather Contingency Procedure will be kept on site and be made available to all relevant project personnel	Supervisor / Environmental Site Representative	Site Establishment / Duration
All relevant project personnel will be made aware of this document during the site induction and again in Toolbox Talks and targeted training sessions.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Training and Awareness		
Training & instruction of site personnel will be the responsibility of the Environment Manager/ Environmental Site Representative.	Environmental Site Representative	Site Establishment / Duration
Training sessions will be conducted with Supervisors, Foreman, Environmental Work Crew, and relevant personnel. The training will address <ul style="list-style-type: none"> • Weather forecast monitoring procedures and interpretation of forecasting by BOM and other sources • Site erosion and sediment control status and high-risk areas • Roles and responsibilities for wet weather preparation • Temporary measure selection for augmentation or additional ERSED measures • Pre & post-rainfall inspections and recording • Dewatering requirements, methods, and recording • Identification of stabilisation and rectification works required. 	Supervisor / Environmental Site Representative	Site Establishment / Duration
Identification of significant rainfall events		
The daily BOM forecasts for the local area are issued each morning and late afternoon. The forecasts will be monitored daily, at the start of the shift and prior to shut down. The BOM three-day forecast outlook will be reviewed daily.	Supervisor / Environmental Site Representative	Duration
BOM forecasts indicating a high likelihood of storm fronts or rainfall events of >10mm with an occurrence probability of more than 50% will be regarded as a potential rainfall event.	Supervisor / Environmental Site Representative	Duration
In periods of forecast storm weather or likely rainfall events, the tracking and intensity of approaching weather fronts is to be monitored regularly (where possible) to anticipate the time of the onset of wet weather.	Supervisor / Environmental Site Representative	Duration
Wet Weather Management Procedures		
Where a potential rainfall event is deemed likely in the BOM three-day outlook, Project personnel are to review the scope and progress of existing and imminent site works to determine high risk areas and prioritise works to stabilise the nominated areas. High risk works include culvert works, scour protection installation, permanent drainage installation, trenching on grade, and sediment basin construction or maintenance.	Project Manager / Senior Engineer / Supervisors / Environmental Site Representative	Duration

Wet weather contingency procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
Wet Weather Management Procedures		
<p>The high-risk work areas that are identified will be managed by:</p> <ul style="list-style-type: none"> • Completion and temporary/permanent stabilisation of the high-risk work areas where time & resource constraints allow, prior to the onset of the potential rainfall event. • Re-allocating resources from low-risk activities to assist with completion of high risk works prior to the onset of a rainfall event. • Implementation of erosion controls in high-risk areas to minimise sediment control requirements. Erosion controls will be employed such as: <ul style="list-style-type: none"> ○ temporary geotextile linings or soil binders will be installed around culverts, scour protection works and drain junctions, ○ sandbag check dams, rock baffles, trench stops, etc will be utilised in open trenching on grade, temporary diversion drains, or concentrated flow paths over unstabilised areas. 	Project Manager / Senior Engineer / Supervisors / Environmental Site Representative	Duration
<p>The site sediment controls, and sediment basins are to be inspected and any necessary rectification works undertaken such as;</p> <ul style="list-style-type: none"> • Sediment basins are to be managed in accordance with Sediment Basin Management Procedure to regain the maximum runoff capacity parameters, where possible, • Sediment traps and filters to be desilted where more than 60% storage capacity is exceeded, • Spillways and discharge points from sediment traps to be inspected and reinstated as required. • Sediment fences, mulch bunds, earth berms to be inspected and repairs or reinstatement implemented as required. 	Supervisor / Environmental Site Representative	Duration
<p>The chemical, fuel, and other hazardous material storage areas to be inspected to ensure their location is protected from the ingress of rainfall or concentrated overland flows. Bund controls to be inspected and accumulated liquids or other residues removed to a controlled waste location on site or for offsite disposal at licensed premises.</p>	Supervisor / Environmental Site Representative	Duration
<p>Following the onset of a significant storm event or rainfall event, the site controls to be inspected as soon as site conditions and safety requirements allow. The inspection to focus on high-risk areas to review the function and status of the installed erosion and sediment controls.</p>	Supervisor / Environmental Site Representative	Duration
Post-Rainfall/Storm Procedure		
<p>The Post Rainfall Inspection will be conducted in accordance with the PESCP. The identified high-risk areas will be prioritised for any rectification or maintenance works, followed by areas with lower risk.</p>	Supervisor / Environmental Site Representative	Duration
<p>Records detailing the necessary works to reinstate the controls will be conducted in accordance with the PESCP.</p>	Supervisor / Environmental Site Representative	Duration
<p>Sediment basins are to be managed in accordance with Sediment Basin Management Procedure. Flocculation of the sediment basins may occur soon after the cessation of a rainfall event to improve the water quality parameters in circumstances where further significant rainfall is anticipated.</p>	Supervisor / Environmental Site Representative	Duration

Wet weather contingency procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
High risk work areas that are inundated will be prioritised for dewatering by: <ul style="list-style-type: none"> • Dewatering to a sediment basin where sufficient capacity is available, • Flocculated in-situ and discharged at a licensed discharge point when EPL water quality parameters are attained, • Dewatered by water cart and utilised for construction purposes. 	Supervisor / Environmental Site Representative	Duration
Repair and reinstatement of erosion and sediment controls to be implemented as site conditions allow, proceeding from high-risk areas to lower risk areas on site.	Supervisor / Environmental Site Representative	Duration

3. Procedure Review

The procedure will be regularly reviewed as part of the CEMP audit requirements. This document will be updated when needed in response to audit findings or changes to site conditions. The Project Environmental Representative in consultation with the Client will modify the procedure where improvements are identified.

Appendix E

Progressive Erosion and Sediment Control Plan

Oakdale West Estate– Building 5A & 5B - Progressive Erosion & Sediment Control Plan

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. The symbols depicting controls are not to scale and are only indicative of the general location and type of control selected.**
5. All erosion and sediment controls generally to be constructed in accordance with 'Blue Book' specifications and standard drawings & RMS Specifications being
 - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION - 4th EDITION, LANDCOM, MARCH 2004,
 - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION – VOLUME 2D MAIN ROAD CONSTRUCTION, DEC, 2008,
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.
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 "No Go" zones and to be delineated with fencing, tape, or other markers, as required. All site personnel to be instructed to avoid "No Go" 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. Stripped topsoil to be stripped and stockpiled generally as per SD 4-1. Any viable stripped topsoil to be stored in stockpiles, preferably less than two metres in height.
12. Short term on-site stockpiles to be located away from drains and flow lines and be controlled with sediment fence or storm covers.
13. 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
14. Vehicles transporting bulk materials on public roads are to correctly cover loads to prevent loss of load and/or dust generation.
15. Temporary controls in addition to those shown may be required at strategic locations as required by the progression of works or weather conditions

Water Management (Cont'd)

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. 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.
18. Where possible, provide sandbag or other bunding controls at on-site collection points & pit inlets to prevent flows bypassing controls to downslope areas.
19. Protect all existing and constructed inlets to pits & culverts from sediment ingress.
20. Where practical, maintain and/or improve existing stabilised drains to assist in the diversion of 'clean' (off site) flows.
21. 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

22. The installation of preliminary sediment controls such as perimeter sediment fencing, excavated sediment traps, check dams, coir log filters, etc, will be implemented prior to soil disturbance within the catchment.
23. Accumulated water in sediment traps/sumps cannot be pumped, discharged, or released from site without completing a dewatering checklist or approval by an authorised Site Manager.
24. 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.
25. 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.
26. 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. 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.
33. Relevant checklists and records to be maintained noting details such as rainfall received, repairs to controls and amounts of sediments cleaned from controls.
34. Sediment traps, sumps and filters are to be desilted when 60% of storage capacity is reached.
35. All site personnel to report any spill, leaks, or other failure to relevant response staff as soon as possible.

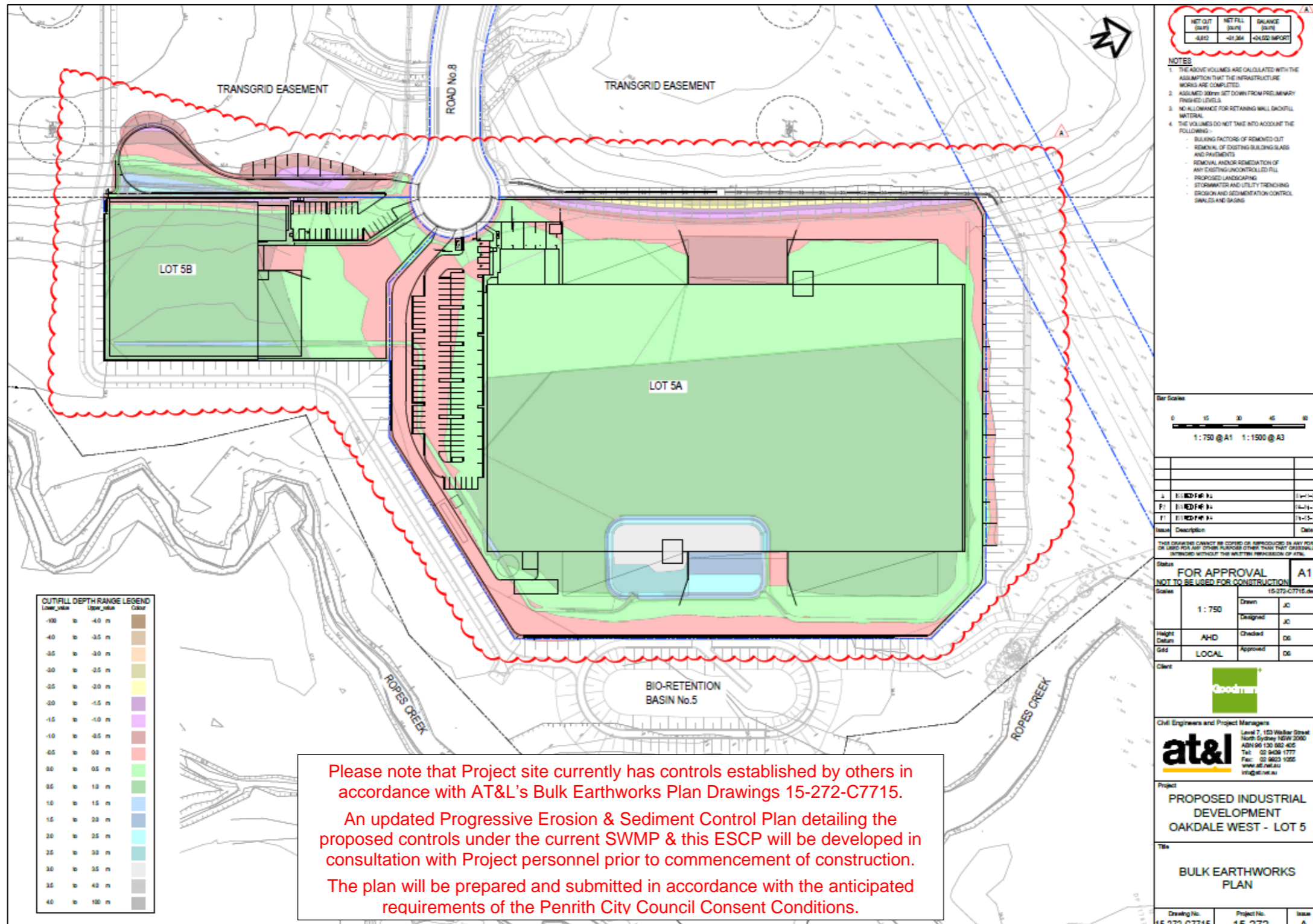
Stabilisation

36. 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.
37. 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.
38. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.
39. Areas subject to heavy compaction and disturbance from vehicle movements and machinery to be scarified to a depth >100mm prior to topsoiling and seeding.

Version	Drawn by	Date	Signed	Reviewed by	Date
01	A. Littlewood	21/11/2021			

Oakdale West Estate– Building 5A & 5B - Progressive Erosion & Sediment Control Plan

The drawing partially reproduced below is Drawing 15-272-C7715 extracted from AT&L's Bulk Earthworks Plan - issued 04/11/2022.



Please note that Project site currently has controls established by others in accordance with AT&L's Bulk Earthworks Plan Drawings 15-272-C7715. An updated Progressive Erosion & Sediment Control Plan detailing the proposed controls under the current SWMP & this ESCP will be developed in consultation with Project personnel prior to commencement of construction. The plan will be prepared and submitted in accordance with the anticipated requirements of the Penrith City Council Consent Conditions.

Legend											
Off Site Water – Sheet Flows		Piped Drainage		Stabilised Topsoil 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		Geo-lined drain		Filter bag sediment trap		Mulch bund		Stabilised site access / Shaker / Wheel wash	
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/ Geo spillway		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Filter bag or sediment fence inlet filter		Temporary Traffic Barriers	

Appendix F
Standard drawings

Standard Drawings

Construction Notes

- Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
- Construct on the contour as low, flat, elongated mounds.
- Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
- 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.
- 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.

STOCKPILES SD 4-1

Construction Notes

- Remove any rocks, clogs, sticks or grass from the ground surface before laying the matting.
- Spread topsoil to at least 75 mm depth.
- Where appropriate, complete fertilising and seeding on a properly prepared seedbed (Standard Drawing 7-1) before laying the matting.
- Ensure the fabric can be continuously in contact with the soil by grading the surface carefully first.
- Lay the matting in "hinge-fashion" with the ends of each upstream roll overlapping the next roll downslope.
- Ensure sufficient staples are used to maintain a good contact between the soil and the matting.

RECP : SHEET FLOW SD 5-2

Construction Notes

- Remove any rocks, clogs, sticks or grass from the surface before laying matting.
- Ensure that topsoil is at least 75 mm deep.
- Complete fertilising and seeding before laying the matting.
- Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
- Lay the fabric in "hinge-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).
- 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.
- Divert water from the structure until vegetation is stabilised properly.

RECP : CONCENTRATED FLOW SD 5-7

Construction Notes

- 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.
- 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.
- Normally, their maximum height should not exceed 500 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
- Space the dams so the top of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM SD 5-4

Construction Notes

- Build with gradients between 1 percent and 5 percent.
- Avoid removing trees and shrubs if possible - work around them.
- Ensure the structures are free of projections or other irregularities that could impede water flow.
- Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped.
- Ensure the banks are properly compacted to prevent failure.
- Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) SD 5-5

Construction Notes

- Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent.
- Avoid removing trees and shrubs if possible - work around them.
- Ensure the structures are free of projections or other irregularities that could impede water flow.
- Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
- Ensure the banks are properly compacted to prevent failure.
- Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
- Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
- Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
- 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.

EARTH BANK (HIGH FLOWS) SD 5-6

Stabilised topsoil diversion bank

Construction Notes

- CONSTRUCT WITH GRADIENT OF 1% TO 5%.
- AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
- DRAINS TO BE CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
- EARTH BANK TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
- PERMANENT OR TEMPORARY STABILISATION OF THE EARTH BANK TO BE COMPLETED WITHIN 10 DAYS OF CONSTRUCTION.
- ALL OUTLETS FROM DISTURBED LANDS ARE TO BE FED INTO A SEDIMENT BASIN OR SIMILAR.
- DISCHARGE RUNOFF COLLECTION FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
- COMPACT BANK WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
- EARTH BANK TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

GENERAL CONSTRUCTION NOTES

- CONSTRUCT WITH GRADIENT OF 1% TO 5%.
- AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
- DRAINS TO BE CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
- EARTH BANK TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
- PERMANENT OR TEMPORARY STABILISATION OF THE EARTH BANK TO BE COMPLETED WITHIN 10 DAYS OF CONSTRUCTION.
- ALL OUTLETS FROM DISTURBED LANDS ARE TO BE FED INTO A SEDIMENT BASIN OR SIMILAR.
- DISCHARGE RUNOFF COLLECTION FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
- COMPACT BANK WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
- EARTH BANK TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

Standard Drawings

Construction Notes

- Strip the topsoil, level the site and compact the subgrade.
- Cover the area with needle-punched geotextile.
- Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
- Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
- Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence.

STABILISED SITE ACCESS SD 6-14

Construction Notes

- 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.
- Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
- 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.
- 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.
- Join sections of fabric at a support post with a 150-mm overlap.
- Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE SD 6-18

Construction Notes

- Install this type of sediment fence when use of support posts is not desirable or not possible. Such conditions might apply, for example, where approval is granted from the appropriate authorities to place these fences in highly sensitive estuarine areas.
- Use bent trench mesh to support the F82 welded mesh facing as shown on the drawing above. Attach the geotextile to the welded mesh facing using UV resistant cable ties.
- Stabilise the whole structure with sandbag or rock anchoring over the trench mesh and the leading edge of the geotextile. The anchoring should be sufficiently large to ensure stability of the structure in the design storm event, usually the 10 year event.

ALTERNATIVE SEDIMENT FENCE SD 6-9

Construction Notes

- Install the fence to the height specified in the ESCP/SWMP.
- Cut a channel 200 mm deep along the fence line.
- Place wire and tight resistant, open-weave polymer mesh with 40 percent porosity on the prevailing wind side of fence.
- Fasten the mesh to all wires using ring fasteners at 100 mm to 150 mm intervals on top wire and 300 mm intervals on other wires.
- Use one 75-mm to 100-mm diameter treated round timber post every 20 metres.
- Where star pickets are used, ensure they are fitted with safety caps.

CONTROL OF WIND EROSION SD 6-15

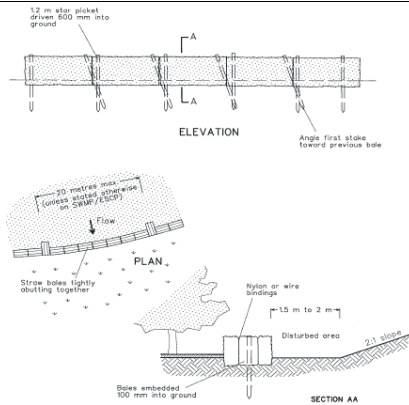
SANDBAG SEDIMENT TRAP FOR KERB INLET N.T.S.

GEOTEXTILE INLET FILTER (SD 6-12) - PERSPECTIVE NTS

SEDIMENT BARRIER (SD 5-4) DETAIL

Coir Log Filter

Standard Drawings

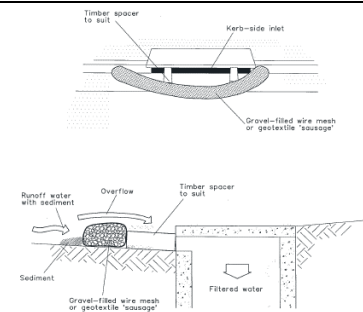


Construction Notes

1. Construct the straw bale filter as close as possible to being parallel to the contours of the site.
2. 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.
3. Ensure that the maximum height of the filter is one bale.
4. 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 at 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.
5. 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.
6. Establish a maintenance program that ensures the integrity of the bales is retained - they could require replacement each two to four months.

STRAW BALE FILTER

SD 6-7



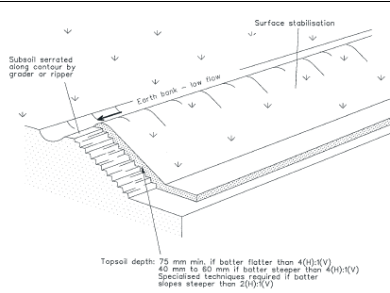
NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Install filters to kerb inlets only at sag points.
2. 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.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. 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.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sackbags 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.

MESH AND GRAVEL INLET FILTER

SD 6-11

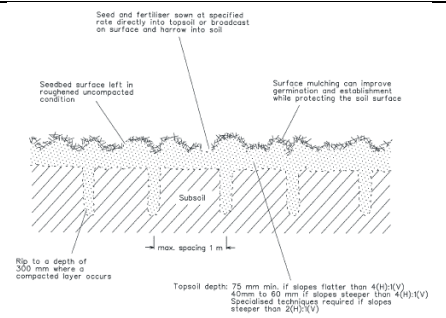


Construction Notes

1. 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.
2. Add soil ameliorants as required by the ESCP or SWMP.
3. Rip to a depth of 300 mm if compacted layers occur.
4. 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.

REPLACING TOPSOIL

SD 4-2

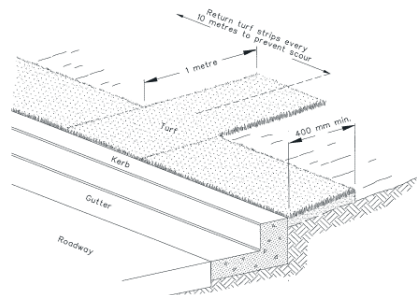


Construction Notes

1. Loosen compacted soil before sowing any seed. If necessary, rip the soil to a depth of 300 mm. Avoid rotary hoe cultivation.
2. Work the ground only as much as necessary to achieve the desired tilth and prepare a good seedbed.
3. Avoid cultivation in very wet or very dry conditions.
4. Cultivate on or close to the contour where possible, not up and down the slope.

SEEDBED PREPARATION

SD 7-1



Construction Notes

1. Install a 400-mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the

KERBSIDE TURF STRIP

SD 6-13

APPENDIX M

Waste Management Plan

OAKDALE WEST INDUSTRIAL ESTATE

Precincts 3C and 5
Waste Management Plan

Prepared for:
Goodman Property
The Hayesbery
1-11 Hayes St
Rosebery NSW 2018

SLR Ref: 610.30735.00100-R01
Version No: -v6.0
October 2022



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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 Goodman Property (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

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1 Introduction

1.1 Background

Goodman Property is planning to lodge a development application for Precincts 3C and 5 at the Oakdale West Industrial Estate. The development application will be lodged with Penrith City Council (Council).

This waste management plan (WMP) covers the demolition, construction and operational stages of the Development. We have also outlined relevant Council requirements for waste storage area size, location, design and access.

1.2 Objectives

The objectives of this WMP are to address Council's requirements and provide for good and safe practice principles for waste management. We have also referred to the following for guidance:

- Penrith Development Control Plan (Penrith DCP) 2014¹
- Penrith Council's Industrial, Commercial and Mixed-Use Waste Management Guidelines.²
- The Hills Development Control Plan 2012 (The Hills DCP).

2 Development Description

Precinct 3C is located at the corner of Emporium Avenue and the Future Southern Link Road and consists of two warehouses:

- 3C-1 – 4,270 m² with 400 m² of office space and
- 3C-2 – 15,000 m² with 1,000 m² of office space.

There are also car parking and hardstand areas.

Precinct 5 is located at the end of Tundra Place and consists of two warehouses:

- 5A – 25,915 m² with 814 m² of office space and
- 5B - 4,661 m² with 400 m² of office space.

There are also car parking and hardstand areas.

The development application will include both precincts and so both are covered by this waste management plan.

The design for Precinct 3C is shown in Figure 1 below and Precinct 5 in Figure 2 below.

¹ <https://www.penrithcity.nsw.gov.au/building-development/planning-zoning/planning-controls/development-control-plans>

² https://www.penrithcity.nsw.gov.au/images/documents/building-development/planning-zoning/planning-controls/Waste_Management_Guidelines_Industrial_Commercial_Mixed_Use.pdf

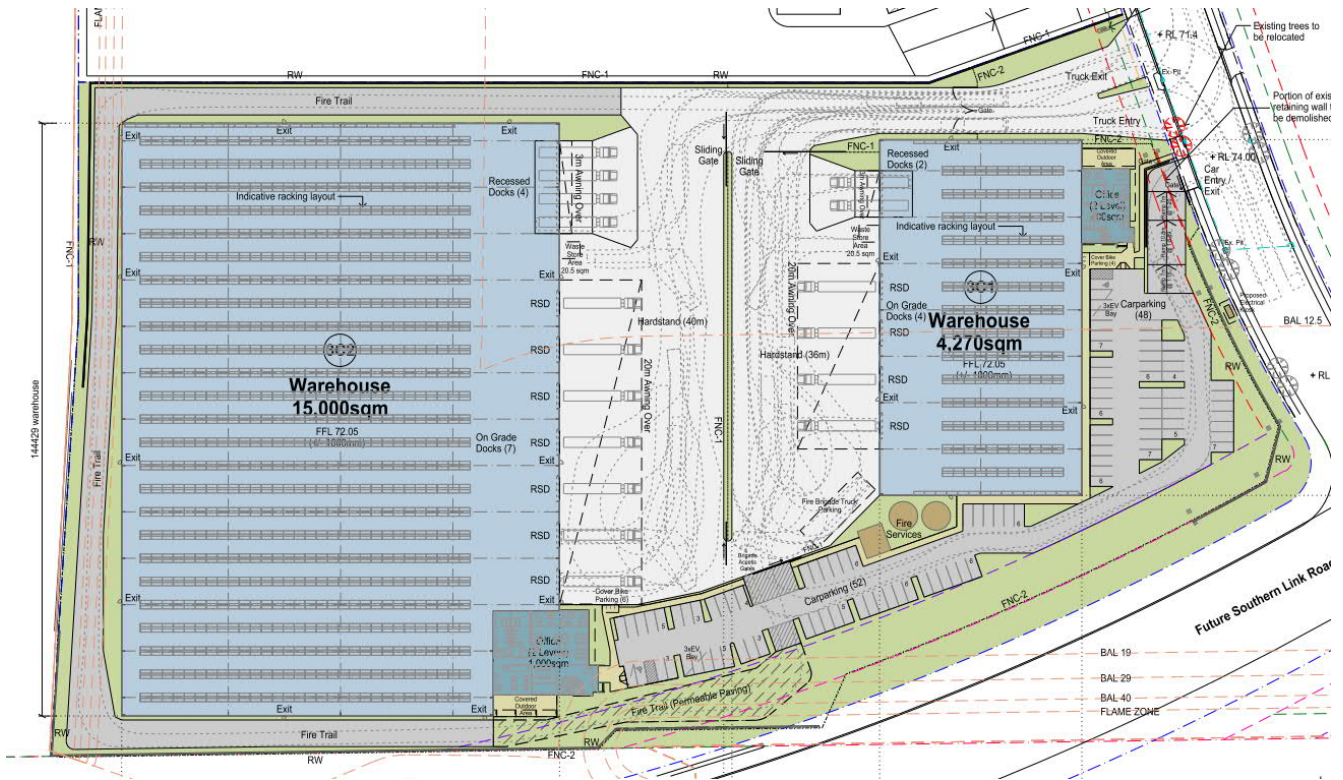


Figure 1 – Precinct 3C

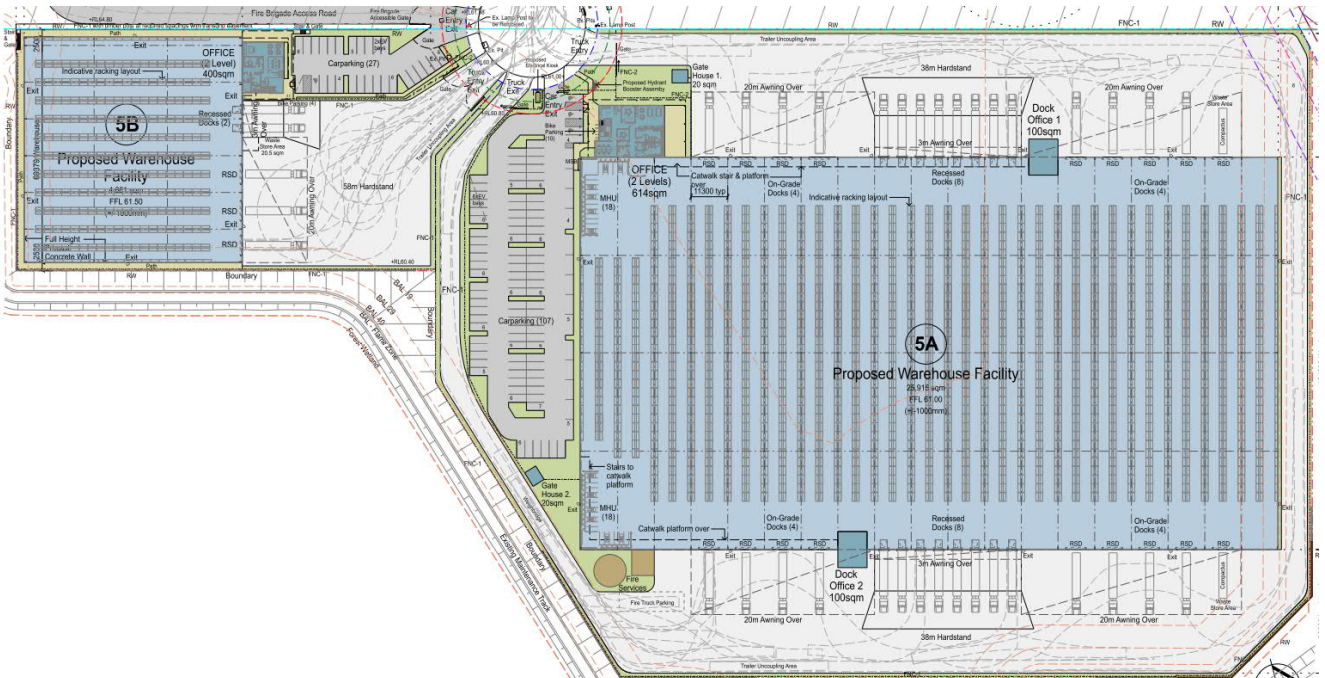


Figure 2 – Precinct 5

3 Better Practice for Waste Management and Recycling

3.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in Figure 3. The hierarchy summarises the objectives of the Waste Avoidance and Resource Recovery Act 2001.

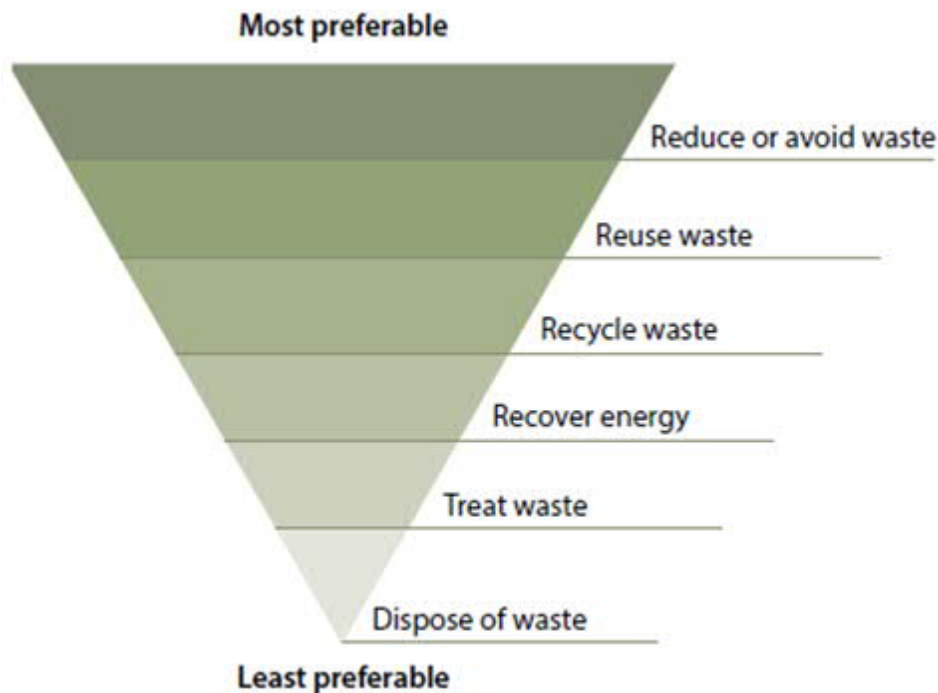


Figure 3 - Waste management hierarchy

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste avoidance, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste reuse, reuse without substantially changing the form of the waste.
- Waste recycling, treatment of waste that is no longer usable in its current form to produce new products.
- Energy recovery, processing of residual waste materials to recover energy.
- Waste treatment, reduce potential environmental, health and safety risks.
- Waste disposal, in a manner that causes the least harm to the natural environment.

3.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.

- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

4 Waste Legislation and Guidance

The waste legislation and guidance outlined in Table 1 below should be referred to during the operation of The Development.

Table 1 A list of legislation and guidance relevant to this report

Legislation and Guidance	Objectives
State and National legislation and guidelines	
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2019	The National Construction Code 2019 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.
NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027	Replacing the NSW Waste Avoidance and Resource Recovery Strategy (2014-21), the NSW Waste and Sustainable Materials Strategy 2041 focuses on the transition of NSW to a circular economy. The strategy focuses on minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible. The strategy identifies the need to identify infrastructure needs, the mandating of separation of some organic waste streams, and incentivising biogas generation from waste materials.
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	<p>The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of wastes that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as ongoing wastes such as food waste.</p> <ul style="list-style-type: none"> • Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. • Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	The NSW EPA Waste Classification Guidelines assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act 1997 and is associated regulations.
Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011	The POEO Act 1997 and POEO Amendment Act 2011 are administered by the NSW EPA to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of wastes generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.

Legislation and Guidance	Objectives
<p>The Work Health and Safety Regulation 2017</p>	<p>The Work Health and Safety Regulation 2017 provide detailed actions and guidance associated with the topics discussed in The Work Health and Safety Act 2011. The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.</p>
<p>Waste Avoidance and Resource Recovery Act 2001</p>	<p>The Waste Avoidance and Resource Recovery Act 2001 aims to promote waste avoidance and resource recovery and repeals the Waste Minimisation and Management Act 1995. Specific objectives of the Waste Avoidance and Resource Recovery Act 2001 include:</p> <ul style="list-style-type: none"> • encouraging efficient use of resources • minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste • ensuring industry and the community share responsibility in reducing/dealing with waste, and • efficiently funding of waste and resource management planning, programs and service delivery. <p>As of 2016, the addition to the Act of Part 5 defines the legislative framework for the 'Return and Earn Container Deposit Scheme' whereby selected beverage containers can be returned to State Government authorities for a monetary refund.</p>

5 Demolition and Construction Waste and Recycling Management

5.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2021) indicates that construction and demolition waste recovery rates in 2018-2019 were 77%.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet these targets. Waste reporting and audits can be used to determine the actual percentage of wastes that are being, or have been, recycled during the site preparation, demolition and construction stages of the Development.

The Penrith DCP proposes that reducing the volume of demolition and construction waste going to landfill by 76% would be a way in which applicants could demonstrate additional commitment to waste avoidance and management.

5.2 Waste Streams and Classifications

The demolition and construction activities are anticipated to generate the following broad waste streams:

- Demolition wastes as outlined in Section 5.3
- Construction waste as outlined in Section 5.4
- Packaging waste, and
- Work compound waste from on-site employees.

A summary of likely waste types generated from demolition and construction activities, along with their waste classifications and proposed management methods are provided in Table 2. For further information on how to determine a waste's classification refer to the NSW EPA (2014) Waste Classification Guidelines.³ Further information on managing site preparation, demolition and construction wastes is also available on the NSW EPA website⁴ and the Western Sydney Recycling Directory – Construction and Demolition Waste 2017.⁵

³ Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

⁴ Available online from <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>

⁵ <https://www.blacktown.nsw.gov.au/files/content/public/services/waste/demolition-and-construction-waste/western-sydney-recycling-directory-cd-updated-nov-2017.pdf>

Table 2 Potential waste types, classifications and management methods for demolition and construction

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Demolition and Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling; Chip for landscaping; Sell for firewood Treated: reused for formwork, bridging, blocking, propping or second-hand supplier Untreated: reused for floorboards, fencing, furniture, mulched second hand supplier, and remainder to landscape supplies.
Doors, windows, fittings	General solid waste (non-putrescible)	Off-site recycling at second hand supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production
Asbestos	Hazardous waste	Off-site disposal to a licensed landfill facility.
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle for more information ⁶
Paint	Hazardous waste	Off-site recycling, Paintback collection ⁷ or disposal
Synthetic rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling, reprocessed for other uses
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling
Carpet	General solid waste (non-putrescible)	Off-site recycling, disposal or reuse
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling

⁶ Available online from <http://www.fluorocycle.org.au/> or <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

⁷ Available online from <https://www.paintback.com.au/>

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact Business Recycling for more information ⁸
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Recyclable beverage containers, such as glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Recycling at off-site licensed facility or at NSW container deposit scheme 'Return and Earn' facility ⁹
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard, food and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

5.3 Site Clearing Waste Types and Quantities

The site is currently vacant, undeveloped and comprising mostly grass and trees. Some excavation is proposed at the site, but all soil will be reused on site for site levelling and landscaping. There are no structures on site so no demolition waste will be generated.

5.4 Construction Waste Types and Quantities

The Penrith DCP provides no assistance for construction waste quantities. SLR has adopted the 'Factory' waste construction generation rates from Appendix A of The Hills' DCP for estimating the type and quantities of waste generated from construction of the Development. SLR has also referenced Light Duty Asphalt Pavements - Design, Specification and Construction 2002 Australian Asphalt Pavement Association, specifically Table 10 Passenger Car Parking Areas, up to 50-500 Bays, for estimating the amounts of materials required for car park construction and assumed 10% waste.

The construction waste generation rates used are shown in Table 3 below.

Table 3 Construction waste generation rates

Rate Type	Per Area (m ²)	Waste types and quantities (m ³)								
		Timber	Concrete	Bricks	Gyrock	Sand or Soil	Metal	Other	Asphalt	Granular Base
Factory	1,000	0.25	2.1	1.65	0.45	4.8	0.6	0.5	0	0
Offices	1,000	5.1	18.8	8.5	8.6	8.8	2.75	5.0	0	0
Car Park 50-500 bays	100	0	0.225	0	0	0	0	0	0.3	1.25
Hardstand	1,000	0	2.1	0	0	4.8	0.6	0.5	0	0

Estimates of the quantities of construction waste generated from the Development are shown in Table 4 below.

⁸ Available online from <https://businessrecycling.com.au/>

⁹ Available online from <http://returnandearn.org.au/>

Table 4 Estimated types and quantities of construction waste

Development Component	Area (m ²)	Waste types and quantities (m ³)								
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other	Asphalt	Granular Base
Warehouse 3	19,270	48	405	318	87	925	116	96	-	-
Offices 3	1,400	71	263	119	120	123	39	70	-	-
Warehouse 5	30,576	76	642	505	138	1,468	183	153	-	-
Offices 5	1,214	62	228	103	104	107	33	61	-	-
Car park 3	5,450	-	12	-	-	-	-	-	16	68
Car park 5	5,270	-	12	-	-	-	-	-	16	66
Hardstand 3	9,710	-	204	-	-	466	58	49	-	-
Hardstand 5	20,510	-	431	-	-	984	123	103	-	-
Total	93,400	258	2,197	1,045	449	4,073	552	531	32	134

The areas shown in Table 4 are based on the floor areas shown on the drawings in 22102_Lot_3C_Drawings_220407.pdf and 22102_OWE_Lot_5_DA10_N_Site Plan.pdf.

5.5 Waste Avoidance Strategies

The Building Contractor, Building Designer and/or those in equivalent roles, should follow better practice waste management and the principles of Ecologically Sustainable Development.

Recommendations for the Building Designer include:

- Using prefabricated components
- Using low formaldehyde wood products, post-consumer reused timber and/or Forest Stewardship Council certified timber
- Using fittings and furnishings that have been recycled, are made from or incorporate recycled materials and have been certified as sustainable or environmentally friendly by a recognised third-party certification scheme
- Preferentially using building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Reducing the use of polyvinyl chloride products
- Preferentially using paints, floor coverings and adhesives with low VOC (volatile organic compound) content
- Avoiding unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau
- Selecting materials based on low embodied energy properties that suit the Development, such as recycled materials including recycled steel and glass-wool insulation, or concrete with slag and fly ash content
- Centralising wet areas together to minimise piping, and
- Designing for deconstruction rather than demolition.

Recommendations for the Building Contractor include:

- Applying practical building designs and construction techniques

- Minimising excavation works
- Investigating leased equipment and machinery rather than purchase and disposal
- Sorting and segregating site preparation and construction wastes to ensure efficient recycling of wastes
- Preferentially selecting building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Store wastes on-site appropriately to prevent cross-contamination and/or mixing of different waste types
- Reducing packaging waste by:
 - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
 - Purchasing in bulk
 - Requesting cardboard or metal drums rather than plastics
 - Requesting metal straps rather than shrink wrap, and
 - Using returnable packaging such as pallets and reels.
- Arranging deliveries 'as needed' to mitigate degradation, weathering or moisture damage, and
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

5.6 Re-use, Recycling and Disposal

Effective management of materials and construction and demolition waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only waste that cannot be cost effectively reused or recycled will be sent to landfill or appropriate disposal facilities.

In accordance with good practice waste management, the following specific procedures will be implemented:

- On-site source separation to ensure efficient recycling
- Concrete, tiles and bricks reused or recycled off-site
- Steel recycled off-site, and all other metals recycled where economically viable
- Framing timber recycled off-site
- Windows, doors and joinery off-site, where possible
- All glass that can be economically recycled will be recycled
- All solid waste timber, brick, concrete, rock that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner
- Re-use of materials on-site where possible
- Separate waste bins for recyclable and non-recyclable general wastes
- Assess excavation spoil for contamination status and beneficial re-use
- Retain used crates for storage purposes unless damaged

- Recycle cardboard, glass and metal wastes
- Provide sufficient space for storage of garden waste and other waste materials on-site
- Dispose of all asbestos, hazardous and/or intractable wastes in accordance with SafeWork NSW and NSW EPA requirements
- All used crates will be stored for reuse unless damaged
- Deliver batteries to drop off-site recycling facility, and
- Where source separation is utilised, materials are to be kept uncontaminated to guarantee the highest possible re-use value.

5.7 Waste Separation

Waste materials produced from site preparation and construction activities will be separated at the source and stored separately on-site.

It is anticipated that there will be enough space on-site for separate storage in, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full separation of waste types, the site manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled before removal from the site.

5.8 Waste Storage Areas

Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the Development. Where space is restricted, dedicated stockpile areas will be delineated on the site, with regular transfers to dedicated skip bins for sorting.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas will be kept clean and in a good state of repair.

Applicable weather protection measures should be considered for storage spaces.

In accordance with good practice waste management, areas designated for waste storage will:

- Allow unimpeded access by site personnel and waste disposal contractors
- Take into account environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation
- Allow sufficient space for the storage of garden waste and other waste materials on-site
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety and accessibility in their selection, and
- Not present hazards to human health or the environment.

5.9 Waste Servicing and Record Keeping

The Site Manager or equivalent role will:

- Arrange for suitable waste collection contractors to remove any construction waste from site
- Ensure waste bins are not filled beyond recommended filling levels
- Ensure that all bins and loads of waste materials leaving site are covered
- Maintain waste disposal documentation detailing, at a minimum:
 - Descriptions and estimated amounts of all waste materials removed from site
 - Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables
 - Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
 - Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA, and
- Remove waste during approved hours.

If skips and bins are reaching capacity, removal and replacement will be organised as soon as possible. All site-generated building waste collected in the skips and bins will leave the site and taken to a site lawfully able to accept them.

5.10 Signage

Standard signage will be posted in all waste storage and collection areas. All waste containers will be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online¹⁰ and should be used where applicable. A selection of the EPA's signs is shown in Figure 4.



Figure 4 - Examples of NSW EPA labels for waste and skip bins

5.11 Site Inductions

All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Development will undergo induction training regarding waste management.

Induction training will cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets
- Emergency response procedures on-site
- Waste priorities and opportunities for reduction, reuse and recycling
- Waste storage locations and separation of waste
- Procedures for suspected contaminated and hazardous wastes
- Waste related signage
- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

¹⁰ NSW EPA approved waste materials signage <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs>

5.12 Monitoring and Reporting

During the demolition and construction phases, the following monitoring practices will be undertaken to improve demolition and construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

Records will be maintained for all waste quantities that are recycled, reused or removed by a contractor. All demolition and construction waste dockets will be kept which show which facility received the material for recycling or disposal.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and logs recorded for reporting to the site manager or equivalent role on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits should be carried out by the building contractor or equivalent role to gauge the effectiveness and efficiency of waste segregation procedures and recycling and reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage will be re-examined.

5.13 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the site manager, or equivalent role, to implement the WMP, and the responsibility of employees and subcontractors to ensure that they comply with the WMP at all times.

Suggested roles and responsibilities for waste management at the site are provided in Table 5. Where possible, a construction environmental manager, or equivalent role, should be appointed for the site preparation and construction work. An equivalent construction environmental manager role is defined to be a person dedicated to overseeing the environmental compliance and performance of a development. Where a construction environmental manager is not appointed, responsibilities in Table 5 for the construction environmental manager will become those of the site manager.

Table 5 Suggested roles and responsibilities for site preparation and construction waste management

Role	Responsibilities
Site Manager	<ul style="list-style-type: none"> • Ensuring plant and equipment are well maintained • Ordering only the required amount of materials • Keeping materials segregated to maximise reuse and recycling • Ensuring that waste sorting and storage areas are maintained in a tidy and functional state and do not present hazards to human health or the environment • Ensure hazardous or contaminated materials are appropriately managed and disposed • Ensure site records and documentation is kept and is complete • Ensure this WMP are implemented, and • Liaise with Council and regulatory authorities as required.
Construction Environmental Manager or equivalent	<ul style="list-style-type: none"> • Ensuring staff and contractors are aware of site requirements for waste management • Establishing separate skips and stockpiles and recycling bins for effective waste segregation and recycling purposes • Developing or identifying, and using, local commercial opportunities for re-use of materials where re-use on-site is impractical • Facilitate correct waste collection • Engage suitable waste collection and disposal contractors • Approval of off-site waste disposal locations and checking licensing requirements • Arranging for the assessment of potentially hazardous or contaminated materials • Arranging for appropriate contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements • Monitor and maintain site environmental controls and • Monitoring, inspection and reporting requirements.

6 Ongoing Waste and Recycling Management

6.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2021) indicates that the commercial and industrial waste recovery rate in 2019 was 53%.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to achieve this recovery rate. Waste reporting and audits can be used to determine the actual percentage of wastes that are being or have been recycled during operation.

6.2 Waste Streams and Classifications

The operation of the Development is likely to generate the following broad waste streams:

- Bulk packaging waste, including plastic wrapping and cardboard
- Food and food and drink packaging from staff eating areas

- Garden organic waste from landscaped areas
- Bulky waste items such as furniture and e-waste, and
- Stores, plant and general maintenance waste.

Potential waste types, their associated waste classifications, and management methods are provided in Table 6. For further information on how to determine a waste's classification, refer to the NSW EPA (2014) Waste Classification Guidelines.¹¹ Recycling drop-off locations and contacts can be found on <https://businessrecycling.com.au/> for each waste type.

Table 6 Potential waste types, classifications and management methods for operational waste

Waste Types	NSW EPA Classification	Proposed Management Method
Clean office paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard including bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans	General solid (non-putrescible) waste	NSW container deposit scheme 'Return and Earn'; container recycling at off-site licensed facility
Food waste	General solid (putrescible) waste	Off-site or dispose to landfill with general garbage
Batteries	Hazardous waste	Off-site recycling; alternatively contact the Australian Battery Recycling Initiative for more information
Bulky polystyrene	General solid (non-putrescible) waste	Off-site recycling or disposal at landfill
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste	Hazardous waste	Off-site recycling
Printer toners and ink cartridges	Hazardous waste	Off-site recycling, free disposal box or bags and pickup service exists for printer toners and ink cartridges
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling.
Sanitary waste, nappies	General solid (putrescible) waste	Contractor disposal at licensed facility
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill

¹¹ Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

Waste Types	NSW EPA Classification	Proposed Management Method
Spent smoke detectors ¹²	General solid (non-putrescible) waste, or Hazardous waste (some commercial varieties)	Disposal to landfill, or off-site disposal at licensed facility
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle for more information
Air-conditioning parts and filters	General solid (non-putrescible) waste	Off-site recycling or disposal to landfill
Cleaning chemicals, solvents, area wash downs, empty oil or paint drums, chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. Discharge to sewer likely to be subject to Trade Waste Agreement with Sydney Water.
Garden organics - lawn mowing, tree branches, hedge cuttings, leaves	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licenced facility

6.3 Estimated Quantities of Operational Waste

SLR has used the 'Offices' and 'Warehouse' waste generation rates from Penrith Council's Industrial, Commercial and Mixed-Use Waste Management Guidelines for estimating the type and quantities of waste generated from the operational activities of the Development. The operational waste generation rates used are shown below in Table 7.

Table 7 Waste generation rates applied

Type of Premises	General Waste Generation (L/100 m ² /day)	Recycling Generation (L/100 m ² /day)
Warehouse	10	10
Offices	10	10

Using the waste generation rates in Table 7 above, the approximate weekly waste quantities for the Development have been calculated. The operational waste quantities were additionally calculated based on the below assumptions:

- The floor areas shown on the drawings 22102_OWE_Lot_5_DA10_N_Site Plan.pdf and
- A week comprising seven days of operation.

The estimated quantities of operational waste generated by the Development are shown in Table 8.

¹² The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's Code of practice for the near-surface disposal of radioactive waste in Australia (1992) must be met.

Table 8 Estimated quantities of operational general waste and recycling

Precinct	Warehouse	Development area	Area (m ²)	(L/day)		(L/week)	
				General Waste	Recycling	General Waste	Recycling
3C	3C1	Warehouse	4,270	427	427	2,989	2,989
		Dock office	N/a	0	0	0	0
		Office	400	40	40	280	280
		Total	4,670	467	467	3,269	3,269
	3C2	Warehouse	15,000	1,500	1,500	10,500	10,500
		Dock office	N/a	0	0	0	0
		Office	1,000	100	100	700	700
		Total	16,000	1,600	1,600	11,200	11,200
5	5A	Warehouse	25,915	2,592	2,592	18,141	18,141
		Office	614	61	61	430	430
		Dock Offices	200	20	20	140	140
		Total	26,729	2,673	2,673	18,710	18,710
	5B	Warehouse	4,661	466	466	3,263	3,263
		Dock office	N/a	0	0	0	0
		Office	400	40	40	280	280
		Total	5,061	506	506	3,543	3,543

6.3.1 Other Types of Operational Waste

Materials such as pallets, plastic and cardboard packaging waste are likely to be produced and disposed of through the recycling stream. Standard pallets would be returned to their owners and non-standard and broken pallets should be stockpiled and collected as required by a waste contractor.

If additional collection services are required, such as secured document destruction, these can be organised with a waste contractor who can provide additional bins and take collected waste to a licenced facility for disposal or recycling.

The Development is anticipated to produce minimal quantities of garden organics. This waste will be taken by a landscaping contractor which will dispose of it at a licenced facility.

6.4 Bin numbers and areas

6.4.1 Garbage and Recycling Bins

The waste storage area for the Development must be large enough to adequately store all quantities of operational waste and recycling between collections. The tenant has specified two compactors be installed at Warehouse 5A. These are assumed to be for garbage and cardboard. Front lift bins of 3 m³ capacity have been assumed for Warehouse 5B.

All waste storage area calculations have considered the bin dimensions listed in the Penrith DCP, as outlined in Table 9.

Table 9 Dimensions and approximate footprint of bins

Bin Capacity	Source	Height (mm)	Depth (mm)	Width (mm)	Footprint (m ²)
3 m ³	Penrith DCP	1,540	1,520	2,060	3.13
25 m ³	Approximate Estimate	2,750	8,750	4,000	35.0

To allow for ready movement of bins into and out of the bin storage area, the bin storage area is to provide a floor area of at least 200% of the total minimum bin GFA. This can also act as a contingency in the event of spikes in waste generation. Additionally, in accordance with the Penrith DCP, an additional 0.2 m is to be permitted between the bins to allow for manoeuvrability. This has been considered in the calculation of the waste storage area for each of the buildings in the Development. No additional manoeuvring space has been allowed for compactors.

The recommended bin storage areas do not include storage of bulky waste. For the additional storage space for bulky waste, refer to Section 6.4.2.

The estimated number of bins required for weekly storage of operational waste and recycling generated by the Development are in Table 10 and are based on:

- The estimated quantities of operational waste and recycling as shown in Table 8
- Bin dimensions from the Penrith DCP as shown in Table 9.

Table 10 Recommended number of bins and storage area

Precinct	Warehouse	Infrastructure Type	Bin Capacity	Collection Frequency per Week		Number of Bins Required		Total Number	Recommended Storage Area (m ²)
				Garbage	Recycling	Garbage	Recycling		
3C	3C1	Front lift bin	3 m ³	2	2	1	1	2	12.5
	3C2	Front lift bin	3 m ³	4	4	1	1	2	12.5
5	5A	Compactor	25 m ³	1	1	1	1	2	70.0
	5B	Front lift bin	3 m ³	2	2	1	1	2	12.5

6.4.2 Bulky Waste

As outlined in the Penrith DCP, additional storage space for the bulky waste stream must be provided. This stream includes broken pallets, broken furniture, e-waste and other materials that cannot be disposed of in the general or recyclable waste stream.

Council's guidelines do not provide storage area dimensions for bulky waste. In the absence of dimensions provided by Council, 8 m² will be allocated for bulky waste storage for each warehouse.

Therefore, in addition to the recommended waste storage area noted in Table 10, the total waste storage areas proposed for the Development are shown in Table 12.

Table 11 Total recommended storage area for operations of the Development

Lot	Warehouse	Recommended Storage Area (m ²)		
		Waste and Recycling Bins	Bulky waste	Total Storage Area
3C	3C1	12.5	8	20.5
	3C2	12.5	8	20.5
5	5A	70.0 ¹³	8	78.0
	5B	12.5	8	20.5

This additional space can also act as a contingency in the event of spikes in waste generation and allow for additional bins. Depending on the Development's operations, this may include additional bins for the separate storage of items such as hard and soft plastics, timber, glass and metals and aluminium. Hook bins may be brought to site as required to remove bulky waste items.

7 Waste Storage

7.1 Space allowed for waste storage

The drawings show waste storage areas for all the four proposed warehouses. Table 11 below shows the calculated estimates of waste storage areas, the areas shown on the drawings and the differences.

Table 12 Total recommended storage areas

Lot	Warehouse	Total Storage Area Proposed (m ²)	Approximate Storage Area Shown on Drawings (m ²)
3C	3C1	20.5	20.5
	3C2	20.5	20.5
5	5A	78.0	Two areas of 39.0 each
	5B	20.5	20.5

The table shows that enough space has been allowed for waste storage at each warehouse.

7.2 Location

The waste storage areas are located so that they:

- Are away from primary street frontages
- Are convenient, safe, functional and directly accessible to users and collection vehicles but inaccessible to the public
- Avoid pedestrian or vehicular traffic.

The proposed waste storage locations for Precinct 3C are shown in Figure 5 below.

¹³ Two compactors

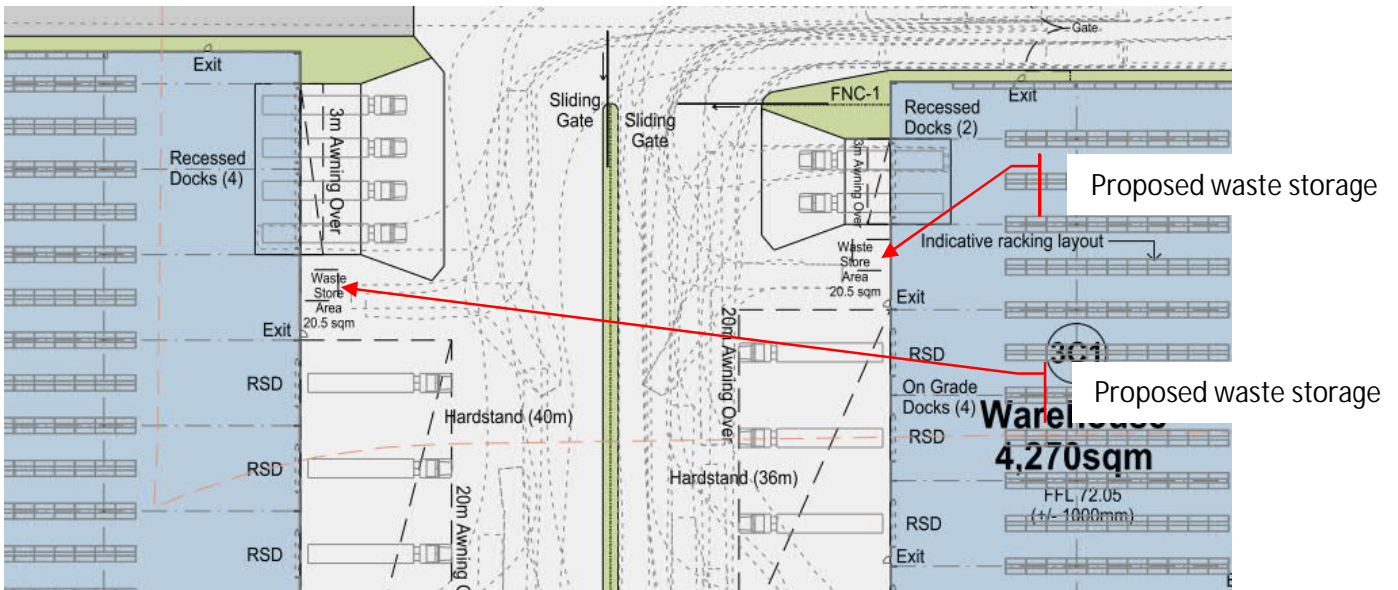


Figure 5 – Precinct 3C showing waste storage

The proposed waste storage locations for Lot 5a are shown in Figure 7 below and Lot 5b in Figure 7.

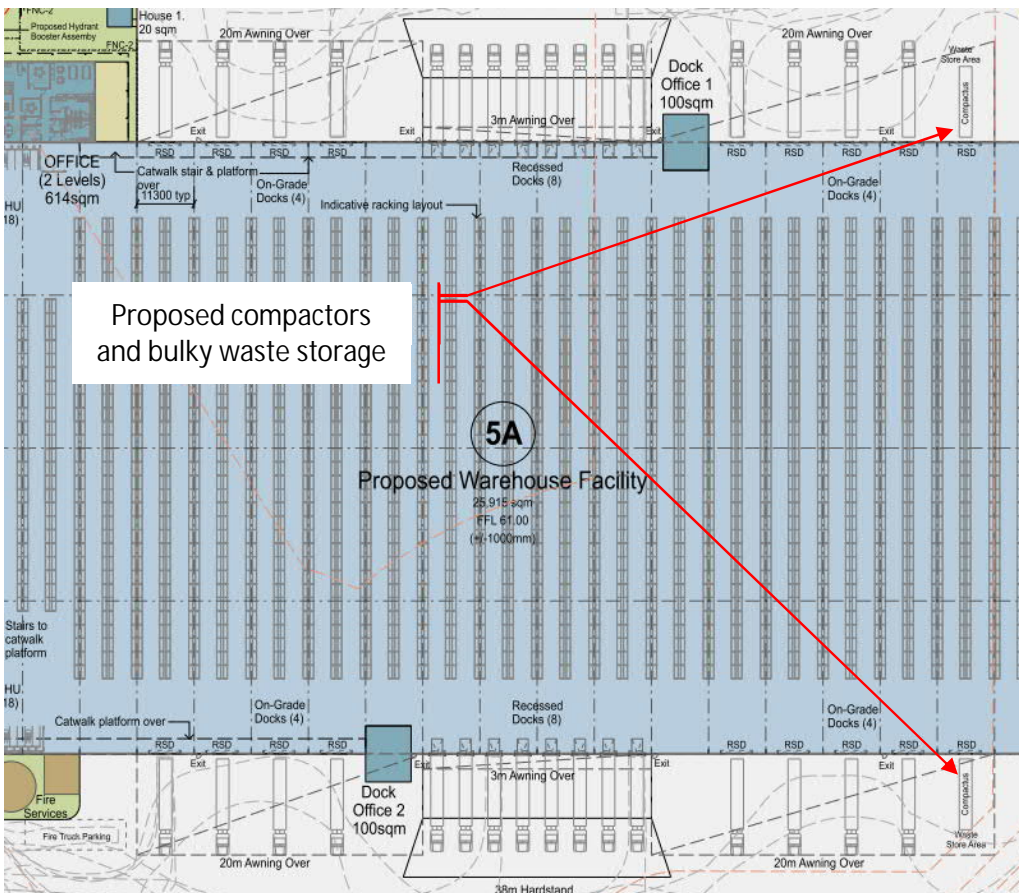


Figure 6 – Lot 5a showing waste storage

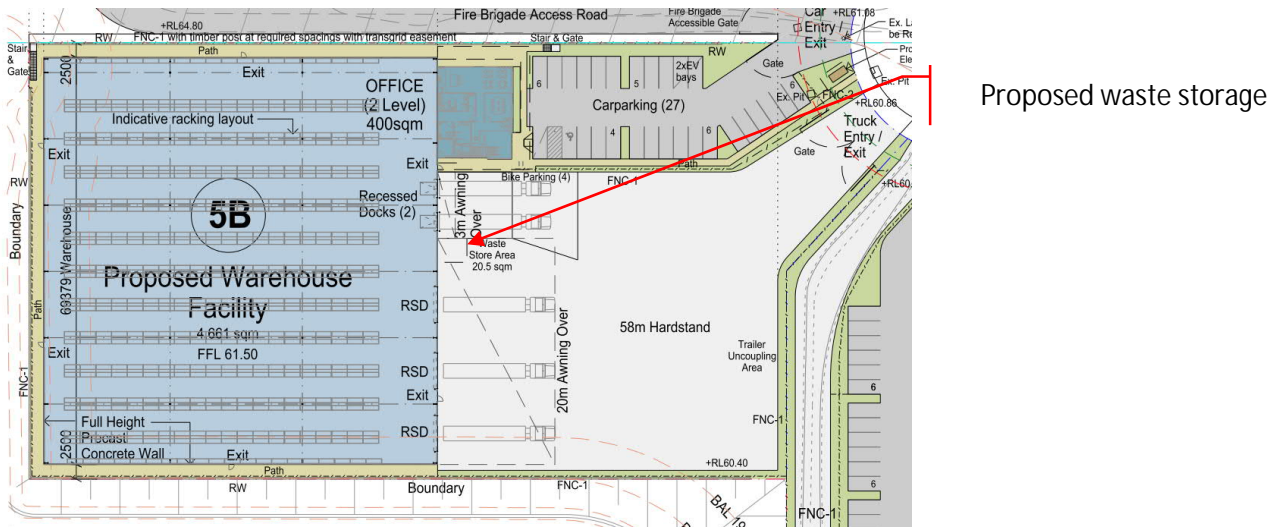


Figure 7 – Lot 5b showing waste storage

7.3 Waste Storage Area Features

In accordance with good practice waste management, the Development’s waste storage areas will have the following features:

- Blend in with the design of the wider development and the surrounding streetscape
- Be well lit and well-ventilated
- Have adequate vermin prevention measures
- Reduce potential noise and odour impacts
- Be connected to a water outlet for washing purposes
- Have water discharge from washing flow to a sewer approved by the relevant authority
- Protected from theft and vandalism
- Be enclosed or screened, preferably with landscape buffer planting, from public areas to reduce the impacts of noise, odour and visual amenity, and
- Flexible in design to allow for future changes in operation, tenancies and uses.

7.4 Waste Servicing

The following access provisions will apply:

- Collection vehicles will be able to enter and exit the collection area in a forward direction
- Unobstructed access, adequate driveways and ramps of sufficient strength to support waste collection.

The proposed frequency of waste bin collection is shown in Table 10. There is some flexibility in the waste collection frequency that will allow adjustment of the number of bins and waste storage areas if necessary.

Waste collection vehicles will enter the site, drive through the hardstand area and onto the bins in their positions. For front lift bins, the operator will empty the bins, reverse back and then leaving the site in a forward direction. For the compactors, the operator will reverse onto the bins, pull them onto the truck and drive off in a forward direction.

7.5 Waste Avoidance, Reuse and Recycling

7.5.1 Waste avoidance

Waste avoidance measures include:

- Returning packaging materials like cardboard to the suppliers through the services of the supplier delivery trucks, allowing the reduction of waste further along the supply chain
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items
- Bulk purchasing and the purchasing of items that use minimal packaging
- Presenting all waste reduction initiatives to staff and tenants as part of their induction program, and
- Leasing equipment and machinery rather than outright purchase and disposal.

7.5.2 Re-use

Possible re-use opportunities include establishing systems with in-house and supply chain stakeholders to transport products in re-useable packaging where possible.

7.5.3 Recycling

Recycling opportunities include:

- Collecting and recycling e-wastes
- Printer toners and ink cartridges, if purchased, are collected in allocated bins for appropriate contractor recycling
- Providing separate receptacles for general waste, recycling and paper and cardboard throughout office and amenity areas to encourage source-separation of waste streams
- Development of a 'buy recycled' purchasing policy.

7.6 Communication Strategies

Education and communication on waste management initiatives and measures will be regularly and clearly conveyed to staff, cleaners and visitors. Benefits of providing this communication include:

- Improved satisfaction with services
- Increased ability and willingness to participate in recycling
- Improved amenity and safety
- Improved knowledge and awareness through standardisation of services
- Increased awareness or achievement of environmental goals and targets

- Reduced contamination of recyclables stream which can incur a collection contractor penalty fee
- Increased recovery of recyclables and organics material, if implemented, and
- Greater contribution to state-wide targets for waste reduction and resource recovery.

To realise these benefits, the following communications strategies are recommended:

- Use consistent signage and colour coding for bins and waste systems throughout the Development
- Ensure all staff are informed of correct waste separation and management procedures
- Provide directional signage to show locations and routes to bins and waste storage areas
- Repair signs and labels promptly to avoid a breakdown in communication
- Clearly label bins to ensure no cross contamination and to identify the types of waste that may be disposed of in each bin, and
- Educate all staff and contractors associated with the Development, ensuring they adhere to this WMP.

7.7 Signage

Signs which clearly identify waste management procedures and provisions to contractors, staff and customers will be distributed around the Development.

The design and use of safety signs for waste rooms and enclosures will comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describe the types of materials designated for each bin.

Colour-coded and labelled bin lids are necessary for identifying bins and the Australian Standard AS 4123.7-2006 (R2017) Mobile waste containers Part 7: Colours, markings, and designation requirements provides recommendations for the designated colours for waste bins depending on the type of waste the bins are to receive. The colours that will apply to ongoing waste generated by the Development are:

- Blue: Paper and cardboard
- Yellow: Recyclables (other than paper and cardboard)
- Red: General waste.

All bin signage should also follow the NSW EPA's standard signage.¹⁴

Other key signage considerations include:

- Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin, as shown in Figure 8
- Signposts and directions to location of waste storage areas
- Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling
- Maintaining a consistent style colour scheme that complies with AS 4123, and a system for signs throughout the Development, and

¹⁴ NSW EPA waste signs/posters <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>

- Emergency contact information for reporting issues associated with waste or recycling management.



Figure 8 - Example NSW EPA labels for ongoing waste

7.8 Monitoring and Reporting

Monitoring is recommended to ensure waste and recycling management arrangements and provisions for the Development are functional, practical and are maintained to the standard outlined in this plan, at a minimum.

During operation, visual assessments of bins and bin storage areas will be conducted by tenants, at minimum:

- Weekly, in the first two months of operation to ensure the waste management system is sufficient for the operation, and
- Every six months, to ensure waste is being managed to the standards outlined in this document.

In addition, audits should be conducted every six months to ensure WMP provisions are maintained.

Quantities of waste and recycling associated with disposal of waste and recycling, including dockets, receipts and other physical records will be recorded by tenants. This is to allow reviews of the waste management arrangements and provisions at the site over time. Records of waste disposal should also be available to regulatory authorities such as Council, the NSW EPA and SafeWork NSW, if required.

Any deficiencies identified in the waste management system, including, but not limited to, unexpected waste quantities, is to be rectified by the tenants as soon as it is practical. Where audits show that recycling is not carried out effectively, tenants should carry out additional staff training, signage re-examination and reviews of the waste management system where the audit or other reviewing body has deemed necessary. If this waste management plan no longer sufficiently meets the needs of the Development, review and updates to maintain suitability must be undertaken.

7.9 Roles and Responsibilities

It is the responsibility of the tenants to implement this WMP and a responsibility of all staff, visitors and contractors to follow the waste management procedures set out by the WMP. SLR recommends that all staff have the roles and responsibilities of all waste management personnel identified and the Development's waste management system clearly explained. A summary of recommended roles and responsibilities are provided in Table 13.

Table 13 Suggested operational waste-related roles and responsibilities

Responsible Person	General Tasks
Managers or equivalent roles	Ensure the WMP is implemented throughout the life of the operation.
	Update the WMP as needed to ensure the plan remains applicable to the site.
	Undertake liaison and management of contracted waste and recycling collections with contractors and any relevant authorities.
	Regularly conduct waste audits to review system performance and identify any additional materials that could be recovered.
	Manage any complaints and non-compliances reported through waste audits and other sources.
	Ensure all monitoring and audit results are well documented and conducted as specified in this WMP.
	Conduct regular waste sorting, physical condition and cleanliness inspections of bins, waste storage rooms and all other waste management equipment for functionality, hygiene and safety.
	Organise cleaning and maintenance requirements for waste management equipment as required.
	Ensure waste and recycling storage areas are kept tidy.
	Monitor bins to ensure no overfilling occurs and manage unexpected waste quantities to mitigate waste overflow in storage areas
	Ensure effective signage, communication and education is provided to alert visitors, employees, site management staff and cleaners about the provisions of this WMP and waste management equipment use requirements.
	Monitor and maintain signage to ensure it remains clean, clear and applicable.
	Manage ongoing education on correct source separation and waste management at least every three months.
	Ensure that regular cleaning and daily transfer of bins is correctly being undertaken by staff or cleaners.
	Ensure all bins are in good condition and operational.
Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.	
Staff or cleaners	Transfer general waste, recyclables, cardboard waste and hazardous waste from public spaces to the waste and recycling storage areas each day or as required.
	Cleaning of all bins and waste and recycling rooms as per the direction of managers, or equivalent roles.
	Monitor bins to ensure no overfilling occurs.
	Ensure bins and waste storage areas are kept tidy and clean.
	Compliance with the provisions of this WMP.

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APPENDIX N

Flora and Fauna Management Plan



Oakdale West Estate Buildings 5A & 5B

Flora and Fauna Management Plan

Prepared for

Goodman Property Services (Aust.) Pty Ltd

Oakdale West Estate Buildings 5A & 5B - Flora and Fauna Management Plan

prepared for

Goodman Property Services (Aust.) Pty Ltd.

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Document control

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Revision	Date	Description	Issued to
00	13/12/2022	Flora and Fauna Management Plan	Goodman
01	23/01/2023	FINAL Flora and Fauna Management Plan	Goodman

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1 Introduction

1.1 Background

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 7348 on 13 September 2019 from the Department of Planning and Environment (DPE) for the Oakdale West 'Concept Proposal' and 'Stage 1 Development'.

The Concept Proposal essentially comprises a 'Master Plan' to guide the staged development of Oakdale West Estate (the Estate) and core development controls that form the basis for design and assessment of future development applications for the site.

Stage 1 Development of the Estate included:

- Estate Works: site preparation, bulk earthworks and retaining walls, catchment level stormwater infrastructure, trunk services connections and utility infrastructure, roads and access infrastructure associated with Stage 1 and subdivision in Stage 1 development works;
- Precinct Development: construction, fit out and use of warehouse buildings within Precinct 1, detailed earthworks, on lot stormwater, services and utility infrastructure;
- Construction of a new regional road known as Compass Drive (formerly the Western North South Link Road connecting to Lenore Drive to provide the primary access to the site; and
- Western boundary landscaping.

The development consent has subsequently been modified ten (10) times, with the most recent approval received on the 17 August 2022. A summary of consent conditions are provided in Appendix A.

An eleventh modification (Mod 11) is currently under assessment, which proposes changes to the concept approval to reflect development applications (DAs) lodged with Penrith City Council (Council).

Relevant to Lot 5 are updated building footprints, the removal of night time operation restrictions of rooftop plant and forklift operation and the removal of the reference to surplus lots that no longer exist under the proposed masterplan.

1.2 Objectives

An Estate wide Flora and Fauna Management Plan (FFMP) was prepared and approved by the NSW Minister of Environment's Secretary for the 'Concept Proposal' and Stage 1 works. The Estate wide FFMP has been updated as further stages and modifications to the SSD 7348 have been approved.

The most recent updated FFMP (v.7, écologique, 11/03/2020) addressed the following Estate wide requirements:

- Vegetation and habitat clearing;
- Protection of retained native vegetation;
- Creation of fauna and snake habitat areas;
- Installation of snake deterrent fencing; and
- Dam decommissioning.

This FFMP has been prepared:

- As a sub-plan to the Construction Environmental Management Plan (CEMP) that is specific to the construction of Buildings 5A and 5B (see Figure 1-1); and
- In accordance with the overarching SSD 7348 - Administrative Conditions that require: an obligation to minimise harm to the environment; and compliance with biodiversity management and mitigation measures.

Oakdale West Estate Buildings 5A-5B

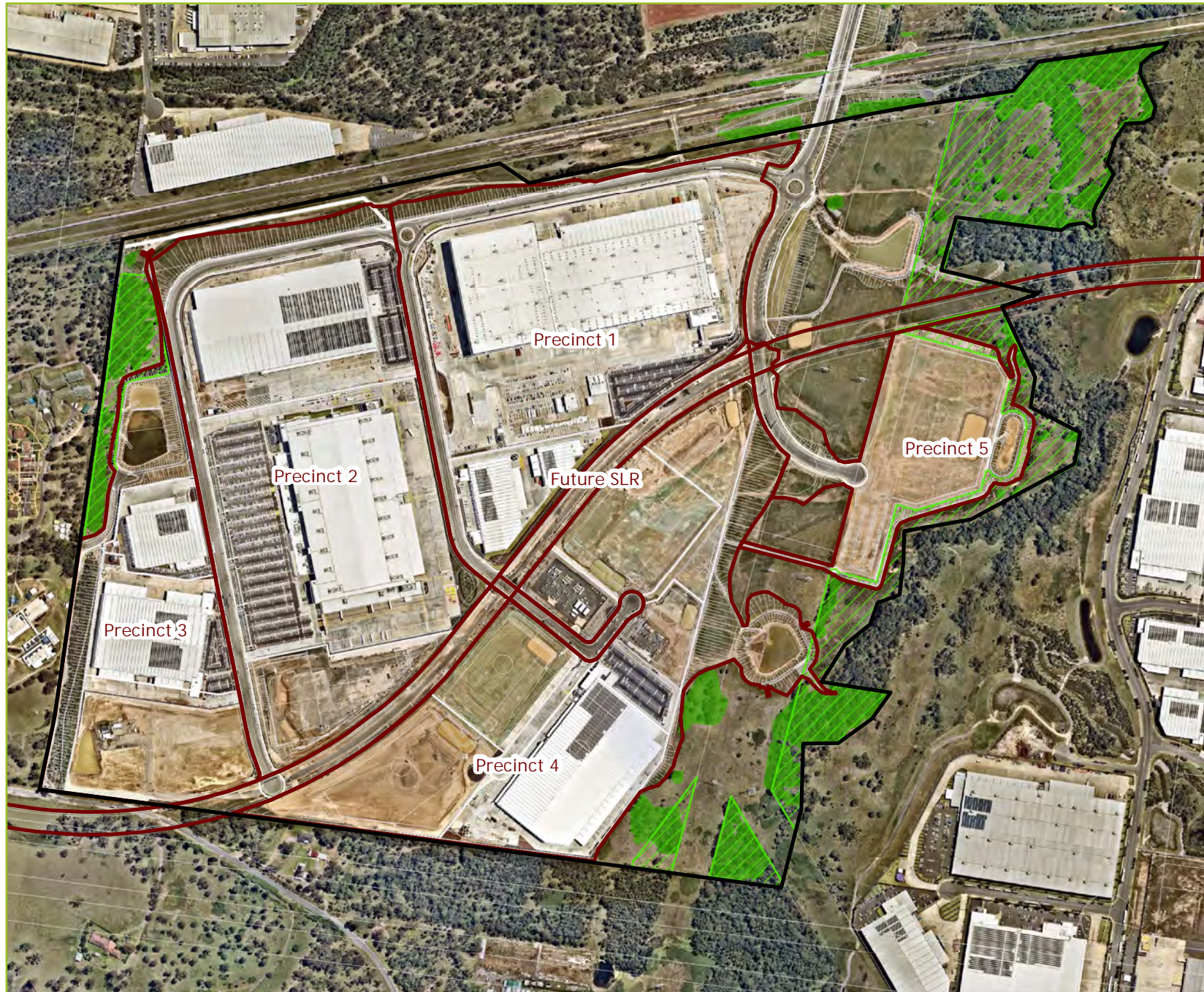
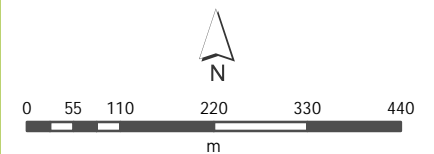


Fig. 1-1. Site Context

- Legend
- Oakdale West boundary
 - Precincts
 - BMA areas
 - Native vegetation retained



Coordinate System: MGA Zone 56 (GDA 2020) | Image sources: Nearmap 29 October 2022

2 Existing Environment

2.1 Subject area

Lot 5 is located at the eastern most extent of the Estate and is bound by a Transgrid easement and Road No.8 (Tundra Close) to the west and undeveloped lands to the east, north and south.

Substantial cut and fill earthworks have been undertaken across the Estate with retained native vegetation located outside of the developable precinct areas.

The subject site is already benched and ready for aboveground construction. No native vegetation or fauna habitat features have been retained within the subject site.

Multiple proposed stormwater discharge points will all drain to Basin No.5, which is located directly east and adjacent to Lot 5. Basin 5 will become a bioretention basin for the operational phase of the development.

2.2 Native vegetation

The majority of retained native vegetation in the Estate is protected in Biodiversity Management Areas (BMAs) with additional patches of native vegetation located in easements that will not be developed (see Figure 1-1).

As shown in Figure 2-1, Lot 5 is located adjacent to the Estate's eastern BMA, which extends from south to north along the Ropes Creek riparian corridor. The BMA is separated from the Lot by Basin No.5 and sealed maintenance access roads.

The lot and basin embankments will be established with native grass species to the toe of the embankment batters, after which the retained natural landform is currently being restored under the Oakdale West Vegetation Management Plan (VMP). It is intended that the embankments are included in the eastern BMA boundary as shown in Figure 2-1.

The BMA and VMP areas are delineated by flagging tape and erosion control silt fencing is also in place to protect the VMP area until the embankments are stabilised.

All native plant community types (PCTs) that occur within the wider Estate are listed as Threatened Ecological Communities (TECs) under both the NSW *Biodiversity Conservation Act 2016* (BC Act) and Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

These include:

- PCT 835 Cumberland River-flat Forest
- PCT 849 Cumberland Shale Plains Woodland
- PCT 850 Cumberland Shale Hills Woodland
- PCT 1800 Cumberland Swamp Oak Floodplain Forest

All approved clearing of native vegetation under SSD 7348 has been completed. No further clearing of any native vegetation is permitted without first seeking additional approval.

2.3 Wildlife

The former agricultural land use of the Estate and surrounding environs has enabled a range of native fauna to coexist with previous land use practices. The most commonly observed terrestrial fauna species within the Estate are *Macropus giganteus* (the eastern grey kangaroo), a range of reptile species (mainly snakes with lizards less conspicuous) and a range of bird species (including large raptor species).

Aquatic fauna common to the Estate prior to the removal of four farm dams included *Chelodina longicollis* (the eastern long-necked turtle) and both *Anguilla australis* and *Anguilla reinhardtii* (short and long finned eels respectively).

2.3.1 Eastern grey kangaroo

The installation of non-rural fencing and replacement of open pasture with hard stand has resulted in the removal of habitat for a resident population of the eastern grey kangaroo (kangaroo). The provision of the BMA along with peripheral easement areas continue to provide habitat for the kangaroo species albeit substantially reduced in comparison to the pre-development environment.

Development has also considerably altered their accustomed movement patterns. It is likely to take some time before the resident kangaroo population adapt their movement patterns to the changed environment. While kangaroos are more commonly seen around the periphery of the Estate's developed areas, they may still be observed nearer developed and road areas, particularly at dusk at dawn.

2.3.2 Snakes

The most commonly observed snakes across Oakdale West are:

- *Pseudechis porphyriacus* (red-bellied black snake); and
- *Pseudonaja textilis* (eastern brown snake).

A tiger snake (*Notechis scutatus*) was reportedly seen on a stockpile during construction but was not accurately identified and potentially a banded form of the eastern brown snake.

The BMA to the west of the subject area contains snake refuge habitat, which was installed in response to concerns raised by the adjacent Emmaus Catholic College (due to a high level of snake sightings in and around the college).

In accordance with the Oakdale West FFMP v7 (écologique, 2020) snake refuge habitat (rock piles and large woody debris) and snake deterrent fencing were installed along the Estate's western boundary.

In addition to the above snake deterrent measures and relevant to Building 5A and 5B is the requirement to install vermin control within each building.

Vermin, such as *Rattus rattus* (the black rat) and *Mus musculus* (house mouse) are common snake prey and minimising the occurrence of these introduced species is anticipated to minimise snake populations.

2.3.3 Aquatic fauna

Four farm dams were decommissioned during the earthworks for the Oakdale West development. Native aquatic fauna were rescued and relocated to various pre-determined locations within Ropes Creek to the east of the Estate.

The majority of relocated fauna comprised long-finned eels, with smaller numbers of short-finned eels and long-necked turtles.

Both eel species are highly territorial and migratory and may attempt to return to the locations of the decommissioned dams. Although the pre-development overland drainage has been modified such that it is highly unlikely to encounter either of these species within the subject area.

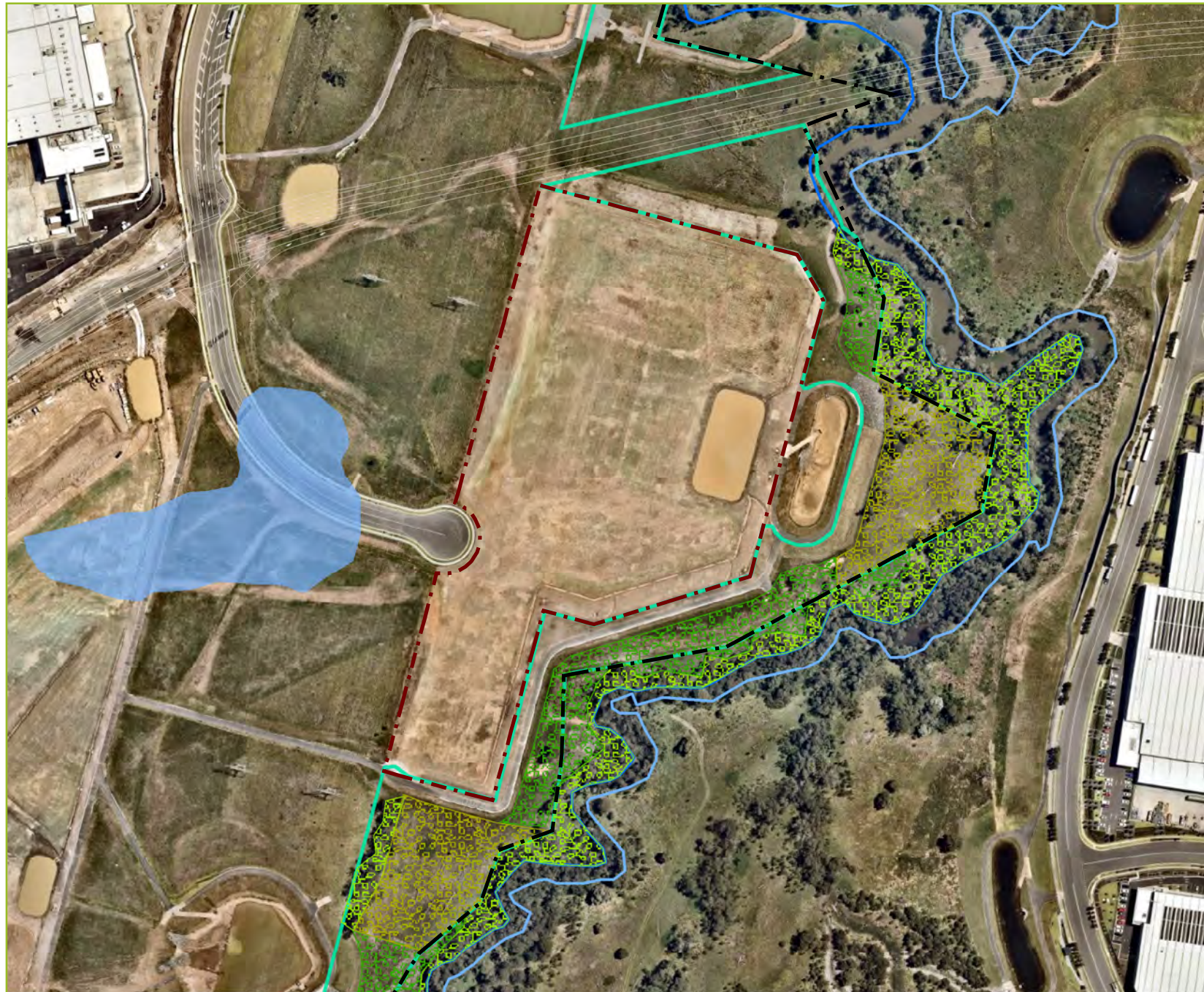
Turtles are also capable of overland dispersal and may attempt to return to the location where dams were decommissioned. This is more realistic as one turtle has already been captured and relocated from the developable and under construction area of the Estate.

Until all construction detention basins are decommissioned and Estate wide detention basins are retrofitted to become bioretention basins, there is a potential for migratory aquatic fauna to be encountered within the Estate.

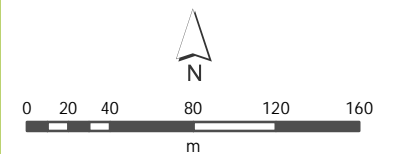
Figure 2-1 shows the location of the decommissioned dam proximal to Lot 5.

Oakdale West Estate Buildings 5A-5B

Fig. 2-1. FFMP Context



- Legend
- Oakdale West boundary
 - LOT 5
 - Decommissioned dam
 - VMP zone
 - Regeneration
 - Revegetation
 - Kangaroo habitat
 - BMA area
 - Ropes Creek
 - Top of Bank - East
 - Top of Bank - West



3 Mitigation Measures

While Lot 5 and the wider Estate have been substantially modified, the potential to encounter wildlife must still be considered in accordance with the overarching SSD 7348 - Administrative Conditions that require:

- An obligation to minimise harm to the environment; and
- Compliance with biodiversity management and mitigation measures.

3.1 Potential impacts

3.1.1 Potential direct impacts

Potential direct impacts on native fauna include:

- Vehicle / mobile plant strike resulting in injury or death of terrestrial fauna; and
- Injury or death of fauna that inadvertently become stranded within the construction area.

3.1.2 Potential indirect impacts

Indirect impacts occur when activities relating to the construction or operation of a development affect native vegetation, fauna and fauna habitat beyond the subject site.

Potential indirect impacts relevant to the Buildings 5A and 5B works may include the following:

- Transport of weeds into the site and spread into the Estate's landscape areas and BMAs;
- Transport of pathogens/disease into the site and spread into the BMAs;
- Pollution of downstream waterways and aquatic habitat, through accidental spills and leaks;
- Introduction or increase in pest animal populations (such as vermin); and
- Rubbish / litter from the site entering the wider Estate area, through either accident drift or deliberate dumping.

3.2 Mitigation measures

Table 3-1 details mitigation measures that will need to be implemented to ensure consent compliance during construction of Buildings 5A and 5B.

Table 3-1: Flora and fauna management and mitigation measures

ID	Measure/Requirement	Responsibility	Timing
[WILDLIFE PROTECTION]			
FF1	All personnel including contractors are to be made aware of the possibility of encountering fauna, through the site works induction process.	Management / Contractors	Pre-construction
FF2	<p>Vehicle and mobile plant operators shall remain vigilant when entering and exiting the works area, particularly at dusk and dawn. Specifically:</p> <ul style="list-style-type: none"> Should kangaroos be observed transiting across the entrance/exit to the works area, vehicle/mobile plant is to stop until animals have moved to a safe distance to ensure vehicle/mobile plant strike is prevented. All on site personnel shall alert vehicle/mobile plant entering or existing the works area if kangaroo movement is observed (via UHF radio or mobile phone as applicable) All personnel including contractors are to report any injured or near miss incidents with wildlife. 	Management / Contractors	Ongoing throughout construction
FF3	Should unexpected fauna be encountered within the works site, the stop works procedure provided in Section 4 must be followed.	Management / Contractors	Ongoing throughout construction
[AQUATIC ECOSYSTEM PROTECTION]			
FF4	Offsite discharge shall be managed in strict accordance with Erosion & Sediment Control Plans prepared for Lot 5A AND 5B; and	Management / Contractors	Ongoing throughout construction
FF5	<ul style="list-style-type: none"> All vehicles, plant and machinery are to be kept in good condition and regularly maintained to avoid chemical leaks and/or spills. 	Management / Contractors	Ongoing throughout construction
FF6	<ul style="list-style-type: none"> A spill kit should be provided in an easily accessible location in the event that fuel or other contaminant spills occur. 	Management / Contractors	Ongoing throughout construction

ID	Measure/Requirement	Responsibility	Timing
[WEED, PEST SPECIES AND PATHOGEN MANAGEMENT]			
FF7	<p>The following hygiene procedures are to be implemented to avoid the introduction and/or spread of soil borne pathogens and weeds:</p> <ul style="list-style-type: none"> Minimise work during wet/rainy periods; Vehicles, plant, and machinery are to be clean and free of soil on arrival to the works area; Truck wash down, rumble grids to be installed and operated to ensure mud, weeds or pathogens are not transported around the region or onto roads; Mud spilt on roads to be immediately removed by a road sweeper. 	Management / Contractors	Ongoing throughout construction
FF8	Future tenants are to install rodent (electronic or sonar) repellents to minimise prey for snakes	Management / Tenants	Post construction
[WASTE MANAGEMENT]			
FF9	<p>Waste management shall ensure the following:</p> <ul style="list-style-type: none"> All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site; Lids on skips or bins are to be kept closed at all times; and Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. <p>For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation</p>	Management / Contractors / Future tenants	Ongoing throughout construction and operation

4 Stop Works Procedure

All personnel working on the Project will need to be inducted on the potential to encounter wildlife within the wider Estate area but also within the works area. The stop work procedure in the event any fauna unexpectedly occurs is shown in the following flow diagram.

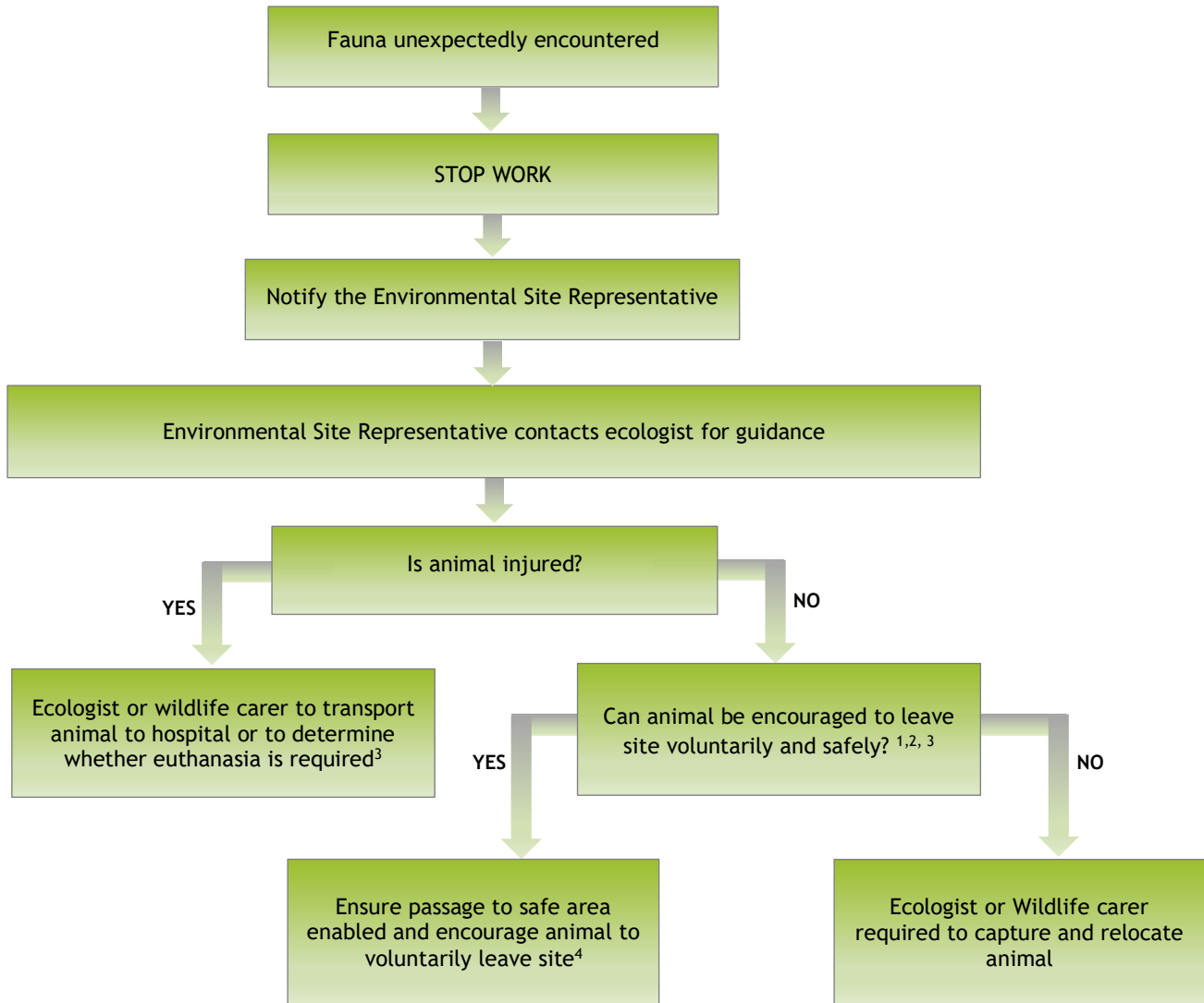
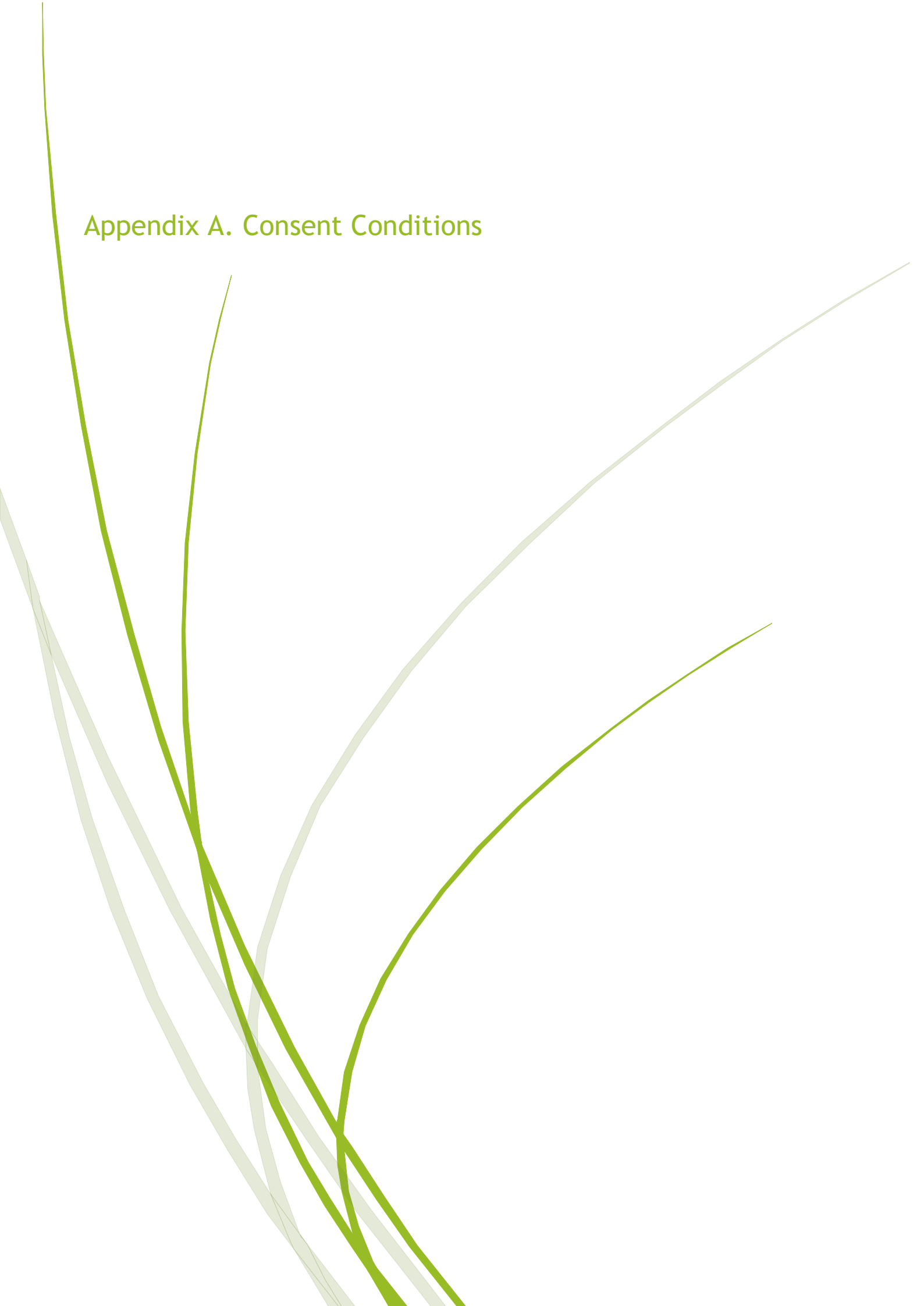


Figure 4-1. Stop work procedure

FOOTNOTES

- ¹ Snakes are to be left alone and not disturbed. A specialist reptile handler should be engaged for capture and relocation if the snake is located within an area that prevents work from continuing.
- ² Nocturnal species (e.g., any small marsupials such as possums) should be left alone until the Project ecologist or wildlife carer is able to capture and relocate animal at dusk.
- ³ Nocturnal and injured animals shall be protected from disturbance (through temporary flagging tape or signage and communication to all personnel that the area is a temporary no go zone). If animal is stranded in direct sunlight some form of shading is to be erected to protect the animal until the Project ecologist or wildlife carer arrives at the site.
- ⁴ Should safe passage be obstructed by fencing or other immovable impedances; Footnote 3 should be implemented.

Appendix A. Consent Conditions



SSD reference	Consent condition	Status
SSD 7348	D88. The Applicant must prepare a Flora and Fauna Management Plan (FFMP) for Stage 1, to the satisfaction of the Planning Secretary.	Completed compliantly
SSD 7348	D89. Bulk earthworks are not to commence until the FFMP is approved by the Planning Secretary and the most recent approved version of the FFMP is to be implemented for the duration of bulk earthworks and construction.	
SSD 7348	D90. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must retire 172 ecosystem credits to offset the removal of 4.41 hectares of native vegetation on the Site.	Amended in MOD 1
MOD 1	D90. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must retire 173 ecosystem credits to offset the removal of 4.38 hectares of native vegetation on the Site.	Completed compliantly
SSD 7348	D91. The Applicant shall establish a Biodiversity Offset Area on the Site, consistent with the area described in the RTS, in accordance with a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust. D92. The Applicant must maintain the Biodiversity Offset Area on the Site in accordance with a Biodiversity Management Action Plan approved by the Biodiversity Conservation Trust (BCT).	Deleted in MOD 1
MOD 1	SSD 7348 Conditions D91 and D92 deleted and new Condition D91 inserted as follows: D91. Within 12 months of the date of the approval of MOD 1, or as otherwise agreed with the Planning Secretary, the Applicant must prepare and implement a VMP for the restoration and rehabilitation of 4.2 ha of Riparian Corridor adjacent to Ropes Creek to meet the objectives of the <i>Water Management Act 2000</i> .	Amended in MOD 6
MOD 6	Approval granted to amend the VMP extent as follows: <ul style="list-style-type: none"> Remove locations adjacent to the future SLR (due to future disturbance from its construction) Increase the extent from 4.2 to 4.45 ha Provide a wider riparian zone, which connects to isolated patches of retained vegetation 	Completed compliantly
SSD 7348	D93. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must:	Amended in MOD 5

SSD reference	Consent condition	Status
	Offset 0.42ha of vegetation lost in the Erksine Park Biodiversity Corridor as a result of the WNSLR by carrying out planting within the area shown in the green edging on Figure 9 (Appendix 6 of consent conditions). Plant the areas shown in the green edging on Figure 9 (Appendix 6 of consent conditions) with species similar to those identified for zone 4a, on the south-eastern side of Ropes Creek, in the Biodiversity Management Plan Erskine Park Employment Area (HLA-Envirosciences, 2 May 2006).	
MOD 5	MOD 5 sought to amend the area within which offsetting is take place due to this area no longer being available for this purpose. In consultation with the Planning Ministerial Corporation a new location has been agreed on and a VMP prepared and submitted with MOD 5 that details the amended location and methods in which the now obsolete Condition D93 will be fulfilled. Conditions D94 and D95 remain unchanged.	
SSD 7348	D94. The Applicant shall monitor and maintain the planting for a period of six months to ensure a minimum 85% planting survival rate. D95. The Applicant must notify the Planning Ministerial Corporation at least one month before the completion of planting to enable the Planning Ministerial Corporation to arrange ongoing maintenance.	Completed compliantly
SSD 7348	D96. Prior to construction of Stage 1, the Applicant must implement snake management measures to limit, to the extent practicable, movement of snakes from the Site into the adjacent school and retirement village on the western boundary of the Site. The measures (provision of alternative snake habitat on Site, fencing along the western boundary and installation of snake deterrents) shall be detailed in the CEMP.	
MOD 7	Minor change to building layouts across Precinct 3 and 4, namely Lot 3B, 3C, and 4E, which results in minor amendments to the estate infrastructure including bulk earthworks in both precincts, the removal of an Estate Road in Precinct 4, and inclusion of additional retaining walls in Precinct 3 & 4	
MOD 8	Modifications to approved plans for Warehouses 1A, 1B and 1C	Not applicable - no change to FFMPs conditions
MOD 9	Changes associated with the Modifications to the Concept Plan including the layout of Precinct 2A and the building height of Building 2C to facilitate the Oakdale West Estate Stage 3 Development.	
MOD 10	Modification to update Precinct 1 signage plans, including façade signage.	



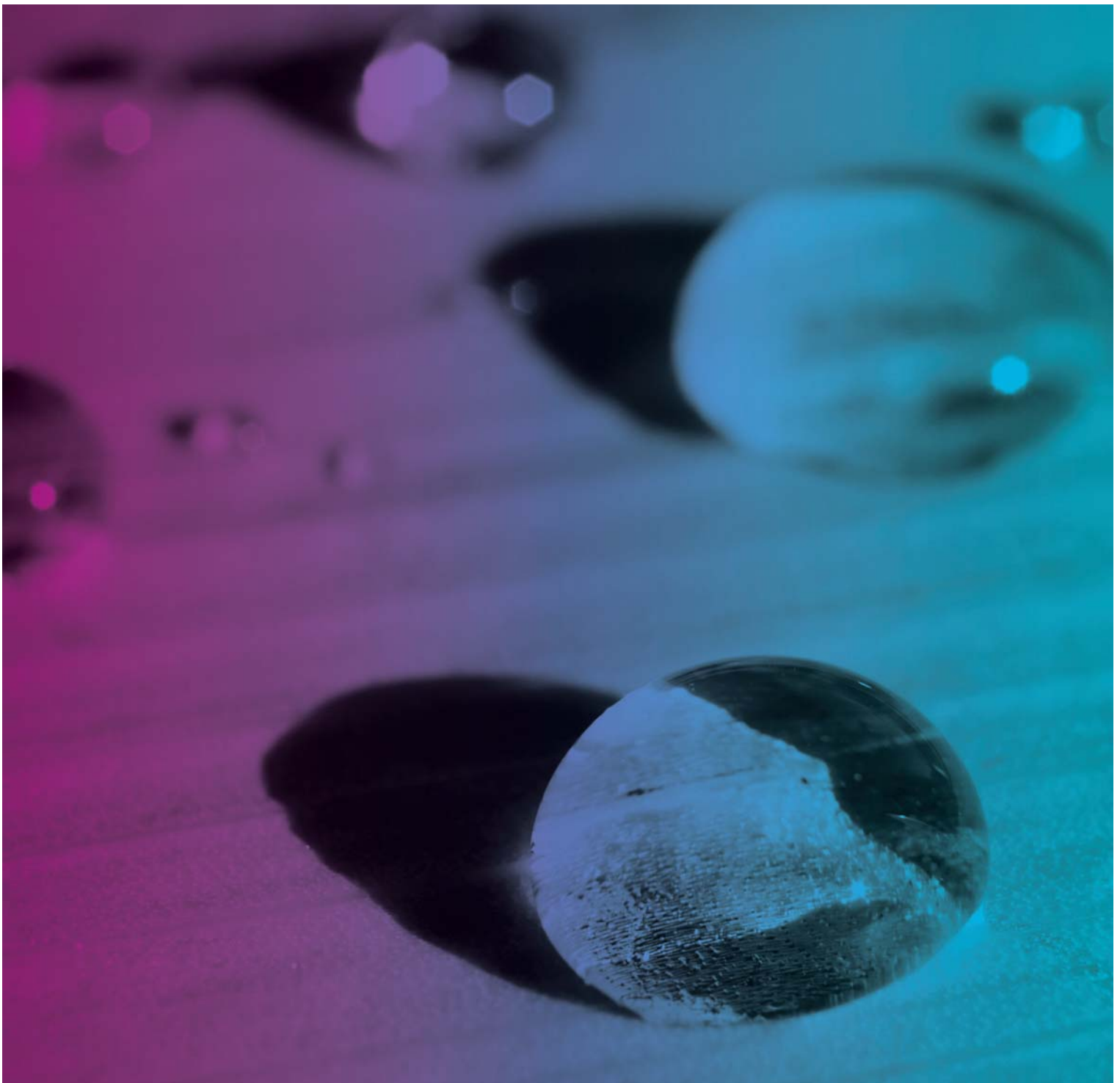
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APPENDIX O

Unexpected Finds Protocol – Contamination

Unexpected Finds Protocol

Oakdale West Estate



Unexpected Finds Protocol

Oakdale West Estate

Client: Goodman Property Services (Aust) Pty Ltd

ABN: 40 088 981 793

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Quality Information

Document Unexpected Finds Protocol

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Reviewed by Brad Eismen

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Glossary

General Terms	
ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure (2013)
BTEXN	Benzene, toluene, ethylbenzene, xylenes and naphthalene
CEMP	Construction Environmental Management Plan
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DQI	Data Quality Indicators
DQO	Data Quality Objectives
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
ESL	Ecological Screening Level
FIP	Fill Importation Protocol
Ha	Hectare
HIL	Health Investigation Level
HSL	Health Screening Level
LOR	Limit of Reporting
m	Metre
m bgs	Metres below ground surface
mg/kg	milligrams/kilogram
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PID	Photoionisation detector
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
TPH / TRH	Total Petroleum Hydrocarbons / Total Recoverable Hydrocarbons
UFP	Unexpected Finds Protocol
UST / UPSS	Underground Storage Tank / Underground Petroleum Storage System
VOC	Volatile Organic Compound

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by Goodman Property Services (Aust) Pty Ltd (Goodman) to complete an Unexpected Finds Protocol (UFP) for the earthworks associated with the construction of the Oakdale West Estate (OWE), Kemps Creek, NSW (the Site).

The Site is approximately 154 hectares (Ha) of predominantly agricultural (grazing) land and riparian corridor associated with Ropes Creek. Goodman propose to develop approximately 90 Ha of the Site into a warehouse-style estate and distribution centre, under State Significant Development Application 7348 (SSD 7348).

OWE will include pads for building construction, roads, footpaths, bio-retention basins, wildlife corridor(s) and electricity transmission easements. It is expected that earthworks will include:

- Stripping of geotechnically unsuitable overburden in the developable areas (i.e. grass and surface soils to approximately 0.3 m depth), stockpiling and subsequent re-use in landscaping areas, or blended with other Site won materials and re-used in the earthworks.
- Proof rolling stripped areas.
- Extensive cut to fill and retaining wall construction.

This UFP relates to soil contamination and applies up to the completion of the construction of building pads at OWE.

AECOM has previously completed a Phase I Environmental Site Assessment (2007), targeted Phase II Contamination Assessment (2012), asbestos remediation validation sampling (2017) and assessment of sediment and surface water (2019) at OWE. Site features and sampling locations are shown on **Figure 1** and **Figure 2** in **Appendix A**.

Goodman has commissioned geotechnical investigations and a hazardous building material survey at the Site. Data from these investigations and survey have been reviewed and incorporated into this report.

Goodman has appointed a NSW EPA (land contamination) Auditor, Tom Onus of Ramboll Australia Pty Ltd (the Auditor) to the project. Where unexpected finds are encountered, the Auditor must be notified.

A Fill Importation Protocol (FIP) for OWE has been developed by AECOM. The FIP stipulates the soil and aggregates that will be imported to the Site for construction of the building pads, retaining walls, stormwater and sewer pipe trench backfill etc and the associated (contamination-related) testing requirements.

1.1 Objectives

The objectives of this UFP are to:

- Provide a summary of the expected ground conditions.
- Provide a summary of unexpected finds that may be present, based on historical Site data.
- Provide management and assessment recommendations for any identified unexpected finds encountered during OWE construction earthworks.

1.2 Guidelines

AECOM completed this UFP with reference to the following guidelines:

- National Environment Protection Measure (NEPM), *Assessment of Site Contamination (ASC)* (National Environment Protection Council [NEPC], 1999 as amended (2013) (the ASC NEPM).
- NSW EPA (2017). *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd Edition)*.

- NSW OEH (2011). *Guidelines for Consultants Reporting on Contaminated Sites*. NSW Government Office of Environment & Heritage (OEH).
- SafeWork NSW (2016a). *How to manage and control asbestos in the workplace Code of Practice*.
- SafeWork NSW (2016b). *How to safely remove asbestos Code of Practice*.
- WorkCover (2014). *Managing asbestos in or on soil*. March.

1.3 SSD Conditions of Consent

The SSD Conditions of Consent were issued to Goodman on 13 September 2019. With respect to soil contamination, these are summarised in the following table:

Table 1 Consent Requirements

Condition Requirement	Section / Comment
D116. Prior to the commencement of construction of Stage 1, the Applicant must prepare an unexpected finds protocol to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with Condition D119 and must ensure any material identified as contaminated is disposed offsite, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the Site.	This UFP.
D121 (k). As part of the CEMP required under Condition D119 of this consent, the Applicant must include an Unexpected Contamination Protocol.	This UFP is to be included in the CEMP prepared by SLR Consulting Australia Pty Ltd.
Management Plan Requirement	Section / Comment
D118. Management plans required under this consent must be prepared in accordance with relevant guidelines and include:	
a) details of: <ol style="list-style-type: none"> 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, Stage 1 or any management measures; 	Section 1.2 and Section 5.0.
b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	This UFP
c) a program to monitor and report on the: <ol style="list-style-type: none"> i. impacts and environmental performance of Stage 1; and ii. effectiveness of the management measures set out pursuant to paragraph (b) above; 	Continual monitoring during bulk earthworks. Sections 3.1 to 3.5.

Condition Requirement	Section / Comment
d) 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;	This UFP
e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	Completed in CEMP
f) a protocol for managing and reporting any: <ul style="list-style-type: none"> 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 	Completed in CEMP
g) a protocol for periodic review of the plan.	Completed in CEMP

2.0 Background Information

2.1 Site Conditions

The Site comprises undulating grasslands, with a ridge running from northeast to southwest. Three farm dams are located to the west of the ridge and two to the east. A Transgrid electricity easement is present in the eastern portion of the Site. Other Site features include:

- Residential house.
- In-ground water holding tank (previously referred to as “old well”).
- Unpaved internal access roads.
- Concrete slab, likely a former building.
- Concrete blocks in a drainage line, assumed to represent an erosion control mechanism.
- Pumping point. A small concrete slab that previously housed a pump. Based on anecdotal information obtained from the Brickworks Site caretaker, it is understood that the pump point was connected directly to the water supply pipeline.
- Two pipes (polyethylene and steel, both approximately 50 mm diameter) at the eastern end of the eastern most dam. The Brickworks Site caretaker was aware of the pipes but had no knowledge of any pump station or plinth for the pipes.

Ropes Creek is mostly located off-site to the east however, parts of the creek and the riparian corridor are located on the Site but are not subject to future development.

2.2 Surrounding Land Use

Land uses surrounding the Site include:

- North: water supply pipelines followed by commercial/industrial premises and undeveloped agricultural land (the Fitzpatrick Land).
- East: Oakdale South and Central Estates.
- South: rural/residential properties.
- West: schools and retirement village.

2.3 Phase I ESA 2007

The Phase I ESA included the proposed Oakdale development, representing approximately 420 Ha. OWE is situated within the Phase I ESA study area. Site history and background data for OWE is summarised below:

- The Site comprised rural (pastoral lands) since the early to mid 1800s.
- Site soils were expected to comprise clay of the Blacktown and/or Luddenham Soil Landscape Groups and fluvial soils of the South Creek Soil Landscape Group (near Ropes Creek), overlying Shale bedrock.
- Regional groundwater was likely to occur within sedimentary rock at depths greater than 20 metres below ground surface (m bgs) although seasonal, shallow perched groundwater may exist at the soil-bedrock interface and shallow groundwater would likely be present in fluvial soils along drainage lines.
- Surface application of “envirosoil” (recycled sewage waste) had occurred to approximately 80 mm depth in the north eastern portion of the OWE (refer **Appendix A**).
- A rubbish scrape and disposal area was identified in a gully in the south west portion of the Site.
- Deposits of concrete blocks were identified in the drainage line down-stream of the rubbish disposal area, likely placed for erosion control (refer **Appendix A**).

- A concrete slab (probable floor of former building/shed) was identified in the western portion of the Site (refer **Appendix A**).
- An old wooden building (the Old Farmhouse) was present in the south west portion of the Site. Adjacent to the building were fragments of asbestos containing material (ACM), likely associated with an outhouse building. The Old Farmhouse building has subsequently been removed from Site.
- A residential house was located on the ridge line above the Old Farmhouse. The house was occupied at the time of the Phase I. The house was of brick construction with a tiled roof.
- Approximately two small buildings were formerly present to the north east of the residential house, adjacent and on the south side of the ridge-line access road (refer **Appendix A**).
- An in-ground concrete lined water tank was present in the south west portion of the Site. The tank contained minor quantities of waste material (e.g. steel, wire, tyres).
- A former piggery was identified in the southern central portion of the Site (refer **Appendix A**). Brick and steel waste was scattered over the ground surface.
- Some spot applications of phenoxyacetic acid herbicides (e.g. to control blackberry and other woody weeds) has been historically undertaken, on an 'as needs basis'.
- No burial pits for animal carcasses or cattle/sheep dips were known to be present.

2.4 Targeted Phase II Assessment 2012

AECOM completed a targeted assessment at OWE based on the results of the Phase I ESA. The Phase I ESA identified a low potential for the presence of soil contamination across the majority of OWE however, six areas of environmental concern (AEC) were identified. The six AEC were investigated in the targeted Phase II Assessment, as summarised below:

Table 2 AEC and Targeted Assessment

AEC	Investigation	Results
In ground water tank	2 test pits adjacent to tank (TP1 and TP2)	No contamination identified
Former piggery	15 test pits across former piggery (TP3 to TP17)	No contamination identified
Rubbish burial and scrape	6 test pits (TP18 to TP23)	No chemical contamination identified. Fragments of ACM and asbestos fibres identified in rubbish burial area.
Former buildings area	5 test pits (TP24 to TP28)	No contamination identified
Envirosoil application area	9 test pits (TP29 to TP37)	No contamination identified
Old Farmhouse	3 test pits, 3 surface samples (TP38 to TP40 and SS01 to SS03)	No chemical contamination identified. Fragments of ACM identified.

The sample location plan from the targeted Phase II assessment is included in **Appendix A**.

Other information from the targeted Phase II assessment and relevant to this UFP included:

- Test pits were excavated to at least 0.5 m into natural soils. These were logged to comprise dark brown sandy clayey silt topsoil overlying orange to grey clays. Sandstone and shale bedrock was encountered.
- Fill materials were logged at six locations and in each instance, appeared to comprise re-worked natural soils.
- Groundwater was not observed in the test pits completed.

- No unusual odours or colouration in soil were observed at the test pits completed.
- Soil samples were collected from each test pit and samples submitted for laboratory analysis to evaluate concentrations of the inferred contaminants of potential concern (CoPC), which included:
 - Suite of eight metals, including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc (M8).
 - Benzene, toluene, ethylbenzene, xylenes (BTEX).
 - Total Recoverable Hydrocarbons (TRH).
 - Polycyclic aromatic hydrocarbons (PAH).
 - Organochlorine and organophosphorus pesticides (OCP, OPP).
 - Polychlorinated biphenyls (PCB).
 - Asbestos.
- Waste materials (general rubbish, metal waste) and ACM were identified in the rubbish burial area. ACM was identified in the vicinity of the Old Farmhouse. Remediation of both areas was recommended.
- Concentrations of the chemical CoPC investigated at all test pits were below the ASC NEPM health investigation level (HIL) and health screening levels (HSL) applicable for commercial/industrial land use (HIL D and HSL D).

Groundwater was not investigated. Based on the Phase II data, the potential for groundwater contamination to be present is considered to be low.

2.5 Remediation Report 2017

AECOM was retained by The Austral Brick Company Pty Ltd (Austral) to provide remediation validation services for two AEC identified in the targeted Phase II assessment. The areas were the Old Farmhouse and the Rubbish Disposal Area.

In summary:

- Excavation activities were completed by the Austral appointed earthworks contractor, as well as disposal of rubbish materials and ACM impacted soils.
- The Old Farmhouse excavation footprint was approximately 650 m² and the Rubbish Disposal area excavation footprint was approximately 2800 m².
- Soils at the base of the excavations comprised natural, orange-brown clay.
- No obviously visible fragments of ACM were observed by AECOM at the final excavation surfaces.
- Laboratory analysis results for the validation samples collected from the final excavation surfaces did not identify asbestos at concentrations exceeding the ASC NEPM HSL D in the samples analysed.
- Concentrations of the non-asbestos CoPC investigated were below ASC NEPM HIL D and HSL D.

The sample location plan from the Remediation Report is included in **Appendix A**.

2.6 Surface Water & Sediment Report 2019

AECOM was engaged by Goodman to undertake surface water and sediment sampling at the Site, to assess:

- The suitability of dam sediments for use in bulk earthworks (i.e. re-use at the Site).
- The suitability of dam water for use in bulk earthworks.

- The suitability of dam water for discharge to Ropes Creek.

Nine sediment samples were collected from the Dams, seven surface water samples were collected from the Dams and three surface water samples were collected from Ropes Creek. Samples were analysed by laboratories utilising NATA certified methods, to evaluate concentrations of contaminants of potential concern.

Sediment samples were logged to comprise clay, clayey silt and silty clay. Some shale gravel was present. Concentrations of the CoPC investigated were below the ASC NEPM HSL D and HIL D.

Water in the dams was noted to be low to medium turbidity, with aquatic vegetation present. No obvious indicators of contamination were observed. Concentrations of the CoPC investigated were below the adopted assessment criteria in the surface water samples analysed.

Based on the available data, AECOM considered that:

- Sediment in the Dams would be suitable for re-use at the Site.
- Water in the Dams would be suitable for use in the bulk earthworks.
- Water in the Dams appear suitable for discharge to Ropes Creek. This may require evaluation by the Goodman-appointed ecological consultant.

2.7 Hazmat Assessment 2019

EP Risk completed a destructive hazardous materials (Hazmat) assessment of the residential house in 2019. Data from the EP Risk report indicated:

- The house had a footprint of approximately 160 m² and was constructed circa 1960. The house will be demolished as part of the OWE development works.
- Lead based paints were not identified.
- Asbestos was identified in:
 - Fuses within the electrical box (Class A friable)
 - Backing board within the electrical box, eaves, internal wall panels and vinyl floor tiles (Class B non-friable).
- Asbestos removal works will be required to be undertaken by appropriately licensed contractors under controlled conditions.
- An in-ground septic tank (concrete construction) was present on the western side of the house.

Goodman has advised that the head earthworks contractor will undertake the demolition (via a sub-contractor). AECOM has requested the following information for 'validation' reporting:

- Copies of asbestos licenses.
- Copies of all landfill disposal documents for asbestos containing materials.
- Air monitoring results (taken during asbestos removal works).
- Hygienist clearance inspection reports.
- Soil sample analysis data. It is expected that:
 - Surface soil samples will be collected from the building footprint and analysed for asbestos, OCP, OPP and M8.
 - Soil samples will be collected from a small excavation formed by the removal of the septic tank and pipe run and analysed for asbestos, OCP, OPP, M8, TRH and BTEXN.
 - Soil samples will be collected from excavated materials (i.e. from pipe run and around septic tank) and analysed for asbestos, OCP, OPP, M8, TRH and BTEXN.

2.8 Geotechnical Investigations

Goodman commissioned Pells Sullivan Meynink (PSM) to undertake geotechnical assessments of the Site. These are summarised below. Sample location plans are included in **Appendix A**.

PSM 2015a

The PSM investigation was based on the proposed cut to fill earthworks. PSM inferred fill depth up to approximately 12 m and cut depth up to approximately 15 m. Fieldworks were completed in October 2015 and included:

- 13 boreholes (BH01 to BH13) completed by a 14 tonne (t) excavator with a pendulum auger attachment. These locations were completed to depths between 1.5 and 4.95 m, predominantly in 'cut' areas.
- 2 boreholes (BH14 and BH15) were completed by drill rig to approximately 15 m depth. The boreholes were completed by auger then coring.
- 27 test pits (TP01 to TP27) were completed by a 12 t excavator to a maximum depth of 2 m.

PSM noted that the Site comprised grassy paddocks separated by steel wire fencing and several dams.

In summary, PSM logged the conditions as:

- Topsoil (0 to 0.04 m): low plasticity, soft to stiff, dark brown clay with rootlets.
- Natural Soil (0.04 to 0.7 m): medium to high plasticity, stiff to very stiff, light brown to grey clay.
- Bedrock (0.7 to 4 m): extremely to moderately weathered, light brown to grey, shale and sandstone.
- No groundwater was encountered.
- No anthropogenic inclusions or fill materials were noted on the logs.

PSM 2015b (soil salinity and aggressivity)

The fieldwork was undertaken concurrently with 2015a. Samples were collected from the geotechnical investigation locations and called E1 to E25. PSM noted that the Site was covered in grass and trees and that no indications of salinity were observed (e.g. salt crystals, bare soil patches, salt pans, die-back of trees, gully erosion etc.).

The PSM data indicated:

- The majority of soils on-Site are classified as non-saline, with some soils classified as slightly saline.
- The risk of acid sulfate soils to be present was considered to be low.
- Soils ranged from non-sodic to highly sodic (the measure of the likely dispersion on wetting and to shrink-swell properties).

PSM 2018a

Six boreholes were drilled in or within close proximity to the water pipeline easement. Logged conditions were:

- Northern side of pipeline easement: approximately 2.5 m of grey-red-brown sandy clay (reworked natural, or easement spoil), overlying orange-red-brown clay, grading to shale bedrock at approximately 4 to 4.5 m bgs.
- Pipeline Easement: asphalt access road with roadbase sub-grade overlying grey-red-yellow-brown sandy clay, grading to shale bedrock at approximately 3 to 3.8 m bgs.
- Southern side of pipeline easement: red-grey-brown clay to approximately 8 m bgs, overlying shale bedrock.

PSM 2018b

The investigation targeted the location of the proposed sewer infrastructure. PSM understood that approximately 3.8 km of sewer main (with 56 manholes) would be constructed, between 1.2 and 15.8 m below existing ground level.

The investigation included:

- Boreholes BH01 to BH47 were drilled by track and truck mounted drill rigs. Primary boreholes were drilled at proposed manhole locations or at intermediate locations where the distance between manholes exceeded 120 m. Secondary boreholes were drilled where the distance between manholes was less than 50 m. Some boreholes were not completed or were moved, due to:
 - Proposed manhole/sewer was above the existing ground surface (within future fill)
 - Presence of services (BH01 moved)
 - Presence of ponds (BH16 and BH17).
- Boreholes were completed to depths between 6 and 15 m.
- Logged conditions were consistent with PSM 2015a. No anthropogenic inclusions or fill materials were noted to be present.
- Groundwater was observed at 11 locations, as wet material on the auger rods, between 3.5 and 13.5 m. Shallow groundwater (i.e. at approximately 3.5 to 5 m) was present in proximity to Ropes Creek.

2.9 Site Inspections

The inspection undertaken on 5 December 2018 was targeted to the rubbish disposal excavation, Old Farmhouse excavation, two small dams and concrete slab in the western portion of the Site, former piggery and traverses of the paddock between the residential house and main northern farm dam (by car).

In summary:

- Conditions were similar to those previously observed.
- The residential house was present but not occupied.
- Remedial excavations were still identifiable.
- The Old Farmhouse was not present.
- The traverses were undertaken to assess for a possible old water pump location. This was not identified. It is noted that long grass negated a detailed inspection of the ground surface.

Inspection was undertaken during the sediment and surface water sampling in March 2019, which primarily focused on the five dams and the pump point. In summary:

- Vegetation (grass and trees) appeared healthy.
- Inspection observations relating to the dams and Ropes Creek are provided in AECOM 2019.
- Two pipes were noted at the eastern end of Dam 5. No obviously visible buildings/sheds/concrete plinths etc associated with the pipes were observed.
- The pumping point was identified. The pump was not present. No obvious indications of contamination were observed.
- No areas of bulk excavation or stockpiling were observed, consistent with previous inspections.

3.0 Unexpected Finds

3.1 Roles and Responsibilities

Roles and responsibilities for the Site works are expected to include:

Table 3 Roles & Responsibilities

Company	Role / Responsibility
Goodman	Owner / Development Manager
AT&L	Project Manager / Superintendent
Burton	Earthworks Contractor
AECOM	Contamination Consultant
Ramboll	Auditor (contamination)

In the event that unexpected finds are encountered:

- The Earthworks Contractor will immediately inform the Superintendent.
- The Superintendent will inform Goodman, AECOM and notify Penrith City Council (PCC)
- AECOM will inspect the unexpected find (if required) and inform the Auditor.

In the event that any identified unexpected find requires remediation, the following is noted:

- SEPP (Resilience and Hazards) Chapter 4 Remediation of Land applies, i.e. consent is required as all remediation works within the Penrith LGA is category 1 works.
- A Remedial Action Plan (RAP) should be prepared by the Contamination Consultant and be approved by the Auditor prior to undertaking the remediation works. The RAP will be prepared with reference to applicable NSW EPA approved guideline documents. The RAP will include disposal locations and results of testing of materials identified as contaminated and is to be submitted to the Planning Secretary, prior to removal from Site.
- Following any remediation work, a validation report will be prepared, confirming that all requirements of the RAP have been met, including documentary evidence confirming off-Site disposal of contaminated soils (refer **Section 5.0** of this document).
- The validation report will be available to the Planning Secretary of the Department of Planning upon request.

3.2 Areas with Perceived Higher Risk

The presence of unexpected finds cannot be discounted at the Site however, the following areas are considered to pose a higher risk of the presence of ACM:

- Former piggery.
- Two former small buildings to the north east of the residential building.
- Concrete slab in western portion of Site.
- Area of deposited concrete blocks in the gully / creek line.

These are shown in figures provided in **Appendix A**.

3.3 Asbestos Containing Materials

In the event that fragments of ACM are identified during the earthworks, works will cease in that area and AECOM, Goodman and/or the Site Superintendent will be contacted immediately and the Auditor will be notified. An exclusion zone will be established around the ACM and an appropriate

occupational health and safety (OHS) protocol for entry into the exclusion zone will be implemented. The Earthworks Contractor (EC) should collect fragments and store in an appropriate location (e.g. plastic lined skip bin). The ACM will be disposed to an appropriately licensed landfill facility. This disposal process will be tracked via the Material Tracking Plan (refer to **Section 4.0**) and the landfill documentation included in the Validation Report. All work must be conducted in accordance with SafeWork NSW (formerly WorkCover) policy and licensing requirements.

If large quantities of ACM are identified, excavation and stockpiling is recommended. Excavation should continue until there is no visible ACM. Stockpiles should be kept moist and covered until disposed off-Site.

Validation sampling of the stockpiles to assess suitability for potential re-use is not recommended.

Areas that are excavated will require validation sampling, to confirm removal of the ACM. Validation sampling should be done with reference to the Western Australian Department of Health (DoH) *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia* (May 2009) and ASC NEPM 2013.

With reference to WorkCover NSW (2014) *Managing Asbestos in or on Soil* and Safework NSW (2016b) *How to Safely Remove Asbestos*, implementation of the following management measures are recommended if asbestos is identified:

- Less than 10 m² of bonded asbestos (e.g. fragments of fibro in good condition):
 - Handpick the fragments and double wrap in plastic sheeting. Inspection/handpicking should be completed on a grid basis for a systematic approach
 - Appropriate personnel protective equipment should be worn
 - Appropriately trained personnel should be utilised
 - The area should be inspected by an appropriately qualified hygienist to confirm removal of the asbestos fragments
 - A Licensed asbestos removal contractor (Class A or B) should not be required
 - Air monitoring for asbestos fibres should not be required.
- More than 10 m² of bonded asbestos:
 - A Class B licensed asbestos removal contractor will be required to collect and dispose of the materials
 - Handpick the fragments and double wrap in plastic sheeting. Inspection/handpicking should be completed on a grid basis for a systematic approach
 - Appropriate personnel protective equipment should be worn
 - Appropriately trained personnel should be utilised
 - Air monitoring for asbestos fibres may not be required but should be considered if there are reasonable grounds to expect that exposure standards have been or could be exceeded
 - The area should be inspected by an appropriately qualified hygienist to confirm removal of the asbestos fragments.
- Friable asbestos is identified:
 - Isolate and secure the area by installing warning signs and barriers
 - Keep the soil damp but not flooded and if safe, cover the area with plastic sheeting
 - Class A licensed asbestos removal contractors will be required
 - Air monitoring will be required
 - The area should be inspected by an appropriately qualified hygienist to confirm removal of the asbestos
 - Friable asbestos must be stored in sealed containers

- Asbestos waste must be transported in a covered, leak proof vehicle.

3.4 Burial Pits

In the event that burial pits relating to the former grazing activities are exposed, works will cease in that area and AECOM, Goodman and/or the Site Superintendent will be contacted immediately and the Auditor will be notified. An exclusion zone will be established around the burial pit and an appropriate occupational health and safety (OHS) protocol for entry into the exclusion zone will be implemented. All carcass' and impacted soils will be removed appropriately and disposed off-Site at a registered facility. Soils remaining in the burial pit will be validated for total phosphorus (TP), filterable reactive phosphorus (FRP), total nitrogen (TN), nitrate (NO₃), nitrite (NO₂), total Kjeldahl nitrogen (TKN) and ammonia (NH₄⁺). Investigation for other CoPC may be required (e.g. hydrocarbons, asbestos, M8 etc), depending on the buried materials encountered.

3.5 Other Unexpected Finds

If materials are encountered during the earthworks which are significantly different to those described herein (including the identification of drums or underground storage tanks, etc.), works will cease in that area and AECOM, Goodman and the Site Superintendent will be contacted immediately and the Auditor will be notified. An exclusion zone will be established around the unexpected find area and an appropriate OHS protocol for entry into the exclusion zone will be implemented. AECOM will inspect the unexpected find and assess if it is the source or has the potential to contaminate the surrounding area. In the case that there is potential for contamination or it has occurred, all materials and impacted soil will be removed appropriately and disposed off-Site at a registered facility. Remaining soils will be validated for CoPC (refer **Section 2.4**) and any additional analytes specific to the unexpected find.

4.0 Materials Tracking Plan

A Materials Tracking Plan (MTP) will be developed and implemented by the Earthworks Contractor (EC). All materials handled during the earthworks will be tracked in order to allow verification of the correct movement and handling. The system will track materials from ‘cradle-to-grave’ and will provide information on the location and quantity of all material movements both on and off-Site, so that the material being handled can be identified and accounted for.

The MTP will include confirmation of stockpile locations and contamination status by regular communication between AECOM, the EC appointed environmental consultant (as applicable), the EC and the Site Superintendent. Where necessary, stockpiles and/or pit locations will be recorded by surveying, to reduce the risk of cross-contamination between stockpiles.

As part of the MTP, records shall be kept to ensure that backfilling of excavations and beneficial reuse of material only occurs following the successful validation of the subject materials.

The EC must implement a MTP, to appropriately control and manage the excavation of material at the Site. The purpose of the MTP is to ensure that material movements are controlled at all times and placed in their correct locations.

The MTP should be based on the proformas provided in **Appendix B**, as summarised below:

- **Material Excavation Form**: a record of excavated materials on the Site which includes the date, material type/description, excavated quantity, origin and intended destination.
- **Stockpile Register**: a record of all materials placed in stockpiles which includes the date, material type/description, stockpiled quantity, origin and intended end use (which will be “for characterisation”, “for backfilling” or “for off-Site disposal”). Material excavated and stockpiled will be identified with a marker flag or stake clearly labelled with the stockpile source information and a stockpile ID.
- **Material Placement Form**: a record of all materials backfilled on the Property which includes the date, material type, quantity backfilled and origin.

Any soil and other waste materials that require off-Site disposal, must be classified in accordance with the NSW EPA (2014) *Waste Classification Guidelines*.

5.0 Validation Reporting

At the completion of the earthworks, AECOM will prepare a Validation Report (or reports) in accordance with the requirements of the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites* and NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme* (3rd Edition). The Validation Report(s) will include the following information:

- An overview of the earthworks carried out.
- Survey plans outlining the extent and elevations of the earthworks.
- The location of validation samples (if validation sampling is required).
- Descriptions of sampled materials (including visual and olfactory observations, if required).
- Summary tables for soil analytical results.
- NATA registered laboratory analytical certificates.
- Summary of the tracking and fate of all excavated materials (detailed in a Stockpile Register).
- Demonstration that the MTP has been implemented appropriately including copies of the EC's documentation.
- Landfill weighbridge docket(s) (if required).
- A summary of data reviewed and collected under the FIP.
- Conclusion as to the suitability of the Site for the proposed land use.

6.0 References

- AECOM. 2007. *Phase I Environmental Site Assessment, Oakdale Concept Plan, Kemps Creek/Horsley Park, NSW*. 13 December 2007 (ref: S4074201_RPTFinalRev02_13Dec07).
- AECOM. 2012. *Oakdale Western Precinct, Targeted Phase II Contamination Assessment*. 27 July 2012 (ref: 60268528-RPE-20120727_0).
- AECOM. 2016. *Phase I ESA, Oakdale Western North-South Link Road*. 21 June 2016 (ref: 60441214-RPE-20160621_0).
- AECOM. 2017. *Oakdale West Estate, Remediation Report*. 22 August 2017 (ref: 60479363-RPT-20170822_0).
- AECOM. 2019a. *Oakdale West Estate, Surface Water & Sediment Sampling*. 11 April 2019 (ref: 60599325_RPT_20190411_0).
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- EP Risk. 2019. *Destructive Hazardous Materials ('HAZMAT') Assessment, Oakdale West Estate, Bakers lane, Kemps Creek NSW 2178*. February.
- NEPC, 2013. *National Environment Protection (Assessment of Site Contamination) Measure 1999*. National Environment Protection Council. ASC NEPM, May 2013.
- NSW EPA. 2017. *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd Edition)*. October 2017.
- NSW EPA. 2014. *Waste Classification Guidelines, Part 1: Classifying Waste*. November 2014.
- NSW OEH. 2011. *Guidelines for Consultants Reporting on Contaminated Sites*. NSW Government Office of Environment & Heritage (OEH).
- PSM. 2015a. *Oakdale West Estate, Kemps Creek, Geotechnical Investigation*. November 2015 (ref: PSM1541-123R).
- PSM. 2015b. *Oakdale West Precinct, Soil Salinity and Aggressivity Investigation*. November 2015 (ref: PSM1541-124R).
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- PSM. 2018b. *Oakdale West Estate, Proposed Sewer Alignment, Geotechnical and Salinity Investigation*. October 2018 (ref: PSM1541-370L).
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- SafeWork NSW. 2016b. *Code of Practice: How to Safely Remove Asbestos*.
- WA DOH. 2009. *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. May 2009.
- WorkCover NSW. 2014. *Managing asbestos in or on soil*. March.

Appendix A

Figures



G:\ENV\GIS\Projects\606\0599325 Goodman Oakdale West Estate\FIGURES\60599325 FX Targeted Phase II Sample Locations 18 04 2019

KEY

- Site boundary
- Proposed development layout
- Proposed easement
- Test pit location (AECOM, 2012)
- × Surface sample location (AECOM, 2012)
- ▲ Surface water sample location (AECOM, 2019)
- × Sediment sample location (AECOM, 2019)

0 150 300m

AECOM Imagine it. Delivered.

TARGETED PHASE II SAMPLE LOCATIONS

Unexpected Finds Protocol
Oakdale West Estate, New South Wales

Source: LTS Lockley Registered Surveyors NSW (50034 011 Site Audit.dwg (26/02/2019))

FIGURE 1



G:\ENV\GIS\Projects\606\0599325 Goodman Oakdale West Estate\FIGURES\6060599325 FX Targeted Phase II Sample Locations 23 04 2019



1	Former building
2	Residence
3	Old farmhouse
4	Former buildings
5	Waste materials
6	Well
7	Rubbish scrape
8	Former (possible) piggery
9	Soil stockpiles
10	Dam with concrete blocks
11	Well
12	Settlement ponds
13	Cattle yards
A	Visual bunds



Not to Scale

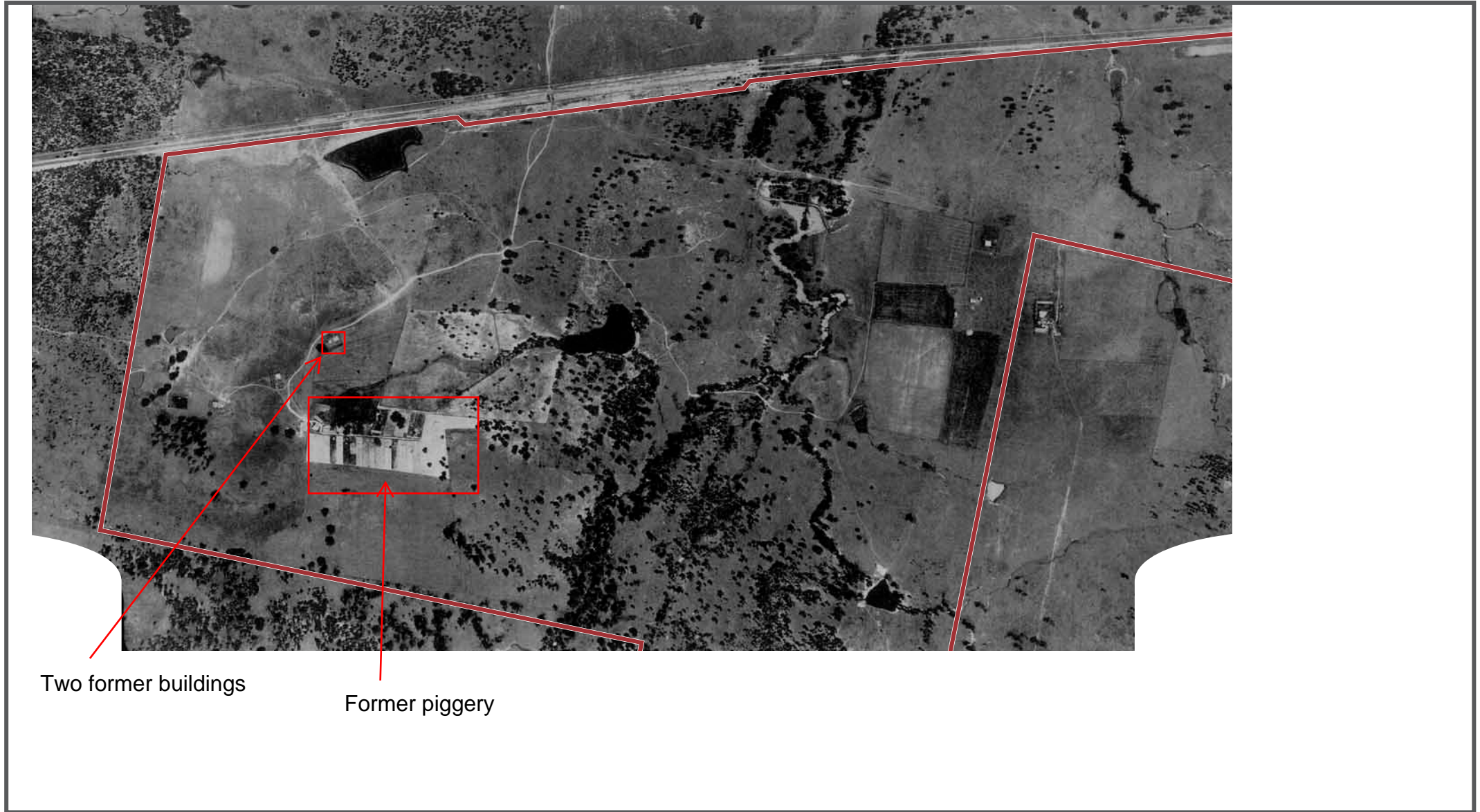
- Approximate site boundary
- - - Approximate areas of enviro-soil application
- Plate number and direction of view

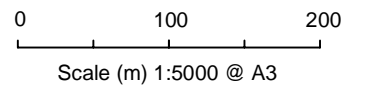
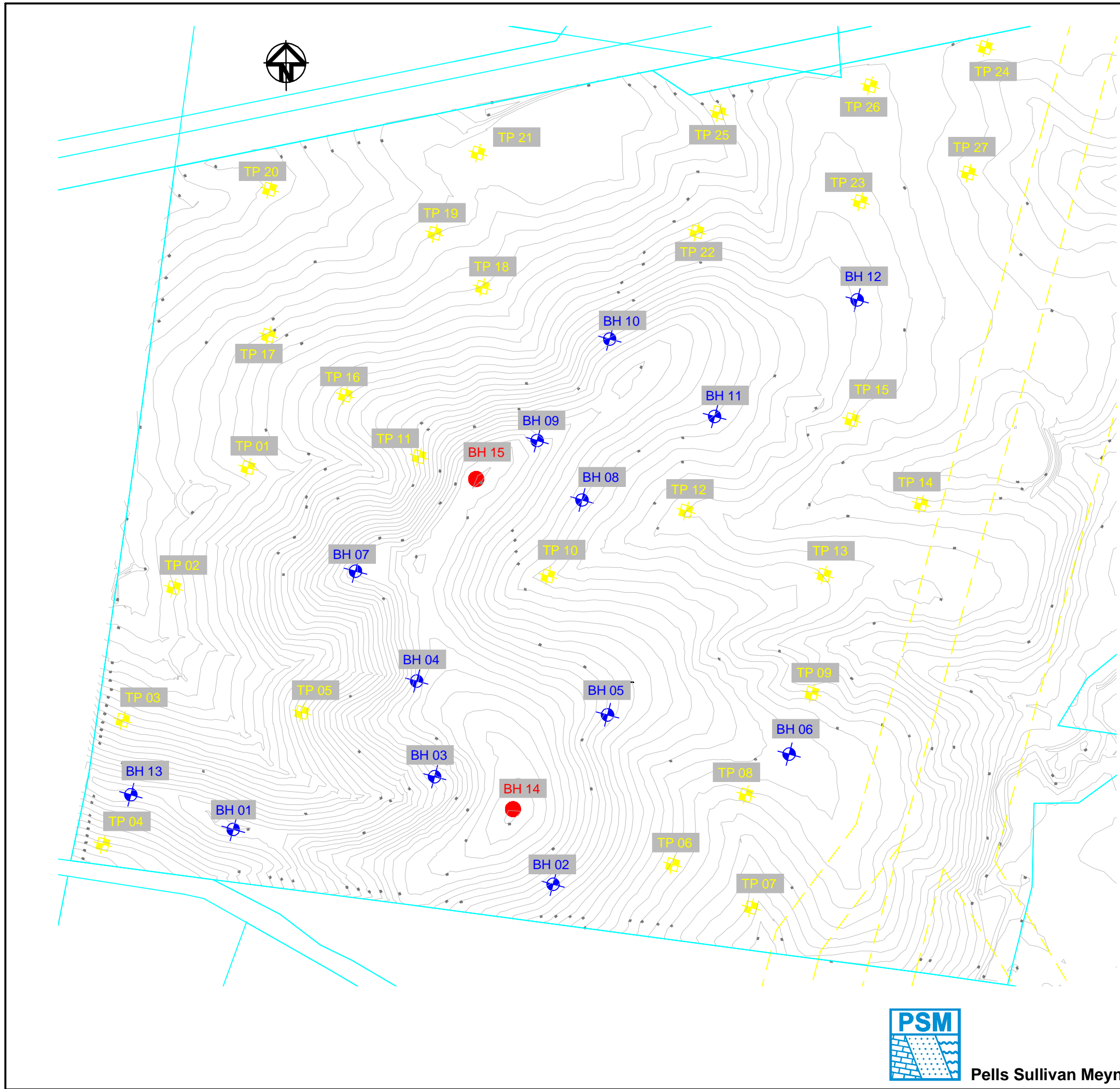
Figure 2 Site Plan (Aerial Photograph - 2005)

Goodman International Limited
 Phase I Environmental Site Assessment
 Oakdake Concept Plan






Concrete blocks downstream of former rubbish disposal area.



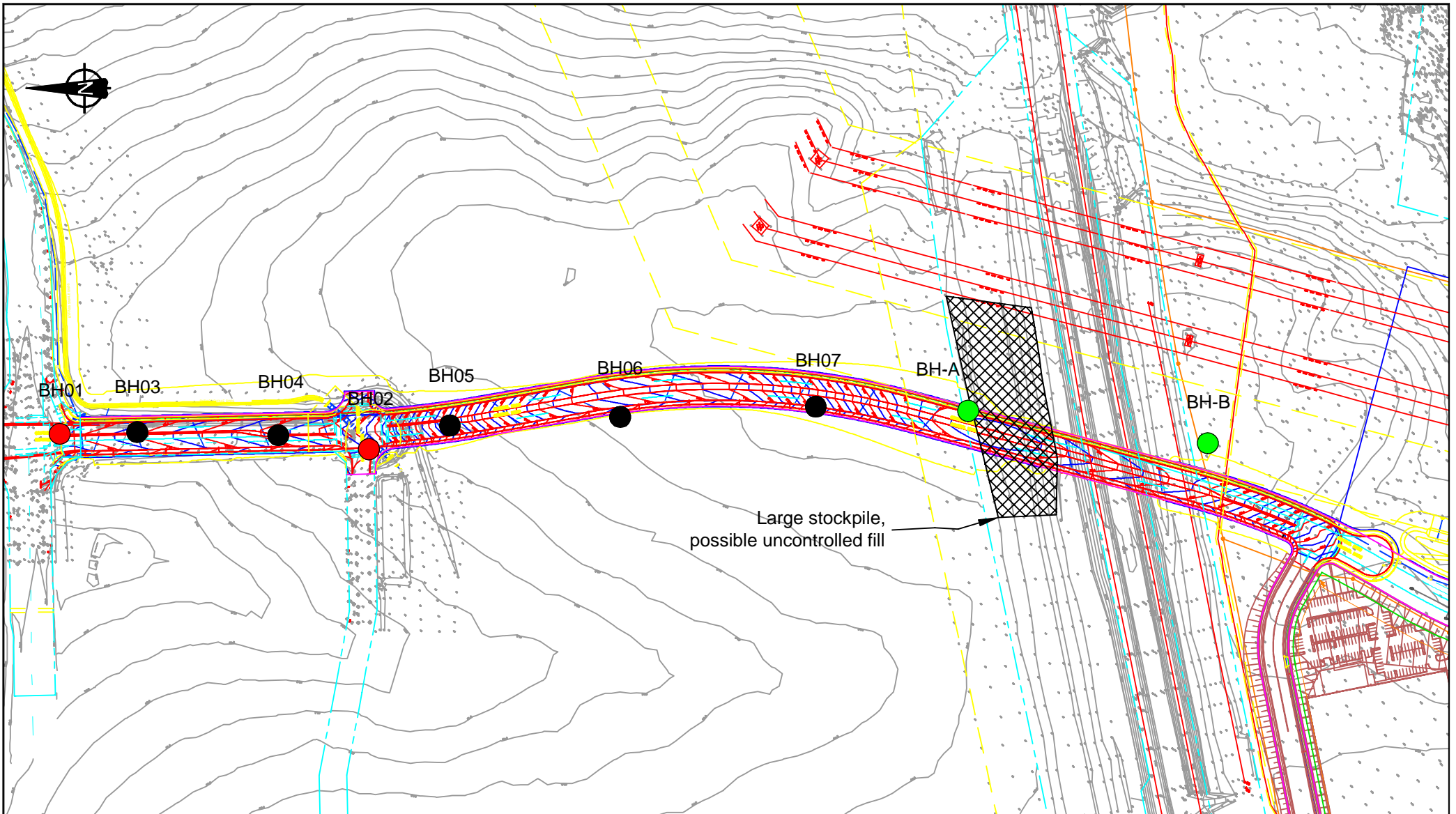


NOTE:

1. PSM geotechnical investigation undertaken between 14 and 20 October 2015.
2. Test locations were surveyed by a hand-held GPS unit with a vertical accuracy of ± 5 m.
3. The base plan was taken from "SKC051 - OPTIMISED MASTER PLAN CUT TO FILL PLAN" dated 14 September 2015

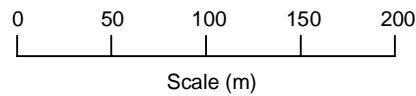
-  **BH 02** - PSM augured borehole locations
-  **TP 02** - PSM augured borehole locations
-  **BH 15** - PSM cored borehole locations

Goodman Pty Ltd Oakdale West Estate Kemps Creek, NSW	
GEOTECHNICAL INVESTIGATION LOCALITY PLAN	
PSM1541-123R	FIGURE 1



LEGEND

- PSM existing pavement borehole
- PSM new pavement borehole
- PSM cored corehole

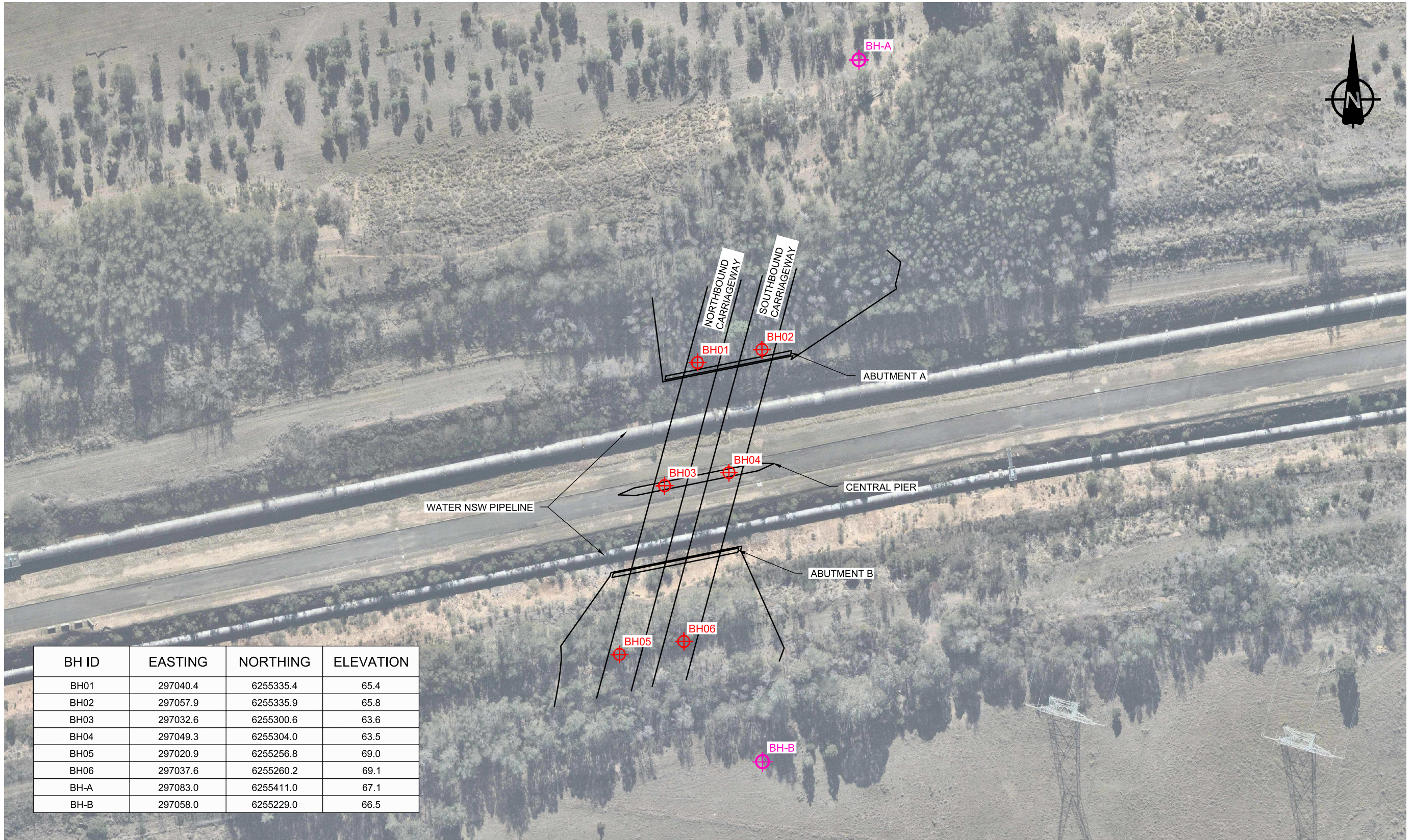


Pells Sullivan Meynink

Goodman Property Services (Aust) Pty Ltd
 Western North South Link Road
 Erskine Park, NSW
LOCALITY PLAN

Figure 1



PSM1541-140R

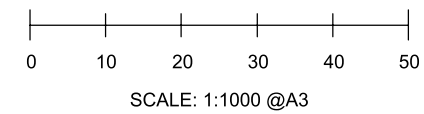


BH ID	EASTING	NORTHING	ELEVATION
BH01	297040.4	6255335.4	65.4
BH02	297057.9	6255335.9	65.8
BH03	297032.6	6255300.6	63.6
BH04	297049.3	6255304.0	63.5
BH05	297020.9	6255256.8	69.0
BH06	297037.6	6255260.2	69.1
BH-A	297083.0	6255411.0	67.1
BH-B	297058.0	6255229.0	66.5

NOTES:

1. BRIDGE LAYOUT FROM AT&L DRAWING "WNSLR BOREHOLE TESTING LOCATIONS FOR BRIDGE PIERS PLAN"
2. BOREHOLE ELEVATIONS ESTIMATED FROM CONTOURS ON AT&L DRAWING (SKC121)
3. NEARMAP IMAGERY DATED 22 JUNE 2018

-  PSM BH LOCATIONS (CURRENT INVESTIGATION)
-  PREVIOUS PSM BH LOCATIONS (REFER PSM1541-140R)

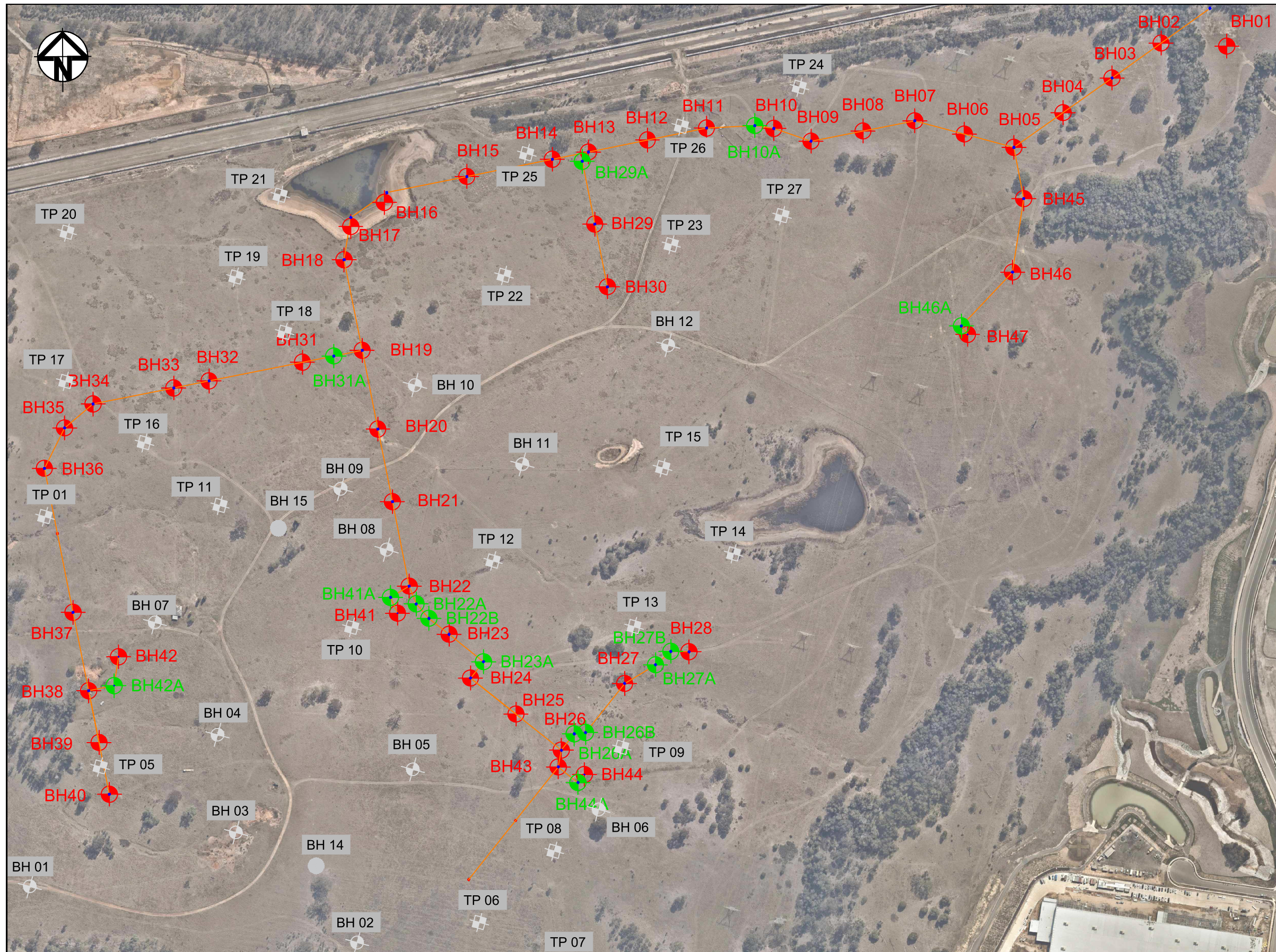


Pells Sullivan Meynink








AT&L
WESTERN NORTH-SOUTH LINK ROAD
EASTERN CREEK
BOREHOLE LOCALITY PLAN

PSM1541-367R

FIGURE 1

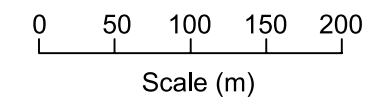


LEGEND:

-  Primary borehole location
-  Secondary borehole location
-  Sewer manhole location
-  Sewer manhole location - above existing ground surface
-  Previous PSM test pits
-  Previous PSM augered boreholes
-  Previous PSM cored boreholes

NOTES:

1. Primary boreholes are located at sewer manholes or at interim locations where manhole distance is greater than 120 m.
2. Secondary boreholes are located between manholes where distance is less than 50 m.
3. No boreholes were drilled at manhole locations where sewer level will be above existing ground surface (manholes 3-7, 6-2 and 6-3).
4. For details of previous PSM investigation, refer to PSM1541-123R.



Pells Sullivan Meynink

Goodman Property Pty Ltd
Oakdale West Estate Proposed Sewer
Kemps Creek, NSW

LOCALITY PLAN

PSM1541-370L

Figure 1

Appendix B

Materials Tracking Register (proformas)

MATERIALS EXCAVATION FORM

DATE.....

Material Type	Material Description	Source Location	Volume m³	Intended Destination

Make notes on: Where and when the material is excavated, how long and where it is stockpiled. Take photos and sketch.

Stockpile Materials Tracking System Form

Location of Stockpile (tick one below)

Within banded work area, designated area (stockpile grid number or excavation number...)	
--	--

The stockpile status/classification: (tick one below)

Import	
Closed – quarantined	
Export	

The material type:

The origin (excavation or another stockpile) of material in the stockpile:

The stockpile volume:

The destination (including intended end use) of material in the stockpile:

For characterization	
Backfill	
Another stockpile (describe)	
Off-site landfill	

Validation samples collected from the stockpile (as appropriate).

APPENDIX P

Unexpected Finds Protocol – Archaeological



Unexpected Finds Protocol – Archaeological Items

Project: Oakdale West Estate	Date: Wednesday, 13 November 2019
Client: Goodman Group	Author: Sandra Wallace (Senior Heritage Consultant)

Project Background

On 13 September 2019 consent for the proposed Stage 1 works was granted by the Secretary of the NSW Department of Planning and Environment. The development consent is for a State Significance Development (SSD), reference number is 15_7348, referred to as SSD 15_7348.

Artefact Heritage has prepared this Unexpected Finds Protocol (UFP) to satisfy the conditions of approval for the project, as below:

Table 1: Table of conditions

Archaeology		
Condition No.	Condition	Action
	(a) All work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;	
D106. If any item or object of Aboriginal heritage significance is identified on Site:	(b) A 10 m wide buffer area around the suspected item of object must be cordoned off; and	Refer to Unexpected Finds Protocol
	(c) The Biodiversity and Conservation Division of the Department must be contacted immediately.	
D107. 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.		Refer to the Office of Environment and Heritage 2011 <i>Guide to Investigating, assessing and reporting on Aboriginal cultural heritage in NSW: Part 6 National Parks and Wildlife Act 1974</i>

D108. If any archaeological relics are uncovered during construction of Stage 1, then all works in the immediate vicinity of the relic must cease immediately. Unexpected finds must be evaluated and recorded in accordance the requirements of Department of Premier and Cabinet, Heritage (former NSW OEH Heritage Division).

The significance of unexpected finds will be assessed against the seven heritage criteria as outlined in the NSW Heritage Manual, including historical, associative, aesthetic or technical, social, research potential, rarity, and representativeness criterion. The aim of assessing significance is to identify if an unexpected find is of local or state significance. The assessment will guide recommendations for further management, approvals, and mitigations measures that may be required prior to recommencement of works

This UFP should be implemented if any potentially significant Aboriginal object or Non-Aboriginal archaeological remains are identified during proposed groundworks.

Examples of types of unexpected archaeological finds include:

- Potential Aboriginal flaked items
- Concentrations of artefacts – this may take the form of a number of artefacts concentrated in a single location, typically associated with a dark silty soil deposit. Artefacts may include complete or broken glass bottles and ceramic items, animal bone and other domestic items.
- Structural remains i.e. brick or stone footings, areas of buried paving.

NSW Heritage Legislation and Protection

Three Acts afford protection to cultural heritage and archaeology in NSW:

- *National Parks and Wildlife Act 1974* (NPW Act)
- *Heritage Act 1977* (Heritage Act)
- *Environmental Planning and Assessment Act 1979* (EP&A Act).

Aboriginal sites are protected by all three acts. It is an offence to knowingly or unknowingly damage or disturb an Aboriginal site without the appropriate approval. Fines and prison sentences may apply.

Historical archaeological sites in NSW are protected by the NSW *Heritage Act 1977*. Sections 139-145 of the *Heritage Act 1977* prevent the excavation or disturbance of land known or likely to contain **historic Archaeological Relics**, unless in accordance with an excavation permit or with the conditions of approval for a State Significant Development. If an archaeological site or object is damaged or disturbed prosecution may result.

Unexpected Finds Protocol

If unanticipated archaeological items are uncovered at any time throughout the life of the project the following actions must be followed:

- 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

The superintendent / principal must:

- Notify the Biodiversity and Conservation Division: **(02) 6274 1111**
- Notify OEH on the Environment Line: **131 555**
- Call the archaeologist to identify whether additional investigation is required in accordance with the conditions of approval and OEH guidelines
- Notify OEH if confirmed as an Aboriginal object or relic
- Await further advice before proceeding with work in the area.

Artefact archaeologist contact

Artefact Heritage, Pyrmont Office **02 9518 8411**, office@artefact.net.au

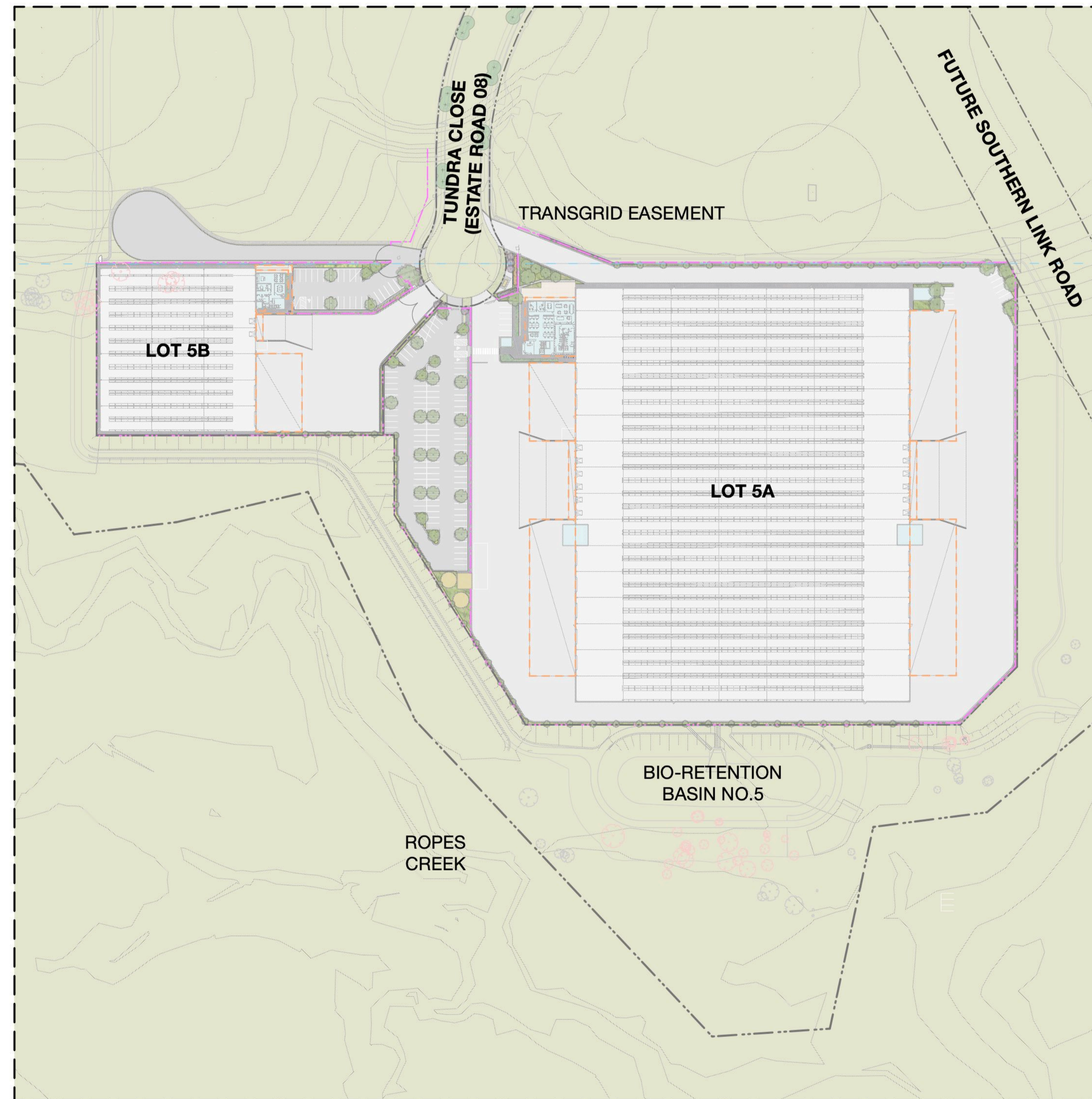
Examples of Aboriginal heritage and historical archaeological remains



APPENDIX Q

Landscape Plan

KEY MAP 



LANDSCAPE ARCHITECTURE
Address Suite 5, 15 The Corso
Manly NSW 2095
Phone 02 9976 0756
email office@scapedesign.com.au
Web www.scapedesign.com.au

PROJECT

Oakdale West Estate Lots 5A and 5B

Kemps Creek, NSW

CLIENT

Goodman Property Services (AUST) PTY LTD

Cover Sheet

PHASE

Development Application
Landscape Drawing Set

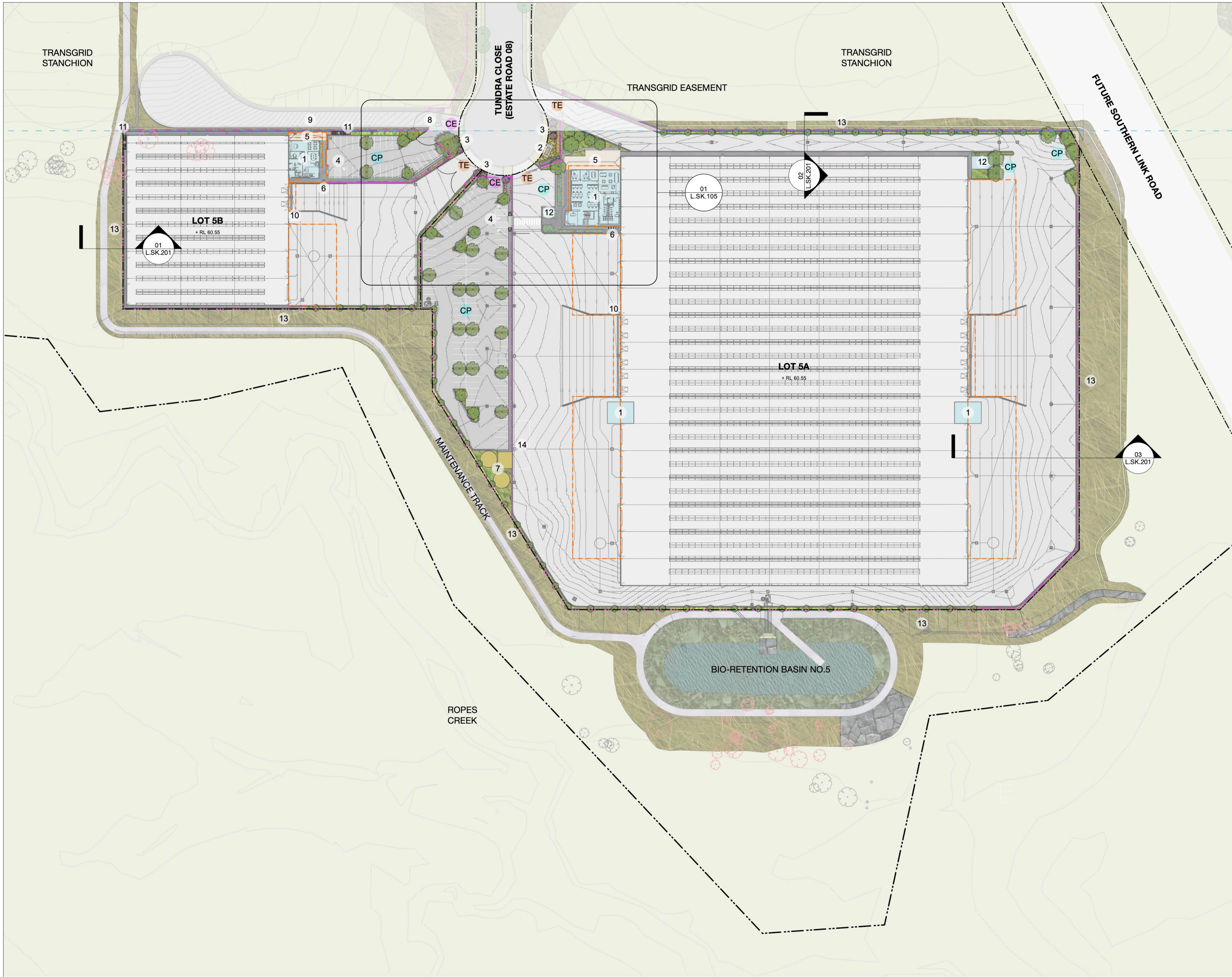
TRANSMITTAL

Dwg. Number	Dwg. Name	Revision	Date
L.SK.00	Cover Sheet	B	10/5/22
L.SK.01	Landscape Sketch Plan - Lot 5A & 5B	B	10/5/22
L.SK.02	Planting Plan - Lot 5A & 5B	B	10/5/22
L.SK.03	Planting Schedule - Lot 5A & 5B	B	10/5/22
L.SK.04	Character & Materials	B	10/5/22
L.SK.105	Landscape - Detailed Plan & Notes	B	10/5/22
L.SK.200	Carpark Details	B	10/5/22
L.SK.201	Landscape Sections Sheet 1	B	10/5/22

Not For Construction

Stage 8 DA - Lot 5A & 5B

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Verify services locations prior to commencement.
Verify all dimensions on site prior to construction.



LEGEND	
PROGRAMME	PAVEMENTS
1 Office	Coarse Aggregate
2 Substation	Asphaltic Concrete
3 Entry Feature Trees	Decomposed Granite
4 Accessible Parking	Insitu Concrete
5 Staff Rest Area	Precast Concrete
6 Bike Parking	Stone Tiles
7 Fire Services	Feature paving
8 Fire Brigade Accessible Gate	Rock Swale
9 Fire Brigade Access Road	Rock Pitching
10 Waste Storage Area	Pram Ramp
11 Stair & Gate	FURNITURE & FITTINGS
12 Gate House	Proposed Bicycle Rack
13 Revegetation and tree planting to lot perimeter to mitigate long-range views	Proposed Street Lighting
14 Fire truck parking	Proposed Sandstone Block
CE Car Entry/exit	Gate
CP Carparking	Signage
TE Truck Entry/exit	Light Type 1
GENERAL	PLANTING
Site Boundary	TF1-General Turf
Lot Boundary	TF2-Feature Turf
Transgrid Easement	PM1A-Car park edge mix-sun
Finished Floor Level	PM1B-Car park edge mix-shade
Reduced Level	PM2A-Car park island mix-sun
FFL 52.00	PM2B-Car park island mix-shade
RL 60.00	PM3A-Site edge mix - sun
Fence Type 1 Refer Arch. dwgs.	PM3B-Site edge mix - shade
Fence Type 2 Refer Arch. dwgs.	PM4-Site markers mix
Architecture Above	PMSA-Feature planting mix-sun
Demolition	PM6A-Site hedge mix-sun
Proposed Ramp	PM7A-Groundcover mix A
PREPARATION & GROUNDWORKS	PM7B-groundcover mix B
Proposed Stairs	PM9A-Climbers mix
Building	Stage 1 Landscape Works
Amenities Lot	RM1A-Native grasses on fill embankment
Services	RM3-Pasture grass revegetation mix
WALLS & EDGES	TREES
Existing Retaining Wall	Existing Tree to be Retained
Steel Edge	Existing Tree to be Removed Refer ASBORISTS REPORT
Flush Concrete Kerb	Stage 1 Works - Proposed Tree
Raised Concrete Kerb	Proposed Tree - General
Retaining Gabion Wall	Proposed Tree - Entry Marker
Retaining Insitu Wall	Proposed Tree - Site Marker
Steel Wall	
Noise Wall	

SCAPE DESIGN
 LANDSCAPE ARCHITECTURE
 Address Suite 5, 15 The Corso
 Manly NSW 2095
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 email office@sapedesign.com.au
 Web www.sapedesign.com.au

Stage 8 DA Lot 5A & 5B

PROJECT
Oakdale West Estate

CLIENT
Goodman Property Services

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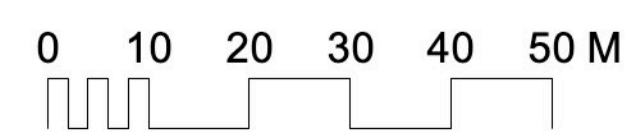
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A	FOR REVIEW	ZZ	2/5/22
revision	revision description	by	date

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 Verify all dimensions on site prior to construction.

Landscape Sketch Plan - Lot 5A & 5B

scale	1:750@A1
drawn	ZZ
checked	CH
project no.	163-18
project phase	Development Application

Note: All finished levels subject to change +/- 1000mm.





LEGEND

PLANTING

- TF1-General Turf
- TF2-Feature Turf
- PM1A-Car park edge mix-sun
- PM1B-Car park edge mix-shade
- PM2A-Car park island mix-sun
- PM3A-Site edge mix low - sun
- PM5A-Feature planting mix
- PM6A-Site hedge mix - sun
- PM7A-Groundcover mix A
- PM7B-Groundcover mix B
- PM9A-Climbers mix
- Proposed tree/specimen plant

SCAPE DESIGN

LANDSCAPE ARCHITECTURE

Address Suite 5, 15 The Corso
Marrilly NSW 2065

Phone 02 9976 0756
email office@scapecdesign.com.au
Web www.scapecdesign.com.au

PROJECT
Oakdale West Estate

CLIENT
Goodman Property Services

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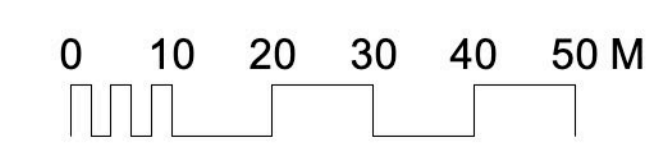
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B	FOR REVIEW	ZZ	10/5/22
A	FOR REVIEW	ZZ	2/5/22

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Verify all dimensions on site prior to construction.

Planting Plan - Lot 5A & 5B

scale	1:500@A1
drawn	ZZ
checked	CH
project no.	163-18
project phase	Development Application

Note: All finished levels subject to change +/- 1000mm.



PLANTING SCHEDULE - LOT 3B

Botanical Name	Common Name	Height (m)	Spread (m)	Pot Size	Rate (m2)	
Trees						
<i>Corymbia maculata</i>	Spotted Gum	30.0	10.0	75L	As Shown	
<i>Cupaniopsis anacardioides</i>	Tuckeroo	12.0	6.0	100L	As Shown	
<i>Lagerstroemia indica x fauriei 'Tuscarora'</i>	Crepe Myrtle (Hot Pink)	8.0	4.0	200L	As Shown	
<i>Magnolia grandiflora 'Exmouth'</i>	Bull Bay Magnolia	12.0	7.0	75L	As Shown	
<i>Syzygium australe 'Pinnacle'</i>	Pinnacle Lilly Pilly	6.0	1.5	75L	As Shown	
<i>Tristanopsis laurina 'DOW10'</i>	Water Gum	10.0	5.0	75L	As Shown	
<i>Waterhousea floribunda 'ST1' Whisper</i>	Weeping Lilly Pilly	8.0	5.0	75L	As Shown	
PM1A - Car Park Edge Mix - Sun						
<i>Callistemon viminalis 'Little John'</i>	Little John Bottlebrush	0.6	0.8	200mm	2	Area = 516 sq.m
<i>Pennisetum alopecuroides 'Nafray'</i>	Pennisetum Nafray	0.5	0.5	140mm	1	
<i>Trachelospermum jasminoides</i>	Star Jasmine	0.9	0.3	140mm	2	
PM1B - Car Park Edge Mix - Shade						
<i>Pennisetum alopecuroides 'Nafray'</i>	Pennisetum Nafray	0.5	0.5	140mm	1	Area = 88 sq.m
<i>Trachelospermum jasminoides</i>	Star Jasmine	0.9	0.3	140mm	2	
<i>Viola hederacea</i>	Native Violet	0.1	0.2	140mm	2	
PM2A - Car Park Island Mix - Sun						
<i>Gazania tomentosa</i>	Silver Gazania	0.3	1.5	140mm	2	Area = 138 sq.m
<i>Nandina domestica 'Gulf Stream'</i>	Dwarf Sacred Bamboo	0.8	0.8	300mm	2	
<i>Pennisetum alopecuroides 'Nafray'</i>	Pennisetum Nafray	0.5	0.5	140mm	1	
PM3A - Site Edge Mix Low - Sun						
<i>Callistemon 'Great Balls of Fire'</i>	Bottlebrush	2.0	2.0	300mm	1	Area = 796 sq.m
<i>Callistemon 'White Anzac'</i>	Bottlebrush	1.0	2.0	300mm	1	
<i>Gazania tomentosa</i>	Silver Gazania	0.3	1.5	140mm	2	
<i>Pennisetum alopecuroides 'Nafray'</i>	Pennisetum Nafray	0.5	0.5	140mm	1	
PM5A - Feature Planting Mix						
<i>Doryanthes excelsa</i>	Gynea Lily	2.0	1.5	300mm	2	Area = 13 sq.m
<i>Loropetalum chinense rubrum 'China Pink'</i>	Chinese Fringe Flower	1.5	1.5	300mm	2	
<i>Photinia x fraseri 'Red Robin'</i>	Red Robin	3.0	2.0	300mm	1	
PM6A - Site Hedge Mix - Sun						
<i>Acmena smithii 'Fire Screen'</i>	Creek Lilly Pilly	2.0	1.2	300mm	1	Area = 19 sq.m
<i>Metrosideros collina 'Springfire'</i>	NZ Christmas Bush	2.0	2.0	300mm	1	
<i>Metrosideros thomsonii</i>	New Zealand Christmas Bush	4.0	4.0	300mm	1	
<i>Rhaphiolepis indica 'Oriental Pearl'</i>	Oriental Pearl Indian Hawthorn	1.0	1.0	300mm	2	
<i>Rhaphiolepis indica 'Snow Maiden'</i>	Snow Maiden Indian Hawthorn	0.5	1.0	300mm	2	
PM7A - Groundcovers Mix A						
<i>Gazania tomentosa</i>	Silver Gazania	0.3	1.5	140mm	2	Area = 87 sq.m
PM7B - Groundcovers Mix B						
<i>Trachelospermum jasminoides 'tricolor'</i>	Tricolor Star Jasmine	0.5	1.0	140mm	2	Area = 25 sq.m
PM9A - Climbers Mix						
<i>Trachelospermum jasminoides</i>	Star Jasmine	0.9	0.3	140mm	2	Area = 3 sq.m

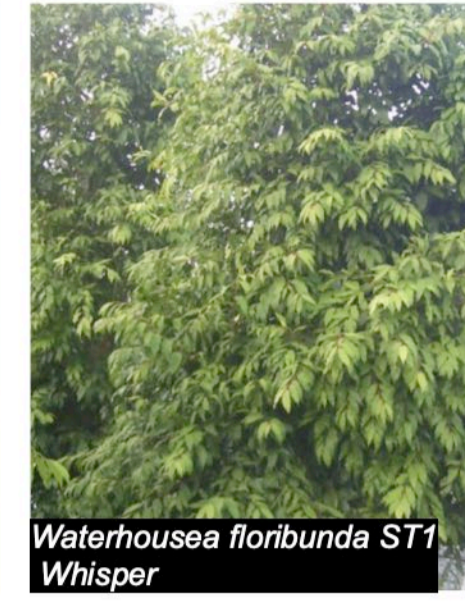
NOTE:
 1. Mass planting to be undertaken in large groupings of the same species to approval of landscape architect.
 2. Hedging species are to be set out in linear arrangements of same species to approval of landscape architect.
 3. All planting and turf areas to be irrigated with subsurface drip line. Refer to the Oakdale West Estate Landscape Management Plan and Goodman Landscape Guidelines for further information

PLANTING PALETTE

Buffer Trees



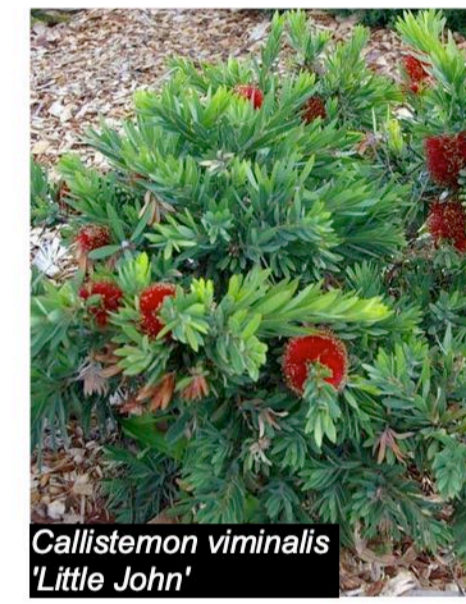
Car Park Trees



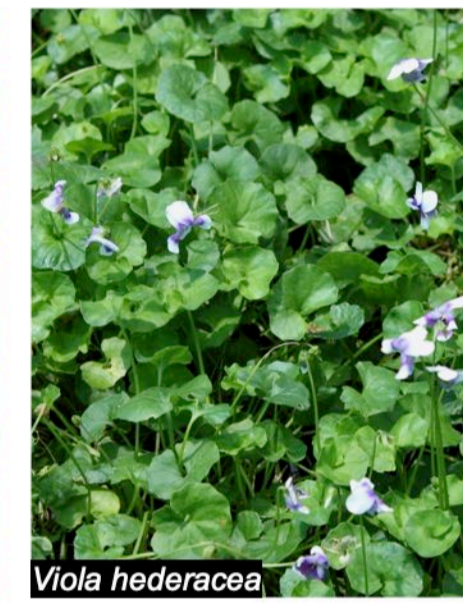
Feature Trees



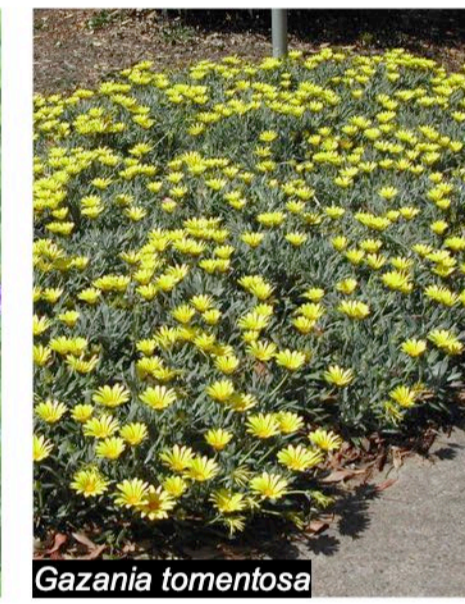
PM1A - Car Park Edge Mix - Sun



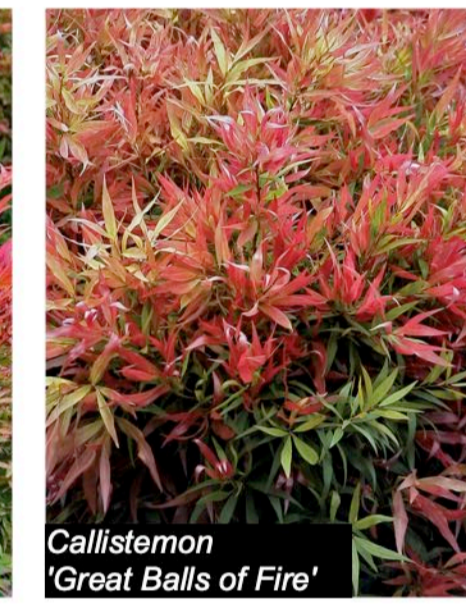
PM1B - Car Park Edge Mix - Shade



PM2A - Car Park Island Mix - Sun



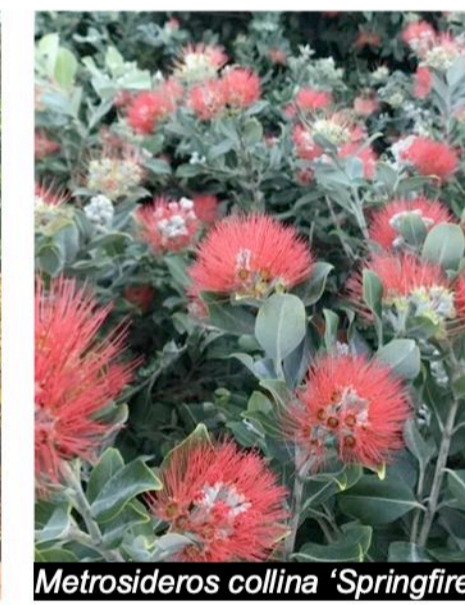
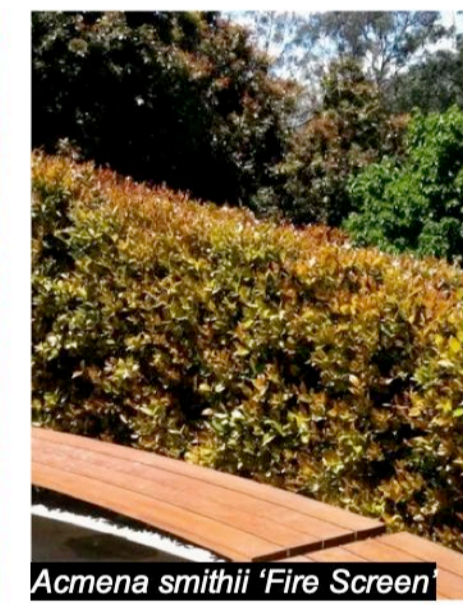
PM3A - Site Edge Mix Low - Sun



PM5A - Feature Planting Mix



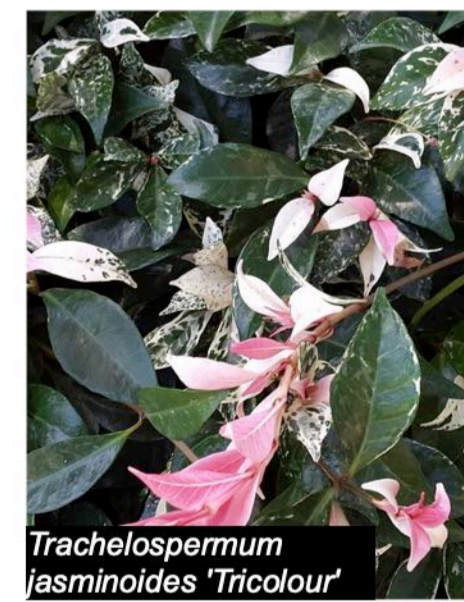
PM6A - Site Hedge Mix - Sun



PM7A - Groundcovers



PM7B - Groundcovers



PM9A - Climbers Mix



TF1 - General Turf



TF2 - Feature Turf



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Planting Schedule - Lot 5A & 5B

scale 1:500@A1
 drawn ZZ
 checked CH
 project no. 163-18
 project phase Development Application

L.SK.03 **B**

Note: All finished levels subject to change +/- 1000mm.

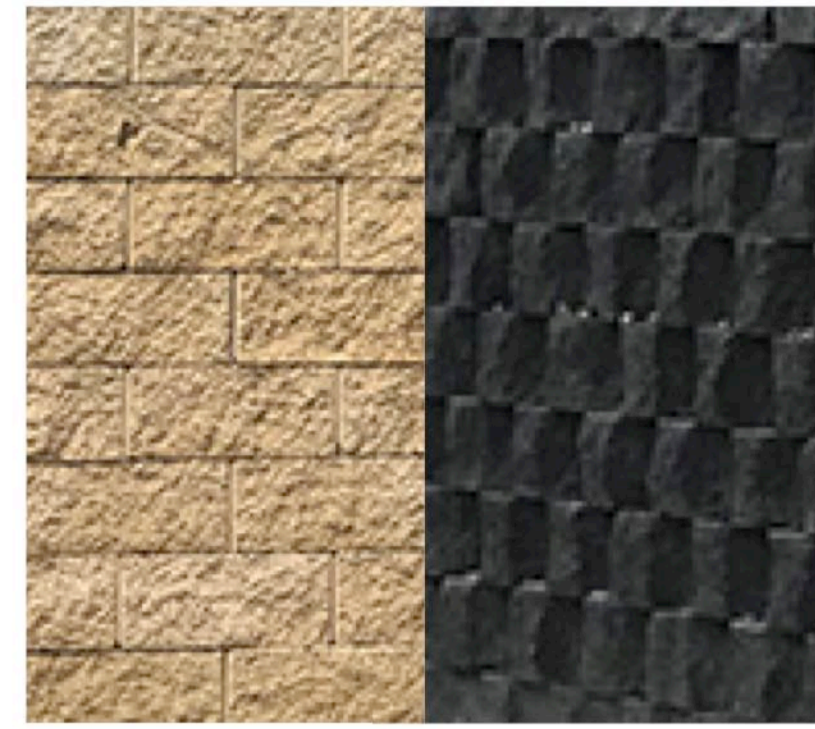
EXISTING SITE CHARACTER



Weathering steel



Mounding and grasses



Textured walling



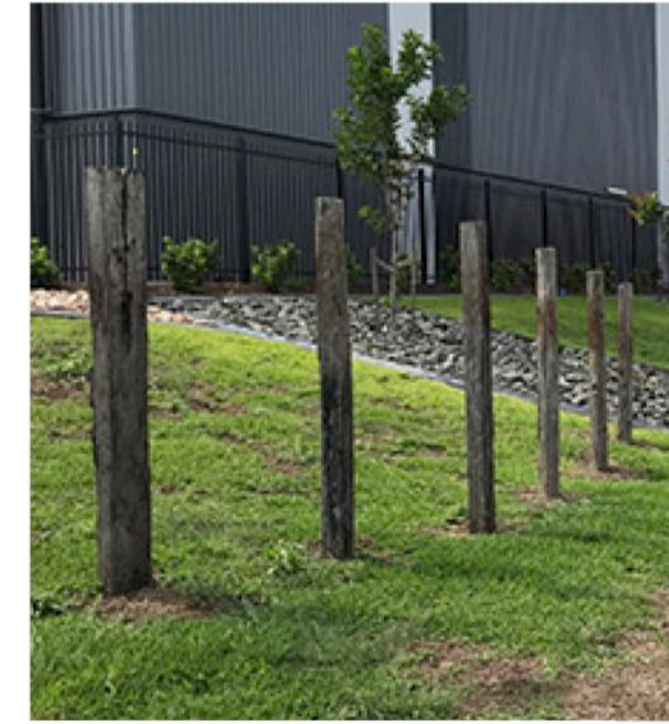
Verge landscape



Street frontage



Signage and detailed planting at entries



Hardwood sleeper mullions

INDICATIVE SITE CHARACTER MONTAGE OF ADJACENT LOTS

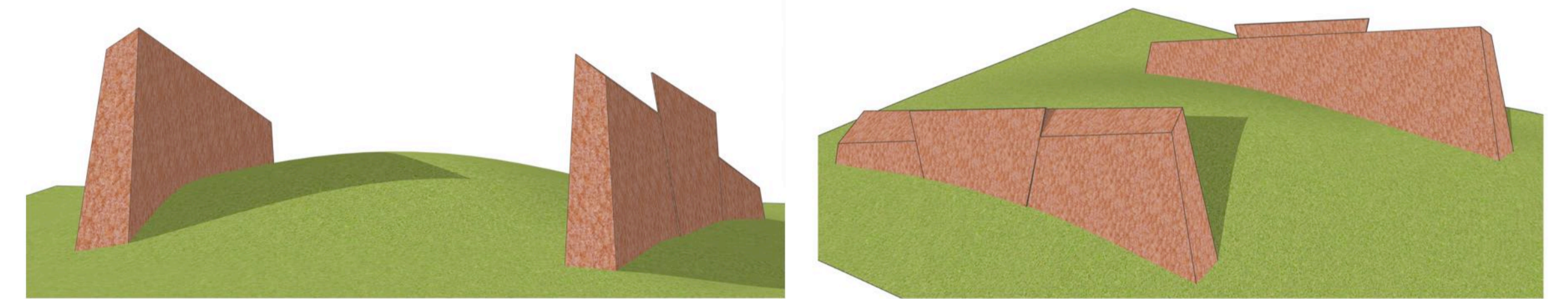


Indicative site character montage of Lot 4E



Indicative site character montage of Lot 3B

ENTRY MARKERS CONCEPT



PROPOSED LANDSCAPE CHARACTER



Mass planting bold texture and colour within native plant matrix



Feature trees



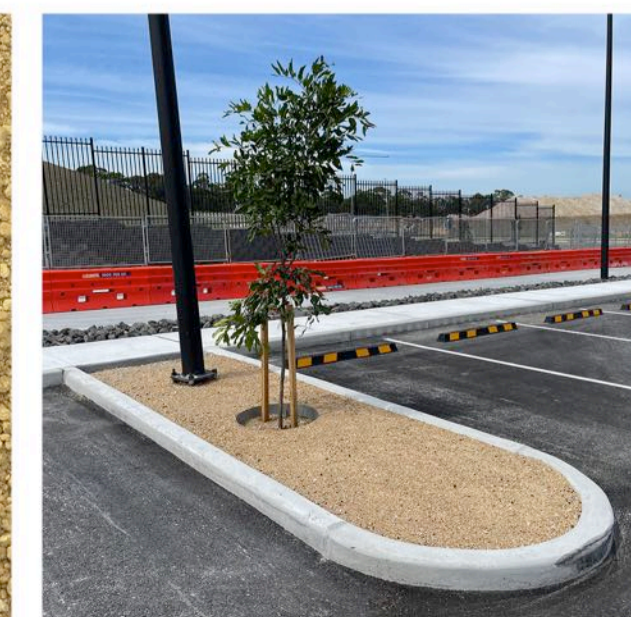
Green mounds



Feature sandstone blocks at pedestrian nodes and driveways



Decomposed granite 'Gold'



Carpark tree island



Entry marker with weathering steel blades, feature trees and uplighting

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**Stage 8 DA
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Character & Materials

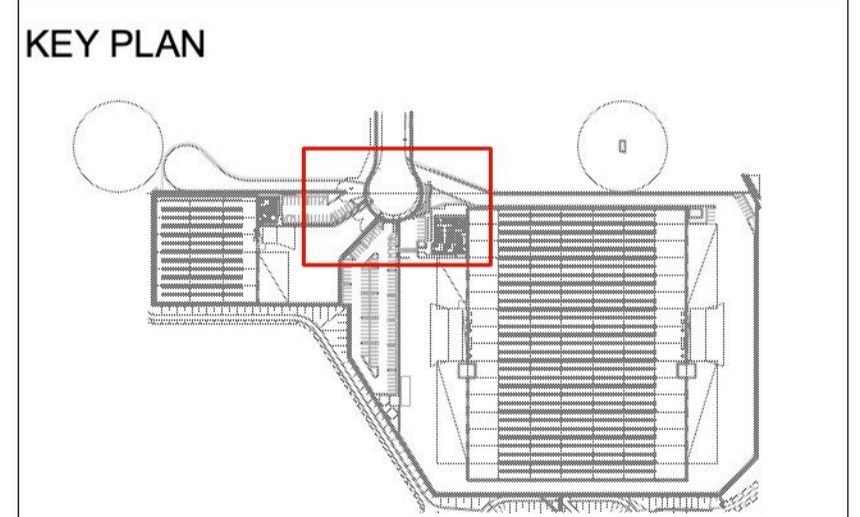
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checked	CH
project no.	163-18
project phase	Development Application

L.SK.04 **B**



LEGEND

PROGRAMME	PAVEMENTS
1 Office	Coarse Aggregate
2 Substation	Asphaltic Concrete
3 Entry Feature Trees	Decomposed Granite
4 Accessible Parking	Insitu Concrete
5 Staff Rest Area	Precast Concrete
6 Bike Parking	Stone Tiles
7 Fire Services	Feature paving
8 Fire Brigade Accessible Gate	Rock Swale
9 Fire Brigade Access Road	Rock Pitching
10 Waste Storage Area	Pram Ramp
11 Stair & Gate	FURNITURE & FITTINGS
12 Gate House	Proposed Bicycle Rack
13 Revegetation and tree planting to lot perimeter to mitigate long-range views	Proposed Street Lighting
14 Fire truck parking	Proposed Sandstone Block
CE Car Entry/exit	Gate
CP Carparking	Signage
TE Truck Entry/exit	Light Type 1
GENERAL	PLANTING
Site Boundary	TF1-General Turf
Lot Boundary	TF2-Feature Turf
Transgrid Easement	PM1A-Car park edge mix-sun
+ FFL 52.00 Finished Floor Level	PM1B-Car park edge mix-shade
+ RL 52.00 Reduced Level	PM2A-Car park island mix-sun
Fence Type 1 Refer Arch. dwgs.	PM2B-Car park island mix-shade
Fence Type 2 Refer Arch. dwgs.	PM3B-Site edge mix - sun
Architecture Above	PM4-Site edge mix - shade
Demolition	PM4-Site markers mix
Proposed Ramp	PM5A-Feature planting mix-sun
PREPARATION & GROUNDWORKS	PM6A-Site hedge mix-sun
Proposed Stairs	PM7A-Groundcover mix A
Building	PM7B-groundcover mix B
Amenities Lot	PM9A-Climbers mix
Services	Stage 1 Landscape Works
WALLS & EDGES	RM1A-Native grasses on fill embankment
Existing Retaining Wall	RM3-Pasture grass revegetation mix
Steel Edge	TREES
Flush Concrete Kerb	Existing Tree to be Retained
Raised Concrete Kerb	Existing Tree to be Removed Refer ARBORISTS REPORT
Retaining Gabion Wall	Stage 1 Works - Proposed Tree
Retaining Insitu Wall	Proposed Tree - General
Steel Wall	Proposed Tree - Entry Marker
Noise Wall	Proposed Tree - Site Marker



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Landscape Detailed Plan & Notes

Scale	1:200@A1
Drawn	ZZ
Checked	CH
Project no.	163-18
Project phase	Development Application

Landscape Design Statement - Lot 5A & 5B Development Application

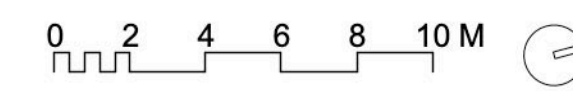
The landscape design prepared for Oakdale West Estate – Lot 5A & 5B, aims to expand on previous individual lot design within Oakdale West, reinforcing a consistent and robust landscape character and adhering to the high standard this development aims to achieve. The design aims to address the key objectives of the NSW Planning *Greener Places* and *Urban Tree Canopy* Guidelines, as well as relevant Penrith City Council guidelines, in terms of maximising tree planting to mitigate heat island effects caused by large expanses of pavement and to screen built form. Lot 5A & 5B will incorporate over 100 native and exotic trees in order to address these requirements.

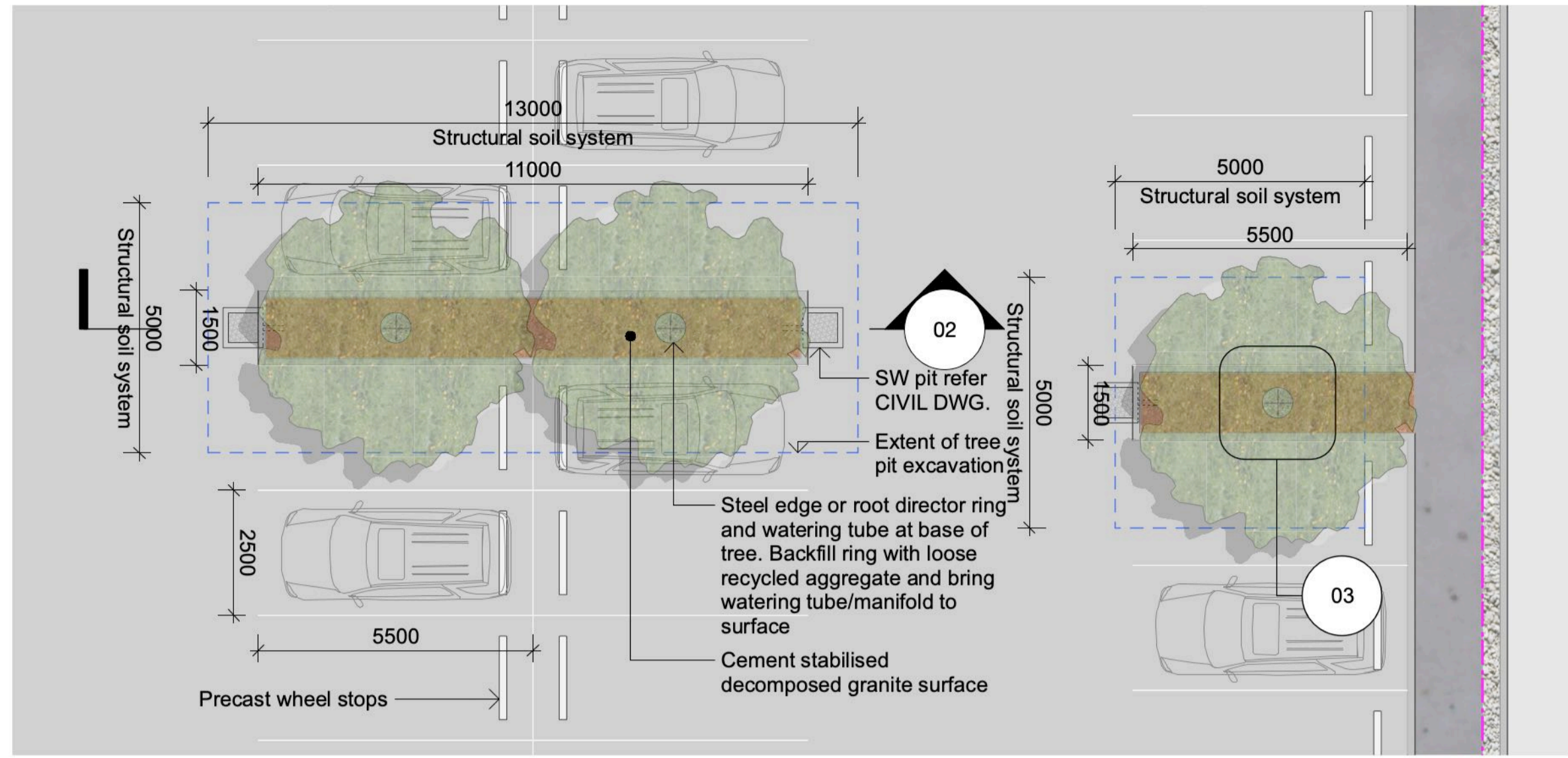
Permeable surfaces comprising vegetation, low maintenance turf and gravel, will be maximised in order to reduce run-off. Plant typologies implemented are to be low maintenance and drought resistant, ensuring all new landscaped areas are water sensitive and tolerant of the harsh Western Sydney climate. Lot 5A & 5B falls under Stage 8 of construction, which will already see the completion of the vegetated bund along the edges and a bio-retention basin at eastern edge of this lot.

When combined with the proposed estate streetscape design and perimeter revegetation, large canopy trees with mass planting of shrubs and groundcovers will form a dense vegetative screen for the development. Once within the site, tall feature trees help define the building edge and reinforce the main pedestrian entry points. Landscape topography and interest will also be provided through feature entry mounds, which are used at precinct nodes to establish a network of wayfinding features across the estate.

Overall, the planting palette aspires to balance council environmental and planning requirements, while also staying consistent to the high-quality Goodman landscape identity that is reflected throughout their estates both in Oakdale and more broadly in Western Sydney. With Goodman taking ownership of the landscape maintenance and on-going care of all landscape areas within Oakdale West Estate, the health and function both during the establishment period and beyond, will be carefully monitored and driven towards a successful and robust outcome.

Note: All finished levels subject to change +/- 1000mm.





01 Carpark Tree Pit System
Detailed Plan - Scale 1:100 @ A1

MATERIALS SCHEDULE

Description	Volume
SOIL STRUCTURE SYSTEM	
Type 1 - Soil Structure System 5000x5000mm Paving-Soil Structure System Type 1	250.0 m ³
Type 3 - Soil Structure System 5000x13000mm Paving-Soil Structure System Type 3	65.0 m ³
Type 4 - Soil Structure System Triangle Islands Paving-Soil Structure System Type 4	327.2 m ³
Total Volume	642.2 m³

NOTES:
Full width of excavated tree pit (5000 W x 5000-13000 W x 1000 D) to be back filled with imported topsoil, ameliorated site soil and structural soil. Provide a minimum of 15m³ of topsoil per tree in car park island beds.

LEGEND

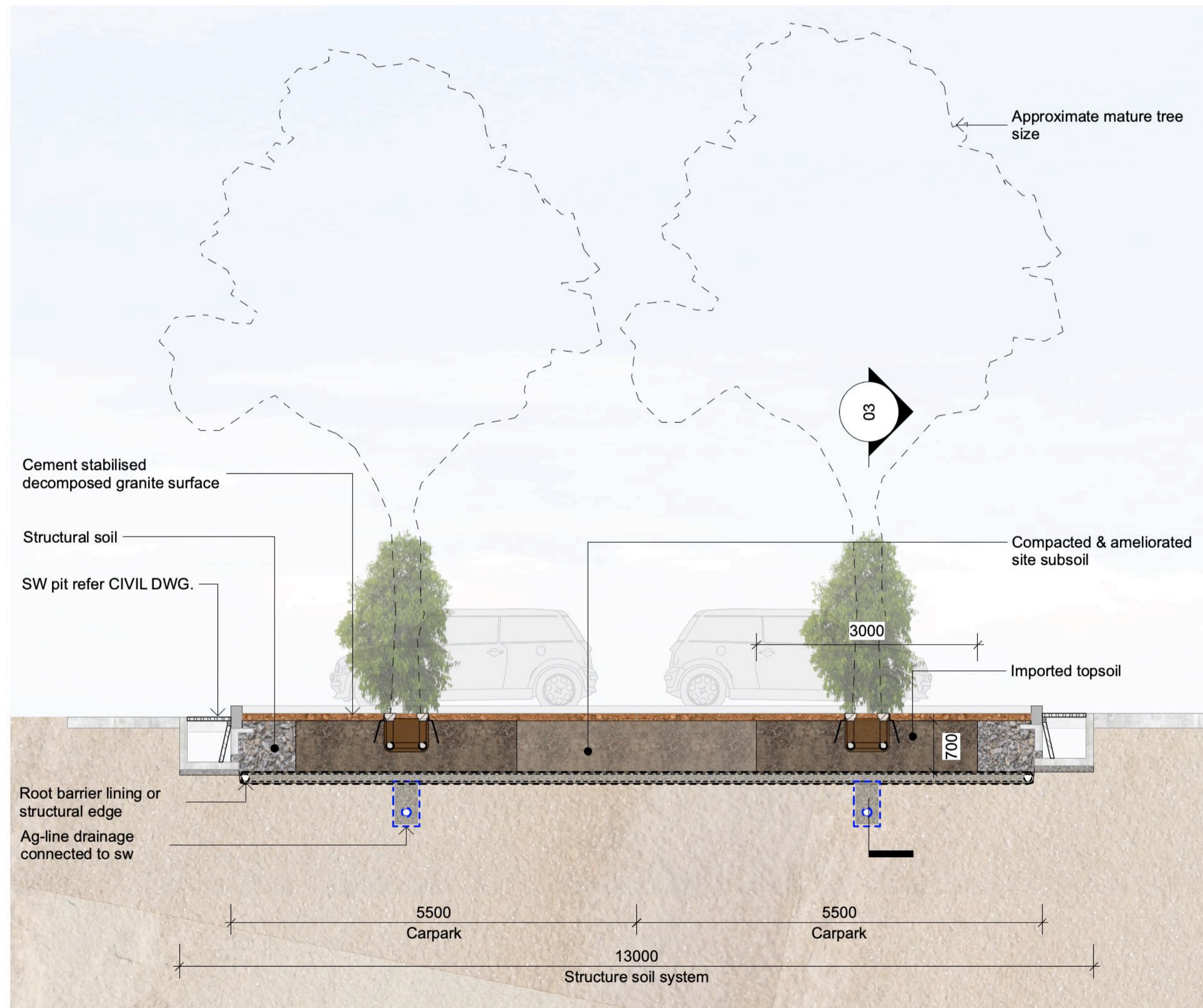
GENERAL
Structure Below

PAVEMENTS
Concrete Insitu Vehicular
Coarse Aggregate
Structural Soil
Decomposed granite

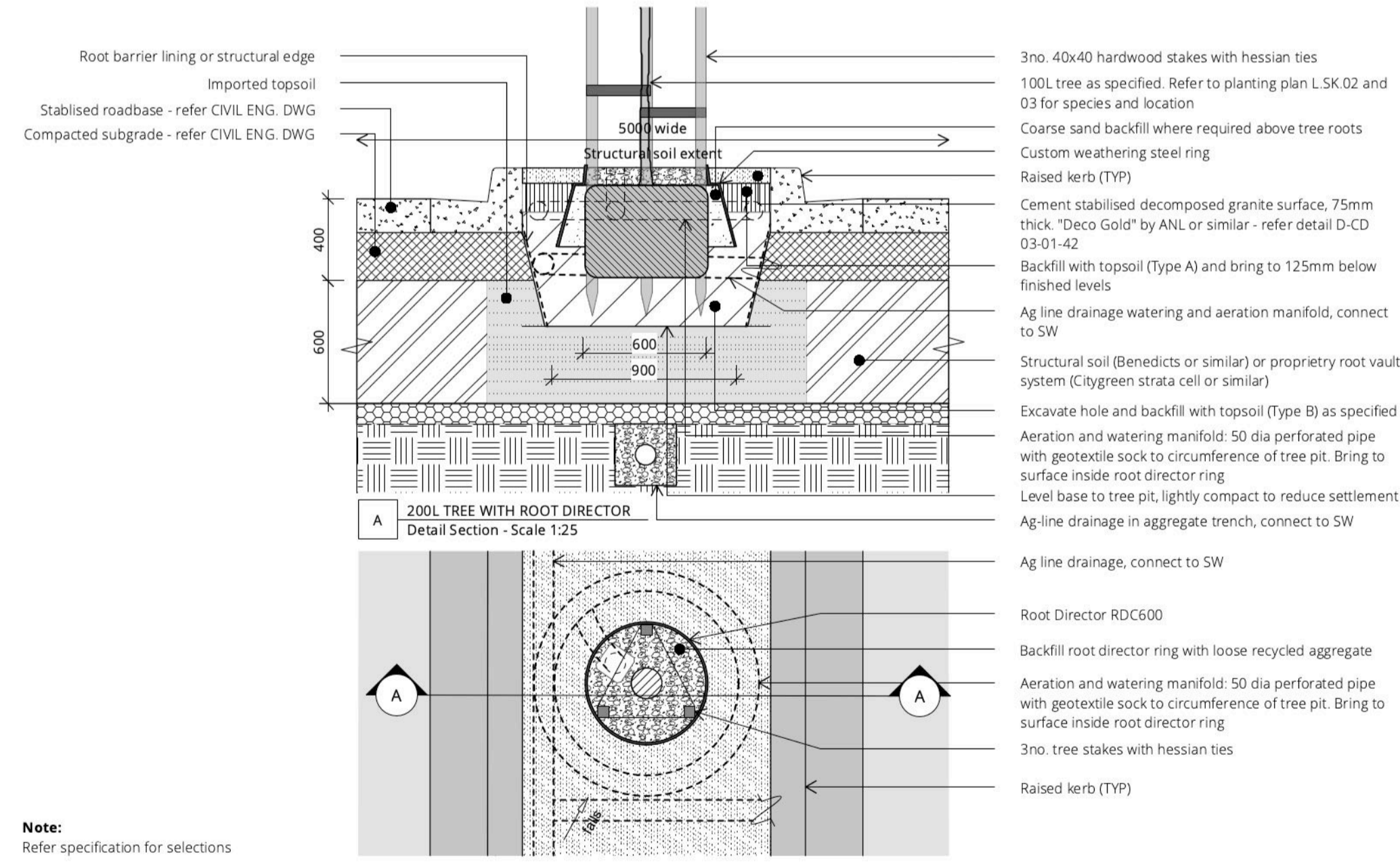
WALLS & EDGES
Raised Concrete Kerb

FURNITURE & FITTINGS
Precast Wheel Stop

TREES
Proposed Tree - General



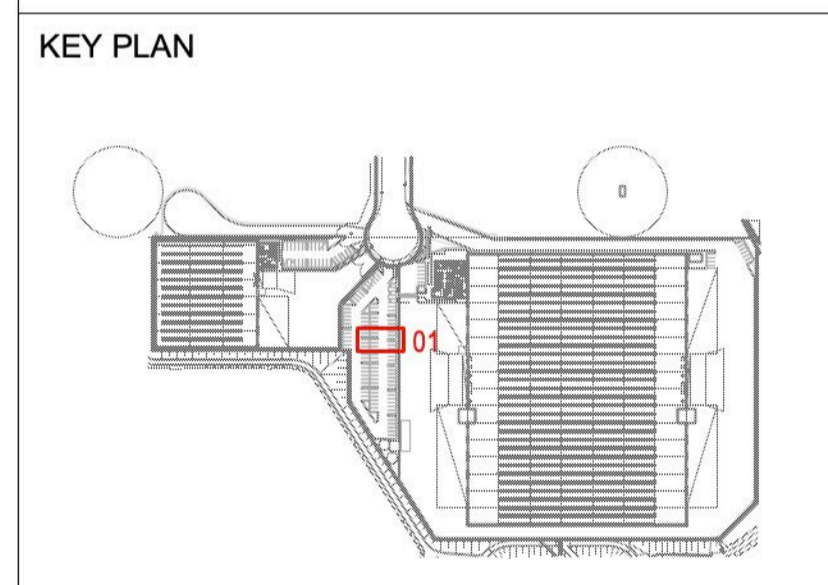
02 Carpark Tree Pit System
Detailed Section - Scale 1:50 @ A1



Note:
Refer specification for selections

D-CD	TREE PLANTING - 100L TREE WITH ROOT DIRECTOR
08-02-21	Section Plan - Scale 1:25 @ A1

03 Carpark Island Tree
Detail - Scale 1:25 @ A1



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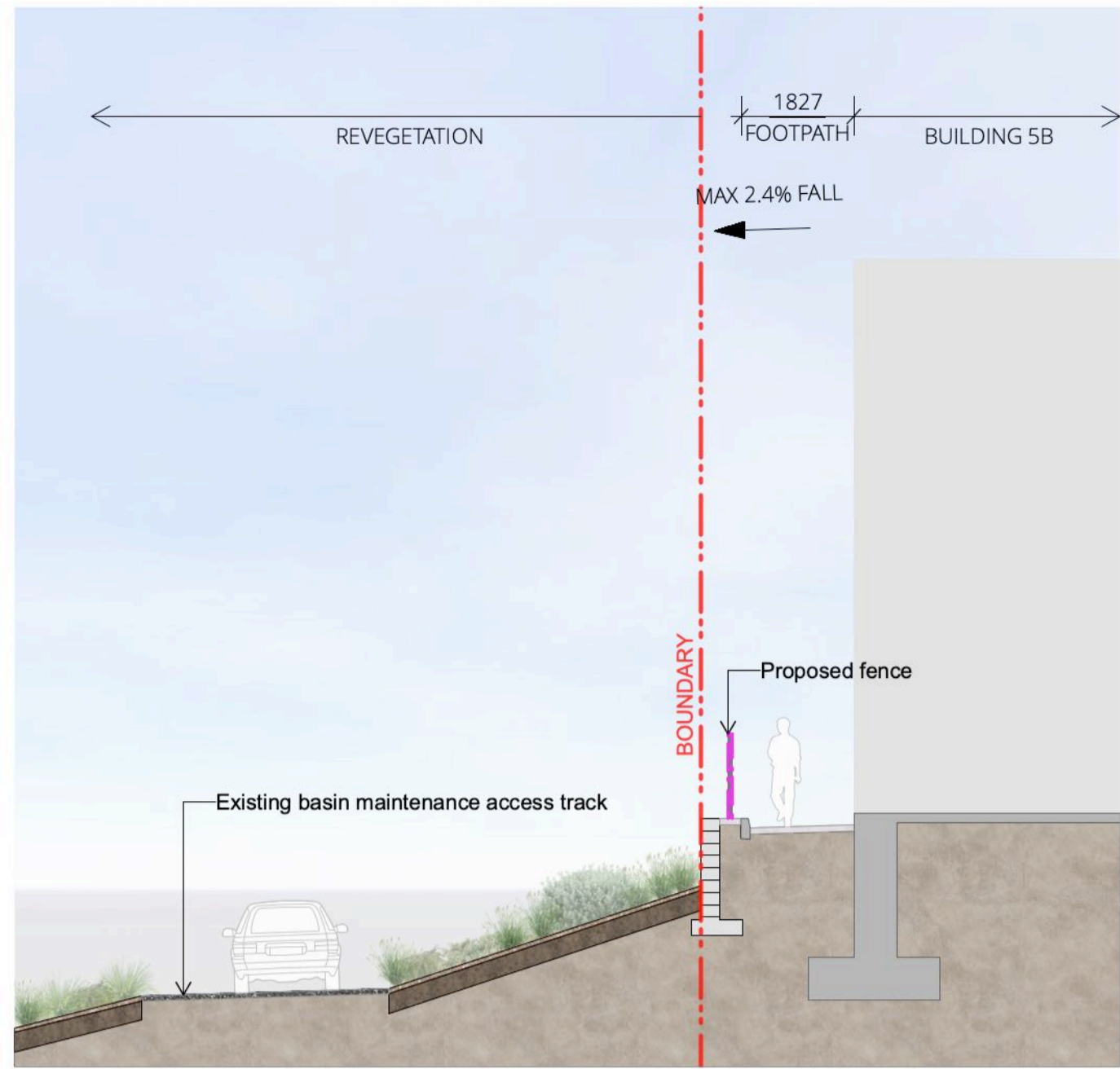
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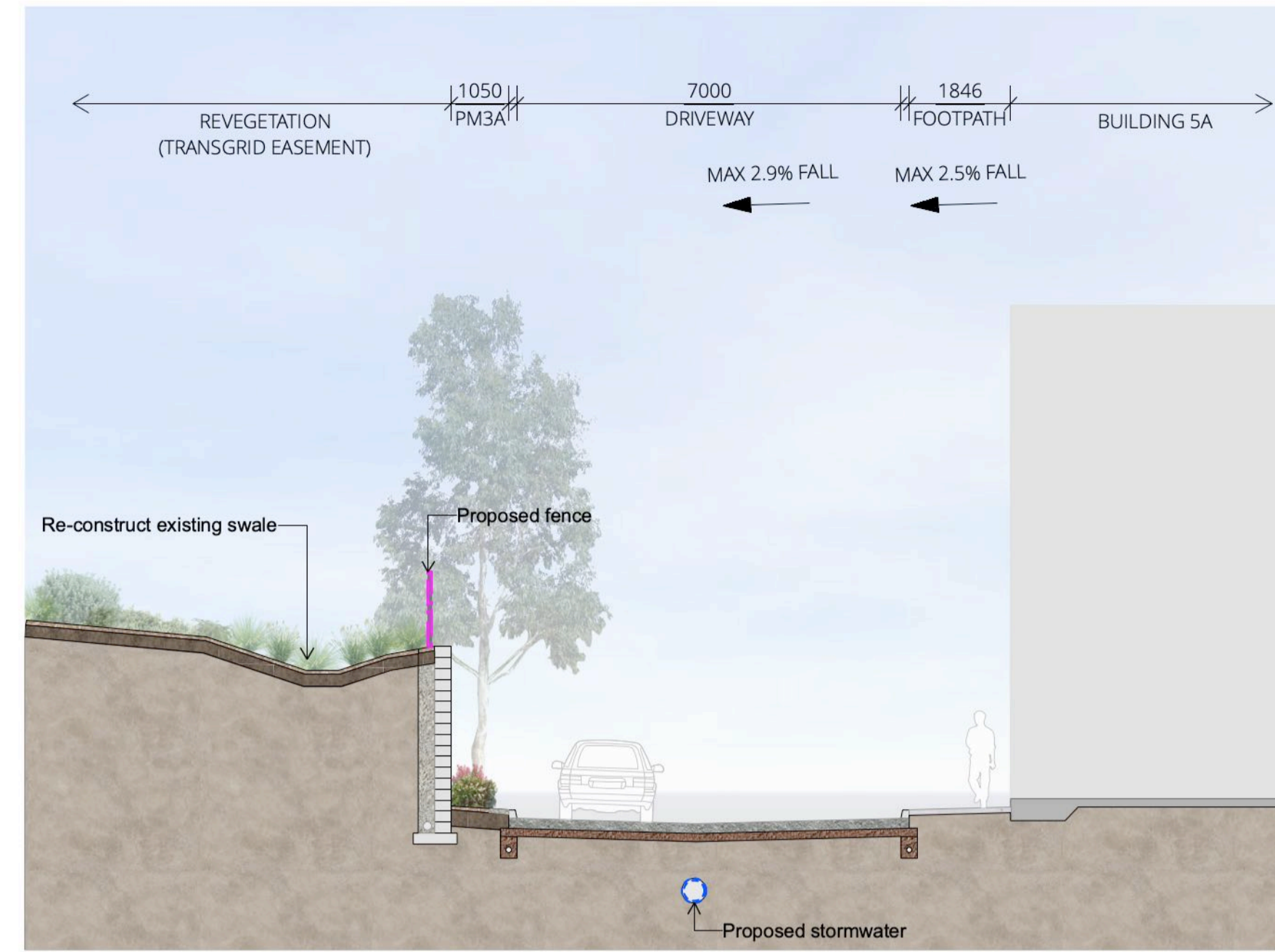
Carpark Details

scale 1:100 & 1:50@A1
drawn ZZ
checked CH
project no. 163-18
project phase Development Application

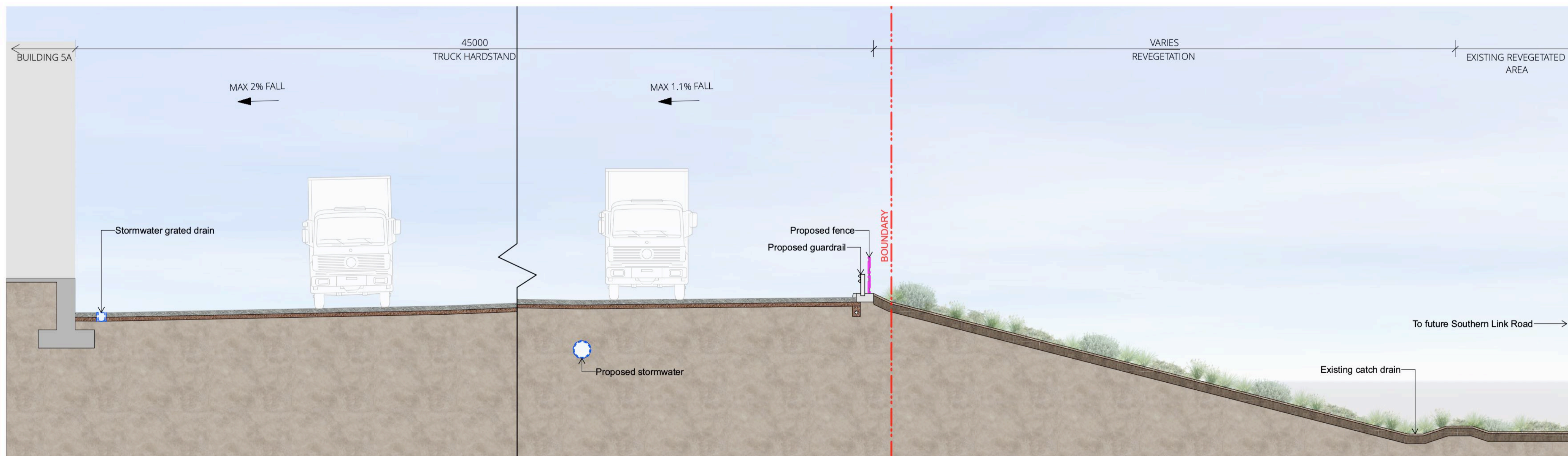
Note: All finished levels subject to change +/- 1000mm.



01 Lot 5B - Southern Perimeter
Cross Section - Scale 1:100 @ A1



02 Lot 5A - Western Perimeter
Cross Section - Scale 1:100 @ A1



03 Lot 5A - Northern Perimeter
Cross Section - Scale 1:100 @ A1

Note: All finished levels subject to change +/- 1000mm.

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Landscape Sections Sheet 1

scale 1:50 & 1:100@A1
drawn ZZ
checked CH
project no. 163-18
project phase Development Application

L.SK.201

B

APPENDIX R

Sustainability Management Plan

OAKDALE WEST INDUSTRIAL ESTATE

Lot 3C and Lot 5

Sustainability Management Plan

Prepared for:

Goodman Property Services (Aust) Pty Ltd
1-11 Hayes Road
Rosebery NSW 2018

SLR Ref: 610.30735-R01
Version No: v1.0
May 2022



PREPARED BY

SLR Consulting Australia Pty Ltd
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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 Goodman Property Services (Aust) 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
610.30735-R01-v1.0	16 May 2022	Dr Neihad Al-Khalidy	Lucas Wilson	Dr Neihad Al-Khalidy

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APPENDICES

Appendix A	Energy Saving Lighting Design Recommendations
Appendix B	Water Saving Recommendations

1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Goodman Property Services to prepare a Sustainability Management Plan (SMP) to accompany a development application (DA) for the Oakdale West Industrial Estate (OWIE) Project, specifically on-lot works associated with Lot 3C & Lot 5.

The Oakdale West Estate Concept Proposal is classified as State Significant Development (SSD) on the basis that it falls within the requirements of Clause 12 of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP).

This report will form part of the Development Application to the Penrith City Council and this study has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the State Significant.

1.1 Objectives of the Study

The principal objective of this Sustainability Management Plan is to identify all potential energy savings that may be realised during the operational phase of the Project, including a description of likely energy consumption levels and options for alternative energy sources such as solar power in accordance with Council requirements.

The specific objectives of this plan are as follows:

- To encourage energy use minimisation through the implementation of energy efficiency measures;
- To promote improved environmental outcomes through energy management;
- To ensure the appropriate management of high energy consumption aspects of the Project;
- To identify energy savings procedures for overall cost reduction, greenhouse gas emission reduction and effective energy management;
- To assist in ensuring that any environmental impacts during the operational life of the development comply with DPIE's development consent conditions and other relevant regulatory authorities; and
- To ensure the long-term sustainability of resource use through more efficient and cost-effective energy use practices for the life of the development.

2 SUSTAINABILITY MANAGEMENT GUIDELINES AND LEGISLATION

2.1 Building Code of Australia

The Building Code of Australia (BCA) is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government with the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently. The BCA contains mandatory technical provisions for the design and construction of BCA class buildings.

Volume 1, Section J of the BCA outlines energy efficiency provisions required for BCA class buildings (including Class 7b Warehouses and Class 5 Offices). There are 8 Deemed-to-Satisfy subsections, J1 to J8, that focus on separate aspects of energy efficiency as follows:

- J1 - Building Fabric (i.e. the ability of the roof, walls and floor to resist heat transfer)
- J2 - External Glazing (i.e. the resistance to heat flow and solar radiation of the glazing)
- J3 - Building Sealing (i.e. how well parts of a building are sealed to ensure comfortable indoor environments are efficiently maintained)
- J4 - Air Movement (i.e. the provision of air movement for free cooling, in terms of opening and breeze paths)
- J5 - Air Conditioning and Ventilation Systems (i.e. the efficiency and energy saving features of heating, ventilation and air-conditioning systems)
- J6 - Artificial Lighting and Power (i.e. power allowances for lighting and electric power saving features)
- J7 - Hot Water Supply (i.e. the efficiency and energy saving features of hot water supply)
- J8 - Access for Maintenance (i.e. access to certain energy efficiency equipment for maintenance purposes)

2.2 Sustainability Management Plan Requirements

The SEARs of the Oakdale Site include the following requirement:

- **Greenhouse Gas and Energy Efficiency** – including an assessment of the energy use on-site and all reasonable and feasible measures that would be implemented on-site to minimise the development's greenhouse gas emissions.
- **Ecologically Sustainable Development** – including a description of how the development will incorporate the principles of ecologically sustainable development in the design, construction and operation of the development.

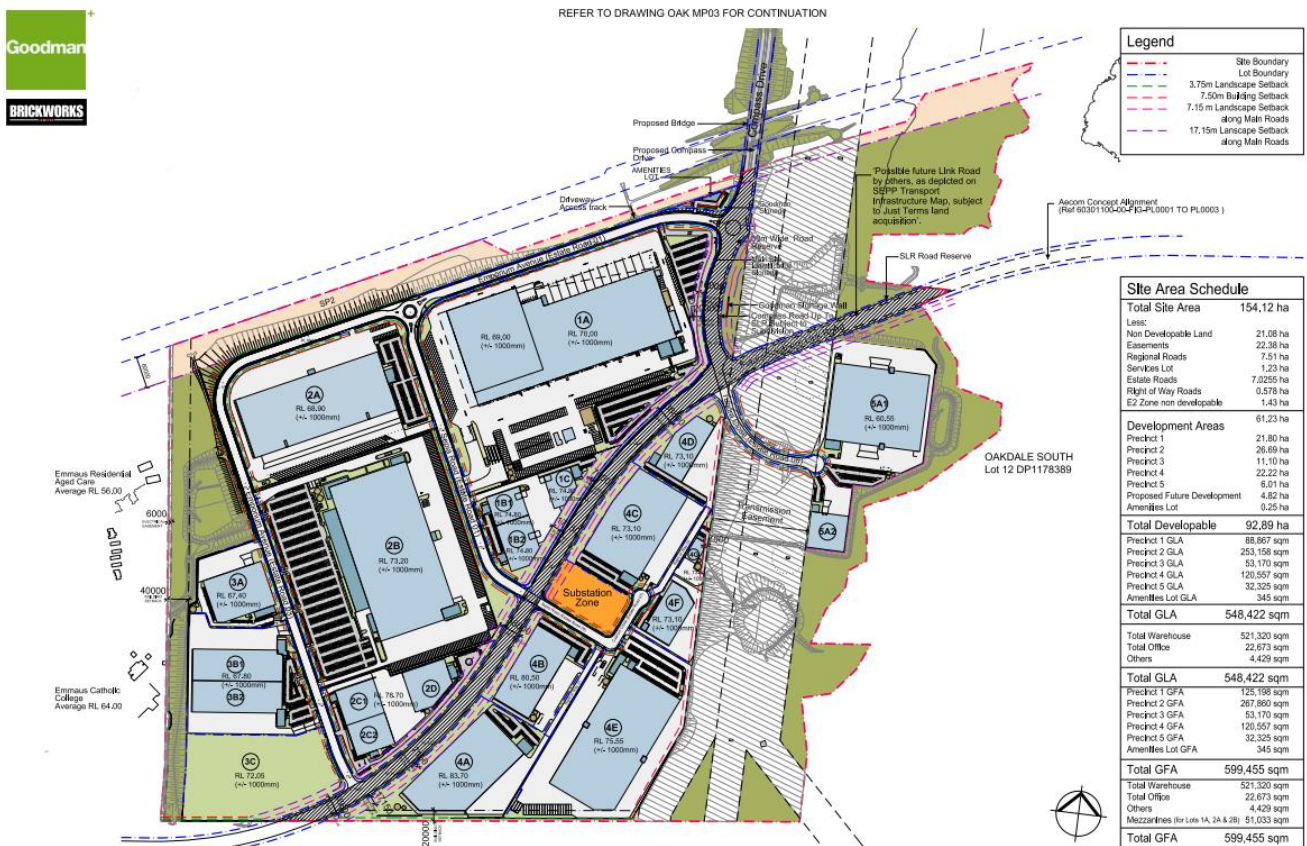
3 DESCRIPTION OF THE PROJECT

Goodman Property Services (Aust) Pty Ltd is developing the Oakdale West site at Lot 26 in DP 1269741 in Kemps Creek. This site will be comprised of Industrial warehouses and office precincts, including internal roads, car parking spaces and hardstand.

The project is a staged development which includes bulk earthworks, civil works and the construction of infrastructure and stormwater management. The project is a staged development which includes bulk earthworks, civil works and the construction of infrastructure and stormwater management. The overall Oakdale West Masterplan is shown in **Figure 1**.

The current study covers the sustainability management plan and greenhouse gas reduction for the proposed warehouse and distribution facilities of Precincts 3C and Lot 5 (the Project).

Figure 1 Oakdale West Estate Master Plan – MOD 10



3.1 Overview of Proposed Development

3.1.1 Lot 3

The site area comprises 43,590 m² and the total building area is 20,670 m². The Overall building areas are outlined in **Table 1**.

Table 1 Building Areas – Lot 3C

Site Area	Lot 3C
Warehouse 3C1	4,270 m ²
Warehouse 3C2	15,000m ²
Office 3C1 (1 Level)	400 m ²
Office 3C2 (2 Levels)	1,000 m ²
Workshop	200 m ²
Awning	2,590 m ²
Hardstand Area	9,785 m ²
Light Duty Area	5,980 m ²
Car Parking (3C1 and 3C2)	100

Further details of the Lot 3C development are shown in **Figures 2 to Figure 4**

Figure 2 Oakdale West Estate: Lot 3C

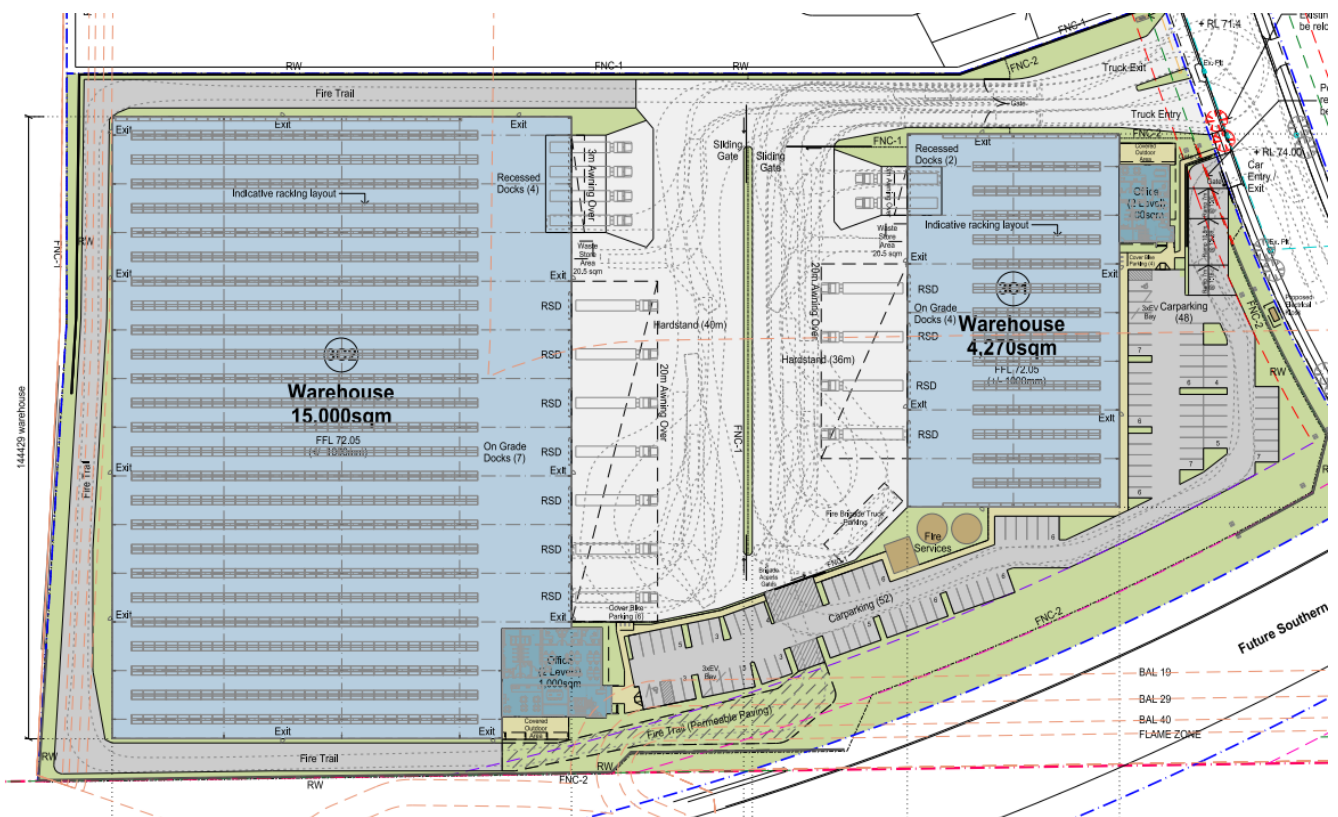


Figure 3 Oakdale West Estate: Office 3C1

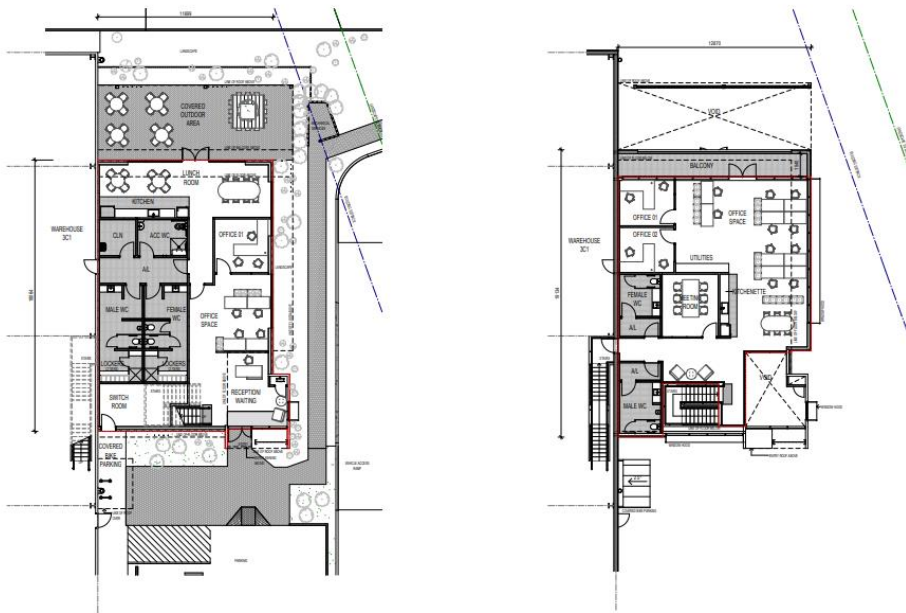
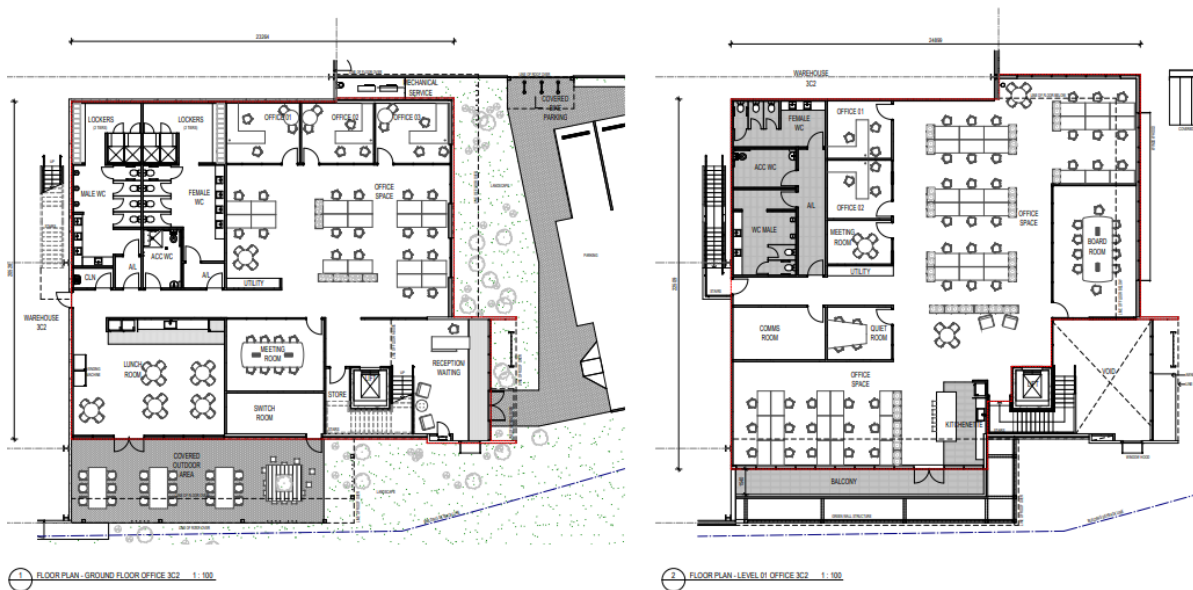


Figure 4 Oakdale West Estate: Office 3C1



3.1.1 Lot 5

The site area comprises 61,126 m² and the total building area is 32,246 m². The Overall building areas are outlined in **Table 2**.

Table 2 Building Areas – Lot 5

Site Area	Lot 5
Warehouse 5A	25,915 m ²
Warehouse 5B	4,661 m ²
Office 5A (2 Level) + Dock offices (x2)	1,200 m ²
Gate house 5A (x2)	70
Office 5B (2 Levels)	400 m ²
Awning – 5A	4,725 m ²
Awning – 5B	715
Hardstand Area (5A and 5B)	20,915 m ²
Light Duty Area (5A and 5B)	5,255 m ²
Car Parking (5A and 5B)	147

Further details of the Lot 5 development are shown in **Figures 5 to Figure 7**

Figure 5 Oakdale West Estate: Lot 5

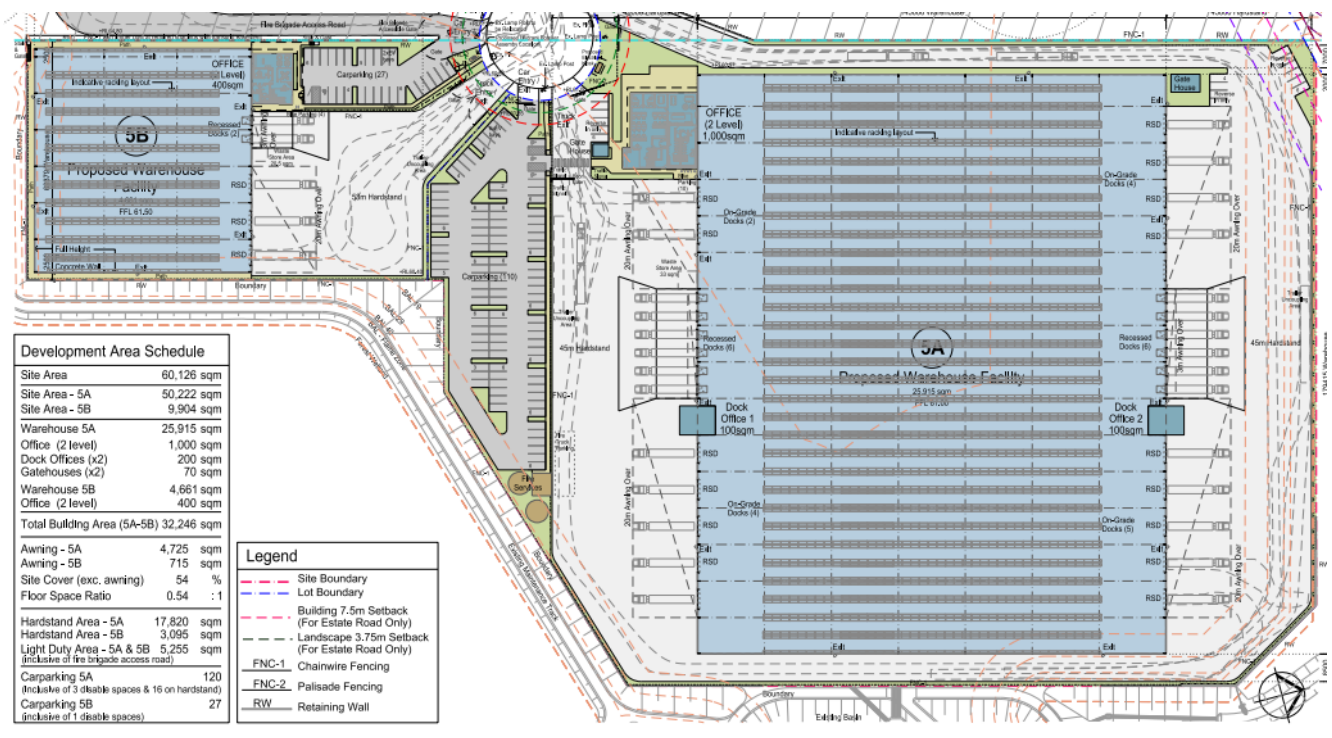


Figure 6 Oakdale West Estate: Office 3C1

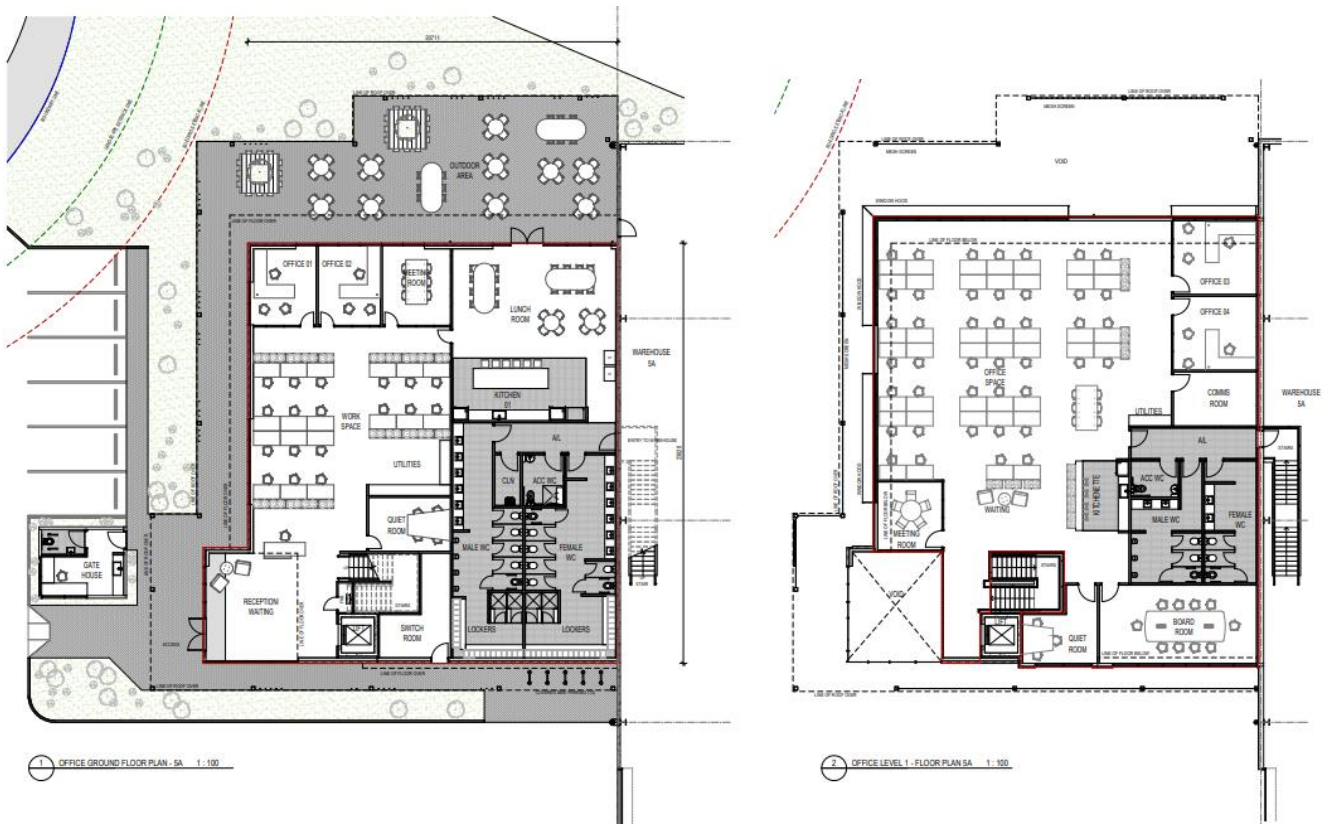
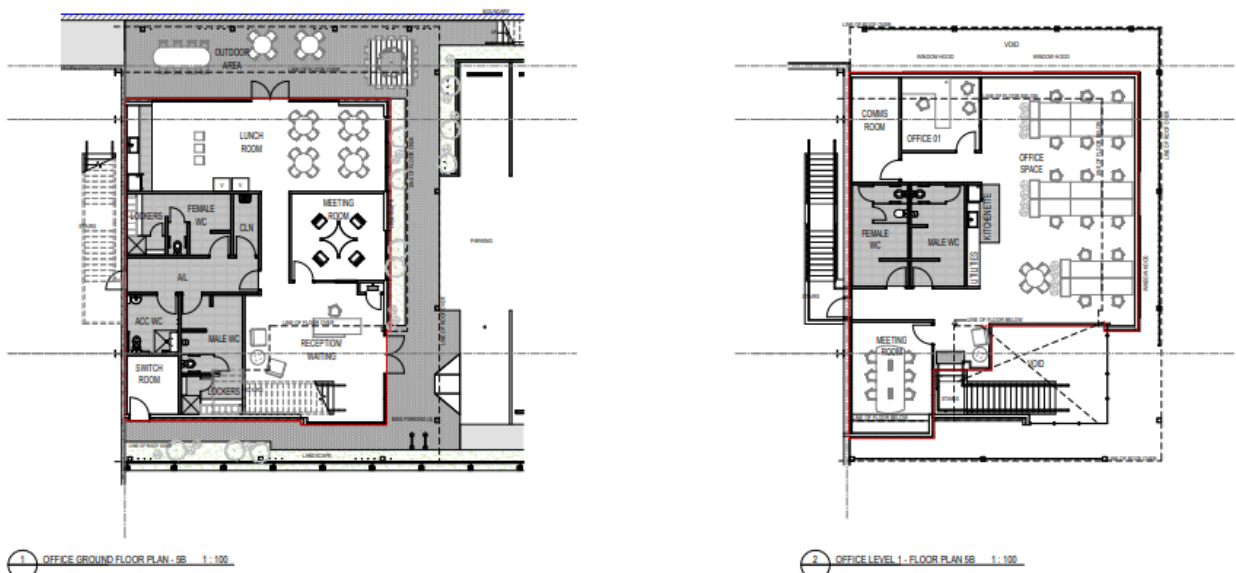


Figure 7 Oakdale West Estate: Office 5B



4 OPERATIONAL ENERGY MANAGEMENT

Ineffective energy management for industrial and commercial premises can lead to unnecessary growth in greenhouse gas emissions and consumption of natural resources. Effective energy management reduces costs using energy efficiency measures and improves environmental outcomes locally, regionally and globally.

Effective energy management is achieved through the implementation of a Sustainability Management Plan (SMP) for the operational life of the Project.

4.1 Identified Major Energy Use Components

The major energy use components of the Project Site have been identified below based on information available within the Project Design Brief.

- Lighting (include natural and artificial lighting and shading);
- Air Conditioning; AND
- Power.

4.2 Energy Sources

The main source of energy for the proposed site is electricity.

5 SUSTAINABILITY MEASURES COMMITMENTS

5.1 Documentation

The documentations used in this report is listed in **Table 3**.

Table 3 Project Documentation Sources

Document Type	Document Number	Issue Date
Architectural Drawing	22101 OAK 3C: DA 00 (B)– DA 50 (B)	01-06/04/2022
	22102 OAK 5: DA 10 (D) – DA (C)	01-07/04/2022

Energy Efficiency measures have been recommended and approved for project implementation and have informed the sustainability assessment of this project – they are listed in **Table 4**.

Table 4 ESD Assessment Summary

Category	Objective	Proposed Target	Proposed Strategy	Commitment	Comment
Design & Management	<ul style="list-style-type: none"> Documentation of design intent and expected outcomes. Appropriate commissioning. 	<ul style="list-style-type: none"> Communicate sustainability initiatives and operation to building users. Commissioning and building tuning required by contractors and reviewed for 12 months after completion. 	<ul style="list-style-type: none"> Provision of Building Users Guide. 	✓	<ul style="list-style-type: none"> SLR recommends the preparation of Building User Guide that enables building users to optimise the building’s environmental performance. A sub-contractor will be engaged to maintain the facility in accordance with the operations and maintenance manuals during the 12-month defects liability period.
			<ul style="list-style-type: none"> Investigate costs and viability of commissioning and building tuning requirements and appointing an independent commissioning agent. 	✓	
			<ul style="list-style-type: none"> Independent consultant to perform quarterly tuning of fire, mechanical, electrical, hydraulic services. 	✓	
Façade Performance	<ul style="list-style-type: none"> Optimised façade performance. 	<ul style="list-style-type: none"> Achieve minimum performance requirements under NCC Section J1 and J2. Reduce heat gain through the warehouse façade. 	<ul style="list-style-type: none"> Meet or exceed NCC Section J1 and J2 façade performance for conditioned spaces. 	✓	<ul style="list-style-type: none"> Refer Section 5.6, Table 8 of this report. This warehouse will comply with all the requirements specified within the report during construction stage. Light colour Colourbond – Surfsmist metal deck proposed As per project NCC Section J report. Insulation proposed to warehouse roof and walls
			<ul style="list-style-type: none"> Light coloured roofing and appropriate insulation to reduce solar heat gain into the warehouse. 	✓	
			<ul style="list-style-type: none"> Performance glazing in office spaces appropriate to the window size and orientation. 	✓	
				✓	

Category	Objective	Proposed Target	Proposed Strategy	Commitment	Comment
Social Sustainability	<ul style="list-style-type: none"> Consider design with due regard to occupant satisfaction in accessibility, usability, Indoor air quality and public space utility. 	<ul style="list-style-type: none"> High level of occupant satisfaction. Provide external as well as internal comfort. 	<ul style="list-style-type: none"> Flexibility of space for potential future configurations. 	✓	<ul style="list-style-type: none"> The design will incorporate open plan workspaces, offices, client rooms, meeting rooms, lunch room and outdoor seating area. Refer Figures 3, 4, 6 and 7 Low VOC paints, carpet and sealant will be used for the offices. Refer proposed landscaping, Architectural Drawings Selection of endemic and low maintenance landscaping species Both AC and lighting control is provided to offices and warehouses.
			<ul style="list-style-type: none"> Use of Low VOC paints, carpets and sealants. 	✓	
			<ul style="list-style-type: none"> Consider Landscaping and dense planting. 	✓	
			<ul style="list-style-type: none"> Consider occupant user control eg A/C systems, lighting etc. 	✓	

Category	Objective	Proposed Target	Proposed Strategy	Commitment	Comment
Minimising Transport Impact	<ul style="list-style-type: none"> Consider location with links to public transport and employee services. Consider location to reduce operational transport. Consider the impact of industrial trucks on local traffic. 	<ul style="list-style-type: none"> Reward drivers of fuel-efficient vehicles by providing spaces for small cars and or motorbikes. Provide alternatives to single-occupancy vehicles. Reduce operational fuel consumption through close proximity to major arterial roads. Reduce the impact of operational traffic on local communities. 	<ul style="list-style-type: none"> Consider providing 5% for electrical cars and 10% of total parking spaces for small cars and motorbikes where possible. The site is located within close proximity (<5km) to both the M7 and M4 motorways. The roads linking the site to the motorways are predominantly used for industrial traffic, as such the traffic is unlikely to impact on local areas. 	✓	<ul style="list-style-type: none"> 14 parking spaces (6 for Lot 3C and 8 for Lot 5) are dedicated for electrical cars with charging stations proposed. 18 bicycle parking spaces (4 for Lot 3C and 14 for Lot 5) are provided. Refer Figure 2 and Figure 5 Car Park numbers (100 spaces for Lot 3 and 147 spaces for Lot 5) and provision are provided be in accordance with Consent Authority requirements.
				✓	

Category	Objective	Proposed Target	Proposed Strategy	Commitment	Comment
Optimising IEQ	<ul style="list-style-type: none"> Optimise natural light to work environment. Optimise fresh air ventilation. Consider Thermal Comfort of occupants. Consideration of noise transference in space planning. Minimise use of materials that emit volatile organic compounds. Create a pleasant working environment. 	<ul style="list-style-type: none"> Daylight: Daylight Factor (DF) of at least 2% at finished floor level under a uniform sky for at least 60% of the GLA. Thermal comfort: 95% of office areas have PMV levels between -1 and +1 for 98% of the year; Warehouse spaces include passive thermal comfort strategies. Finishes: 95% of all paints, adhesives & sealants and all carpet and flooring to be low-VOC finishes; use low-formaldehyde wood products. Electric lighting levels: 95% of GLA has a lighting system that is flicker free and has a maintained illuminance of no more than 25% above those recommended in AS1680.2.4, 2.1 and 0.1. Reduce visual glare. 	<ul style="list-style-type: none"> Daylight: rationalised glazing to offices; high performance glass. Thermal comfort: Office envelope and HVAC system designed to meet thermal comfort requirements; Provide sufficient roof and wall insulation to the air-conditioned spaces; Finishes: Specify and track correct finishes and wood products. Provide pleasant indoor and outdoor breakout spaces with sufficient daylight. Lighting: Good light fixtures and well-designed layout. Ventilation: Consider increased fan and duct sizing. Provide sufficient shading and blinds with rationalised glazing for visual and thermal comfort. 	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ 	<ul style="list-style-type: none"> Proposed glazing of U=4.2, SHGC = 0.42 (refer Section 5.6, Table 8) Refer Section 5.5 of this report for proposed set up temperatures R2.8 Walls, R3.2 Roof, R2.0 Floor (refer Section 5.6, Table 8) Low VOC finishes and low-formaldehyde wood products will be used Refer Architectural Drawings LED lighting and lighting controls to warehouse and offices. Adequate ventilation will be supplied in accordance with AS1668. Shown on the Architectural Drawings

Minimising Energy Use

- | | | | | |
|---|---|---|---|--|
| <ul style="list-style-type: none"> • Consider passive design to minimise energy use such as orientation, ventilation, shading and floor plate design. • Appropriate sizing of plant and equipment in heating and cooling, lighting, control systems, • Building management systems and renewable energy sources. • Reduce reliance on connection to grid electricity and gas. | <ul style="list-style-type: none"> • Target a 20% reduction in Greenhouse gas emissions. • Energy sub-metering for all major uses greater than 100kVa; linked to monitoring system. • High efficiency warehouse lighting and controls. • Reduce energy for water heating. • Integrated building management. • Consider renewable energy generation for a portion of energy consumption and/or consider future-proofing the building for future installation. • Reduce urban heat island effect and heat load through the roof by providing a highly reflective roof. • Reduce office equipment load from 20W/m² to 15W/m². • Optimise insulation for energy and thermal comfort. | <ul style="list-style-type: none"> • Roof Insulation, External Wall Insulations, Reduced Glazing area and associated heat loss in winter. • Consider office air conditioning temperature set-points for an increased comfort band. • Provide energy efficient T5 lighting, with zoning and automatic controls where reasonable. • Consider LED lighting strategies and advanced controls. • Consider a solar hot water system or a heat pump. • Sub-metering: install appropriate metering; develop metering and tracking strategy to allow for self-assessment, problem solving and ongoing improvements during operations • Use roofing material that has a high Solar Reflective Index • Investigate current insulation design and determine proposed options. | <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> | <ul style="list-style-type: none"> • Awning Shown on the Architectural Drawing. Insulation as per the NCC requirements • Design brief sets the temperature - Refer Section 5.5 of this report. • LED lighting to warehouse and offices. • Lighting controls to warehouse and offices. • Solar hot water or heat pump system • Sub meters for major energy/water uses • Colourbond metal deck which has a light colour is proposed. • R2.8 Walls, R3.2 Roof, R2.0 Floor (refer Section 5.6, Table 8) |
|---|---|---|---|--|

Category	Objective	Proposed Target	Proposed Strategy	Commitment	Comment
Choosing Materials	<ul style="list-style-type: none"> • With consideration to energy inputs in manufacture. • Toxicity. • Consequential impacts – rain forest timbers. • Regional or local manufacturer employment support. 	<ul style="list-style-type: none"> • Reduce steel and cement in internal slab (10% reduction in embodied energy). • Reduce embodied energy in concrete and plasterboard elements. • Consider 95% of timber to be AFS or FSC certified. • Reduce emissions associated with insulation and refrigerant. • Reduce environmental impact of materials for tiling, awning. 	<ul style="list-style-type: none"> • Jointless fibre reinforced slab. • Use pre-cast concrete panels with recycled content. 	<ul style="list-style-type: none"> ✓ ✓ 	<ul style="list-style-type: none"> • SLR recommend replacing 15% of cement with fly ash where possible. <p>To minimise the environmental impacts of materials used by encouraging the use of materials with a favourable lifecycle assessment based on the following factors:</p> <ul style="list-style-type: none"> • Fate of material • Recycling / re-use • Embodied energy • Biodiversity • Human health • Environmental toxicity • Environmental responsibility.

Category	Objective	Proposed Target	Proposed Strategy	Commitment	Comment
Minimising Waste	<ul style="list-style-type: none"> By clever design. Contracted to builder as a requirement on site for construction waste. During the life of the building. And in dealing with building end of life options. 	<ul style="list-style-type: none"> Reduce construction waste going to landfill by 90%. Reduce operational waste going to landfill. Consider a design that can be disassembled at the end of the building's life. 	<ul style="list-style-type: none"> Contractor is to develop and implement a Waste Management Plan and track all waste going offsite to show that 90% of all construction waste is re-used or recycled. Waste storage and recycling facilities to be provided for different operational recycling streams such as paper, glass, plastics, metals, food waste etc. Consider operational waste plans and training for staff to provide incentive to reduce waste. 	✓	<ul style="list-style-type: none"> SLR recommends more than 70% of the predicted construction waste arising from development can be re-used (on-site or at another development) or recycled off-site. Refer project Waste Management Plan. The following waste avoidance measures are recommended in the Waste Management Plan for the Project: <ul style="list-style-type: none"> Provision of take back services to clients to reduce waste further along the supply chain.
				✓	
Water Conservation and Reuse	<ul style="list-style-type: none"> Monitoring of meters to track use. Timely maintenance of fixtures and fittings. Water sensitive landscape design. Source potable water alternatives such as rain water harvesting, grey and black water treatment. 	<ul style="list-style-type: none"> Reduce potable water in internal fixtures. Reduce potable water for irrigation. Water efficient operation of appliances. Utilise rainwater and/or recycled water. 	<ul style="list-style-type: none"> Water efficient sanitary taps and toilets. Water efficient and drought tolerant landscaping. Water and energy efficient dishwasher. Rainwater collection for toilets, irrigation and truck wash down. 	✓	<ul style="list-style-type: none"> Low flow fixtures and fitting including taps and shower heads Selection of endemic and low maintenance landscaping species SLR recommends water efficient dishwashers 120 kL rainwater tanks have been recommended for rainwater harvesting and re-use for landscape irrigation and flushing of toilets.
				✓	
				✓	
				✓	

Category	Objective	Proposed Target	Proposed Strategy	Commitment	Comment
Land Use and Ecology Impact	<ul style="list-style-type: none"> Consider local biodiversity impacts of flora and fauna. Look to specialist advice on land in development. 	<ul style="list-style-type: none"> Encourage biodiversity. Reduce light pollution from the site. Consider reducing impact of stormwater flows off the site into the natural watercourses including Ropes Creek adjacent to the site. 	<ul style="list-style-type: none"> Install indigenous planting appropriate to the area and the adjacent biodiversity lots. 	✓	Selection of endemic and low maintenance landscaping species
			<ul style="list-style-type: none"> Design external lighting to avoid emitting light into the night sky or beyond the site boundary. 	✓	LED lights have been proposed for all external lights to avoid emitting light
			<ul style="list-style-type: none"> Consider integrated stormwater management to minimise the impact on receiving waters of flow volumes and pollution content, eg bioswales, bio retention, OSD tanks and treatment. 	✓	The warehouse sustainability objectives include:
			<ul style="list-style-type: none"> Consider permeable concrete/paving for staff parking areas and footpaths, etc. 	✓	<ul style="list-style-type: none"> Reduce the impact of stormwater runoff and improve quality of stormwater runoff Achieve best practice stormwater quality outcomes Incorporate water sensitive urban design principles.
Renewables	<ul style="list-style-type: none"> Supply renewable electricity to the building. 	<ul style="list-style-type: none"> Reduce carbon footprint for the project site Reduce the peak electricity demand for the building 	<ul style="list-style-type: none"> Provisions of on-site renewable energy systems 	✓	<ul style="list-style-type: none"> At least 1,300 kW of PV solar systems (500 kW for Lot 3 and 800 kW for Lot 5) have been proposed the rooftop of the warehouses.

5.2 Baseline and Proposed Energy Consumption

An NCC Sections J Deem-to-Satisfy compliant building is used as the baseline building for energy consumption savings. NCC Section J provides the minimum requirement for energy efficiency, and it is predicted that the proposed development will have more than 130.8% energy reduction - refer **Section 5.8** for the energy simulation results. The reduction has been enabled via:

- On site PV solar system;
- All luminaire shall be low energy LED type;
- Warehouse lighting is generally to be zonally controlled via motion sensor;
- Office lighting shall be controlled via dual technology infrared/ultrasonic sensor;
- Daylight harvesting function to office with external windows; and
- Efficient air conditioning system.

All building information and associated parameters are listed in the following sections of this report.

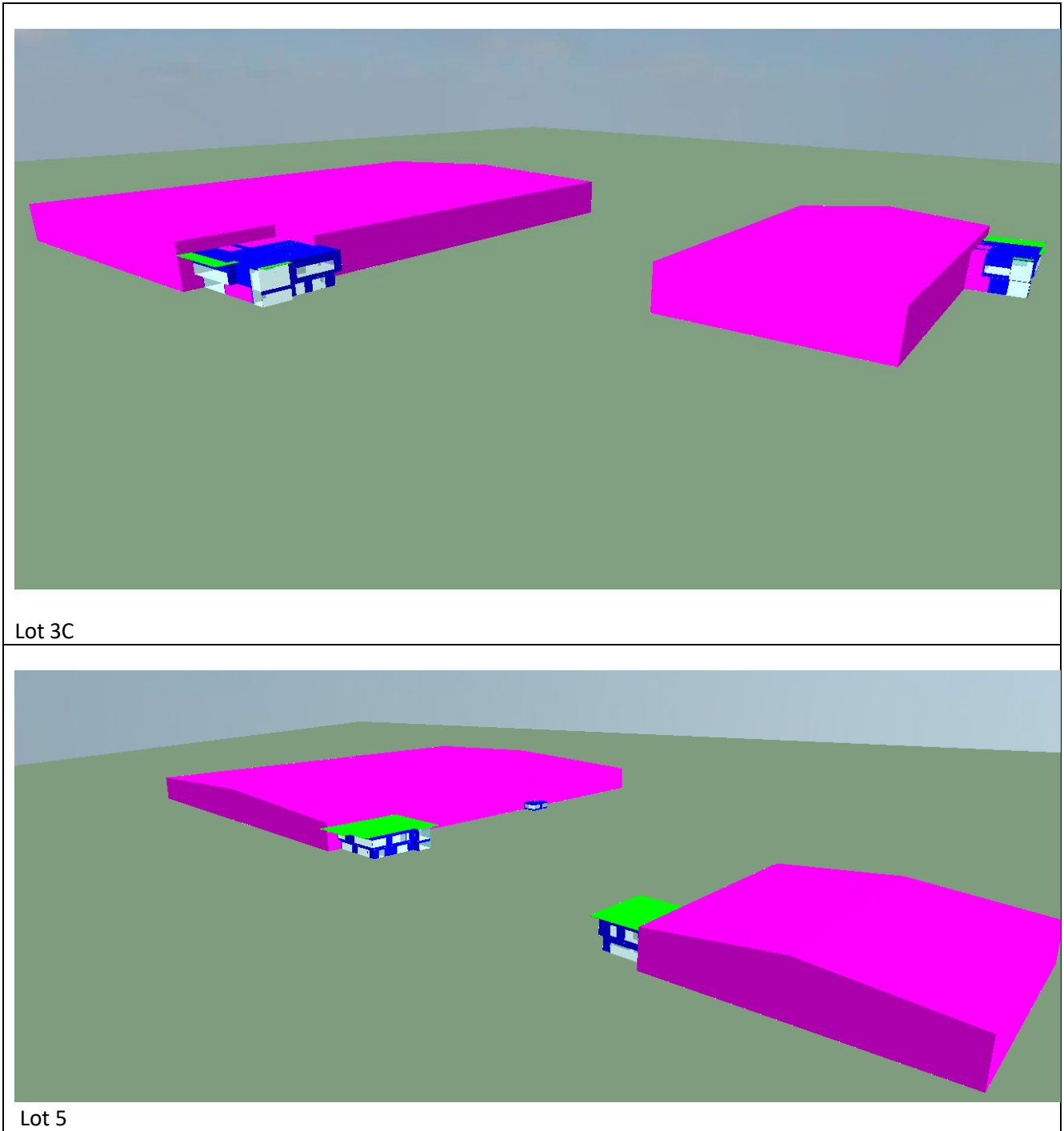
5.3 Energy Calculation of the Proposed and Reference Buildings

The Energy Simulation Program used in this study is the IES computer program Virtual Environment 2019 (VE). The program is based on the ASHRAE response factor and the modifications included utilising Australian weather data and including building materials more appropriate to those used in Australia and enabling the input of metric data.

- SLR supports a perpetual license of the Energy Simulation Software package IES <VE>;
- IES <VE> has passed the BESTEST (ASHRAE Standard 140) external validation process;
- The weather data from ACADS-BSG NSW_Sydney_RO_81 Test Reference Year (TRY) is used for the modelling;
- IES<VE> assesses U-Value, SHGC, and shade coefficient when evaluating the effect of glazing;
- Detailed warehouse operating schedules are not available at this stage. Therefore, NCC standard building operating profiles such as occupancy, lighting, air conditioning and equipment were adopted for the office areas; and
- At least 1,300 kW of PV system has been proposed the rooftop of the warehouses.

The developed 3D model for energy modelling is shown in **Figure 8**.

Figure 8 Proposed Warehouses and Associated Offices in IES Model



Lot 3C

Lot 5

5.4 Artificial Lighting

In Section J6 of the NCC, the requirement for the total lighting power load within the proposed spaces of a building is to be no greater than a maximum illumination power load, measured in Watts (W). The maximum allowable building illumination power load is based on the total illumination power load calculated for each space.

For artificial lighting, the aggregate design illumination power load must not exceed the sum of the allowances. This may be obtained by multiplying the area of each space by the maximum illumination power density (as found in Table J6.2a of the NCC 2019 Volume One). The maximum illumination density for a storage warehouse is 4 W/m² as per Table J6.2a of the NCC 2019 Volume One.

The proposed warehouses will adopt the following energy efficiency measures to reduce the lighting energy consumptions:

Office lighting

- LED fitting for offices.
- Occupancy sensors to low occupancy areas e.g. office, toilets and lunch room.

Warehouse lighting

- LED fitting for warehouse.
- Occupancy sensors to low occupancy areas.

Outside lighting

- LED external lighting for all outside areas.
- External lighting will be controlled via daylight sensor (photocell).

Electrical lighting is the major energy reduction component for warehouse with a large footprint.

The lighting calculation for NCC reference building is based on the maximum illumination power density specified within NCC Table J6.2A as below:

- Warehouse = 4 W/m²
- Offices = 4.5 W/m²

The electrical lighting layout of the proposed building is not provided at the time of preparing this report. It is assumed the maximum design lighting power density will be achieved as below:

- Warehouse 3.5 W/m²
- Offices 4 W/m²

Therefore, the proposed building is likely to achieve a 12.5% lighting energy reduction when compared with reference building. Detailed calculation is shown in **Appendix A**.

5.5 Mechanical Air-Conditioning

The mechanical service design is not available at this stage. Performance reverse cycle package units will be to offices with individual controls. There will be air conditioning in the warehouse also, but just to the southern dock face for the purpose of providing conditioned air into the back of the trailers.

Air conditioning will be designed to the BCA/NCC section J and other statutory authorities and applicable Australian standards.

As per the mechanical specification of the Goodman's Tenant Base Building Specification, air conditioning to be designed to the BCA/NCC section J and other statutory authorities and applicable Australian standards.

Air-conditioning temperature control and set point – refer Table 5

Table 5 AC Unit Temperature Control Range

Space Type	Temperature Control Range (°C)
Offices	22.5±1.5°CBD

Air-conditioning energy efficiency requirements

2019 NCC Section J5.11 has specified the minimum energy efficiency ratios requirements for package air conditioning equipment.

Table 6 BCA Unitary Plant Requirement

Office Equipment	Minimum Energy Efficiency Ratio	
	NCC Requirement	Proposed System ¹
Cooling	2.9	4
Heating	2.9	4

Note 1: Detailed Mechanical design is not available at this stage. It is assumed that the proposed package system will achieve the performance requirements above.

When the air flow rate of a mechanical ventilation system is more than 1000L/s, the system must have a variable speed fan when its supply air quantity is capable of being varied.

Details or NCC Section J5 certification demonstrating compliance will need to be submitted with the application for a Construction Certificate

5.6 Building Fabric Requirements

Parts J1 to J3 of the BCA Section J contain the requirements of the Deemed-to-Satisfy compliance of the building fabric. The purpose of this subsection is to ensure that the building fabric will provide sufficient thermal insulation to minimise heating and cooling loads placed on the building and the commensurate energy consumption HVAC systems servicing internal building spaces.

All fabrics of the proposed building shall comply with NCC Section J. A Project Section J report will need to be submitted with the application for a Construction Certificate.

Parts J1 to J3 of the BCA Section J contain the requirements of the Deemed-to-Satisfy compliance of the building fabric. The purpose of this subsection is to ensure that the building fabric will provide sufficient thermal insulation to minimise heating and cooling loads placed on the building and the commensurate energy consumption HVAC systems servicing internal building spaces.

All fabrics of the proposed building shall comply with NCC Section J. A Project Section J report will need to be submitted with the application for a Construction Certificate.

The reference and proposed building fabric data and other modelling assumptions are shown below:

Table 7 Reference Dynamic Modelling Inputs

Item	Description
Climate Data	Weather data from ACADS-BSG, NSW_Richmond_88 Test Reference Year (TRY)
External wall	All external walls have a total R-value of R2.8
Internal wall	All internal walls to unconditioned space have a total R-value of R2.1

Item	Description																																																																																																																																																																																										
Glazing	Glazing system (glass and frame) with U value & Solar Heat Gain Coefficient as per reference wall glazing system building code calculations:																																																																																																																																																																																										
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Permeability	No more than 5 m ³ /hr.m ² at 50 Pa reference pressure																																																																																																																																																																																										
Lighting Density	4.5W/m ² as per NCC 2019 Table J6.2a																																																																																																																																																																																										
Lighting hours	24hrs																																																																																																																																																																																										

Item	Description
Equipment Density	Equipment load in the model is 11W/m ² as per 2019 NCC Table 2l
Occupant Density	As per Table 2b of the 2019 NCC "Specification JV Annual Energy Consumption Criteria"
Occupancy Schedule	Schedules used in study are as per Table 2a in 2019 NCC JV Specification. See Appendix A
HVAC System type	HVAC efficiencies in the reference building are modelled in accordance with NCC Section J and Minimum Energy Performance Standards (MEPS)
HVAC Hours	24hrs
HVAC Control	Space temperature indoor conditions 22.0±2.0°CBD
Document References	The reference buildings were modelled in IES <VE> as per the architectural drawing sets by SBA Architects: Project Ref: "OAK 3C" Drawing ref: DA00, DA05, DA10, DA20, DA34, DA35, DA40, DA41, DA45, DA46 and DA50 dated 06/04/2022 "OAK 5" Drawing ref: DA00, DA05, DA10, DA31, DA32, DA33, DA36, DA37, DA38, DA39, DA40, and DA50 dated 01/04/2022

Table 8 Proposed Dynamic Modelling Input

Item	Description
Climate Data	Weather data from ACADS-BSG, NSW_Richmond_88 Test Reference Year (TRY)
External wall	All external walls have a total R-value of R2.8
Internal wall	All internal walls to unconditioned space have a total R-value of R2.1
Glazing	Glazing system (glass and frame) with U value & Solar Heat Gain Coefficient (SHGC) as follows: U-Value: 4.2; SHGC: 0.42
Roof	Concrete/Metal roof with insulation R-value = R3.2
Floor	Concrete Slab on ground with insulation R-value = 2.0
Permeability	No more than 5 m ³ /hr.m ² at 50 Pa reference pressure
Lighting Density	4.5W/m ² as per NCC 2019 Table J6.2a
Lighting hours	24hrs
Equipment density	Equipment load in the model is 11W/m ² as per 2019 NCC Table 2l
Occupant density	As per Table 2b of the 2019 NCC "Specification JV Annual Energy Consumption Criteria"
Occupancy Schedule	Schedules used in study are as per Table 2a in 2019 NCC JV Specification. See Appendix A

Item	Description
HVAC System type	HVAC efficiencies for heating and cooling as follows: EER: 4.0; CoP: 4.0
HVAC Hours	24hrs
HVAC Control	Space temperature indoor conditions 22.0±2.0°CDB
PV Solar system	1.3MW PV system

5.7 Domestic Hot Water (DHW)

The BCA specifies the thermal efficiency for hot water systems to be at least 80%.

The hot water reticulation system shall be provided to all faucets' fittings, equipment and apparatus within the development. Hot water will be generated from the roof mounted solar water packaged plant.

With the installation of water efficient fixture, the hot water consumption will be decreased and thus the domestic hot water usage will also decrease.

The energy simulation in this analysis is assumed both reference and proposed building are using same hot water system for DHW. The actual energy consumption will be reduced once solar hot water or electrical heat pump is adopted for the proposed building.

5.8 Minimization of Greenhouse Gas Emission

The predicted Total Annual Energy Consumption of the NCC Reference Building and the Proposed Building is summarised in **Table 9**. For both buildings, temperatures lie within the range 16°CDB to 27°CDB for 100% of the plant operation time.

The annual energy consumption of the proposed building may be reduced by the amount of energy obtained from:

- an on-site renewable energy source; or
- another process as reclaimed energy.

The reference building uses:

- a. The Deemed-to-Satisfy (DtS) Provision such as J1 Building Fabrics, J2 External glazing;
- b. A solar absorptance of 0.6 for the external walls and 0.7 for roofs;
- c. The maximum lamp power density without any increase for control device illumination power density adjustment factor;
- d. Air-conditioning with the conditioned space temperature within the range 18°CDB to 26°CDB for 98% of the plant operation time;
- e. The profiles for occupancy air-conditioning, lighting and internal heat gains for people, hot meals, equipment and hot water supply systems of Specifications JV; and
- f. Infiltration values:
 - a. for the perimeter zone depth equal to the floor-to-ceiling height when pressuring plant is operating, 1.0 air change per hour and

- b. for the whole building, when the pressuring plant is not operating, 1.5 air change per hour.
- g. Both the proposed and the reference building will use the same annual energy consumption calculation method and building features such as:
 - a. location, adjacent structures, building form
 - b. internal heat gains including people, lighting, appliances, meals and other electric power loads
 - c. and other features as specified in NCC JV3

The predicted Total Energy Consumed annually by the reference building and the proposed building with the reference services is summarised in **Table 9**.

- The proposed building is likely to achieve a 12.5% lighting energy reduction when compared with reference building. Refer **Section 5.3**
- At least 1,300 kW of PV solar system (500 kW for Lot 3C and 800 kW for Lot 5) has been recommended.
 - The proposed 1,300 kW PV solar system will offset approximately 1,803 MWh/year of energy usage.

Table 9 Comparison of Annual Energy Consumption Between the Reference and Proposed Building

Electricity Usage	Reference Building (MWh)	Proposed Building (MWh)
Heating	44.5	33.1
Cooling	40.5	28.1
Auxiliary	12.1	11.2
Lighting	1,438	1,257
Equipment	assumed identical	assumed identical
DHW	assumed identical	assumed identical
PV System	-	- 1,803
Total	1,535.1	- 473.6

Note 1 these items are specific to a tenant's Fitout -hence assumed to be the same for the Reference and Proposed Buildings

By implementing all energy efficiency measures described in **Section 6**, the project is predicted to achieve a 130.8% GHG emission reduction when compared with 2019 NCC Reference Building.

6 POTABLE WATER CONSUMPTION

It is proposed that the Project will have a number of sustainable water-saving measures, including:

- Rainwater reuse and reticulation system – Rainwater will be harvested from the roof and reuse for irrigation and toilet flushing. The reticulation will be a separate system to the domestic cold water with domestic water top up in the event of insufficient rainfall;
- Use of water saving plumbing devices; and
- Water sensitive landscape design.

The rainwater tank will be sized during the detailed design stage to ensure as a minimum 80% of all non-potable water on each lot can be sourced from the tank. At this stage SLR recommends 40 kL rainwater tank for Lot 3 and 80 kL rainwater tank for Lot 5.

Further to above sustainable water measures, the following items will be considered during the detailed design stage:

- Water efficient sanitary taps and toilets – install higher WELS Rating sanitary fixtures such as 4 stars for water taps, urinals and toilet.
- Water and energy efficient dishwashers with minimum 4-star WELS water rating.

By installing 4 star rated toilets, urinals and taps and the proposed 120 kL rainwater harvesting facility the proposed development will reduce its potable water demand by approximately 35%.

The quantities of each water fittings are assumed from the drawing and listed in **Appendix B**.

7 MONITORING AND REPORTING

All committed sustainability-related measures need to be commissioned and tuned once the project is completed, to ensure all services operate to their full potential and as designed.

As specified within the Tenant Base Building Specification, the building tuning will be provided by service contractors and overseen by an independent assessor, at least once a month within the Defects Liability Period (DLP) period to ensure that services are operating effectively and efficiently. Monthly reports to be provided to the tenant for DLP.

7.1 Energy Review and Audit

An energy usage review should be undertaken within the first few months of operation to ensure the Energy Management Plan is sufficient for the development's needs. A breakdown of energy usage per month at the Project Site will help to measure the development's baseline energy use and assess what appliances, equipment and processes are consuming energy.

An energy review is also necessary for the assessment of energy utilisation to further identify opportunities for improvement. Energy usage data obtained during the review process may be used to establish key performance indicators and annual energy targets for the Project.

Energy usage to be included in the review should include all purchased electricity and energy which is consumed by stationary equipment on site. Energy consumed by mobile equipment (e.g. forklifts) should also be examined as this will identify variations in warehouse operation efficiency. (Refer to 'Guidelines for Energy Savings Action Plans' (2005) (as developed by the former Department of Energy, Utilities and Sustainability) for reporting templates and further information.)

An energy audit and management review should also be undertaken on a half-yearly basis to ensure employees are following energy savings procedures correctly. Where audits show that energy savings procedures are not carried out effectively, additional employee training should be undertaken and signage and procedures re-examined.

The Energy Management Plan should be progressively improved and updated on an annual basis, or as required, to reflect changes to the Energy Management System and to promote continual improvement of energy management at the Project Site.

7.2 Energy Metering and Monitoring

To enable effective review of energy usage by the project, sub-metering should be implemented for all major energy consuming processes or items of equipment including sub-metering for all loads greater than 100 kVA.

Electrical equipment should be maintained to Australian Standards to ensure unnecessary energy wastage is minimised. Roof access system is proposed for third party access to roof for carry out necessary maintenance as required.

In accordance with the Goodman's Industrial Building Specification, a Building Users' Guide is to be prepared for the Project. The Building Users' Guide provides details regarding the everyday operation of a building and should include energy minimisation initiatives such as natural ventilation strategies, user comfort control, maintenance of air conditioning units and other electrical devices to ensure maximum operating efficiency, and lighting zoning strategies.

An effective Building Users' Guide will ensure that:

- Facility managers understand in detail their responsibilities for the efficient operation of the facility and any additional building tuning necessary to continuously improve energy management.
- Maintenance contractors understand how to service the particular systems to maintain reliable operations and maximum energy efficiency.
- Employees understand energy minimisation procedures and working limitations required to maintain design performance for energy efficiency.
- Future fit-out / refurbishment designers understand the design basis for the building and the systems so that these are not compromised in any changes.

7.3 Roles and Responsibilities

It is the responsibility of the facility manager to routinely check energy savings procedures are undertaken correctly (i.e. lighting turned off while areas of the development are not in use). The facility manager should also ensure all monitoring and audit results are well documented and carried out as specified in the Energy Management Plan.

Senior management should also be involved in energy management planning as an indication of the organisation's commitment to the Energy Management Plan.

8 CONCLUSIONS

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Goodman Property Services to prepare a Sustainability Management Plan (SMP) to accompany a development application (DA) for the Oakdale West Industrial Estate (OWIE) Project, specifically on-lot works associated with Lot 3C and Lot 5.

This study has been prepared in accordance with the following Secretary's Environmental Assessment Requirements (SEARs):

- **Greenhouse Gas and Energy Efficiency** – including an assessment of the energy use on-site and all reasonable and feasible measures that would be implemented on-site to minimise the development's greenhouse gas emissions.
- **Ecologically Sustainable Development** – including a description of how the development will incorporate the principles of ecologically sustainable development in the design, construction and operation of the development.

The principal objective of this Sustainability Management Plan is to identify all potential energy savings that may be realised during the operational phase of the project, including a description of likely energy consumption levels and options for alternative energy sources such as PV solar power.

A BCA Sections J Deem-to-Satisfy compliant building is used as the baseline building for energy consumption savings. BCA Section J provides the minimum requirement for energy efficiency and it is expected that the proposed development will operate energy efficiently via:

- At least 1,300 kW of PV solar system (500 kW for Lot 3C and 800 kW for Lot 5);
 - The proposed 1,300 kW PV solar system will offset approximately 1,803 MWh/year of energy usage.
 - The estimated greenhouse gas CO₂ emission saving is approximately 1,478,542 kgCO₂/annum
- Daylight controlled LED lighting for the warehouse instead of metal halide, resulting in a considerable energy reduction and reduced maintenance;
- Motion sensors to all LED lights within the warehouse, and offices;
- Translucent roof sheeting to warehouse areas;
- R3.2 Roof, R2.8 Walls and R2.0 Floor insulation for all air conditioned areas as per the 2019 NCC requirements;
- High performance glazing to all air-conditioned areas or minimum NCC requirements;
- Passive solar design for external outdoor areas;
- Efficient air conditioning system;
- Power sub-metering to enable continued review of power consumption for the offices, and warehouse;
- Selection of endemic and low maintenance landscaping species;
- 120 kL rainwater tanks for rainwater harvesting and re-use for landscape irrigation and toilet flushing;
- Low flow fixtures and fittings including taps and shower heads;
- Low VOC paints, carpet and sealant for all offices;
- 5% of total parking spaces are dedicated for electrical cars with charging stations proposed;

- Low carbon construction materials including 15% replacement of cement with fly ash; and
- Other measures as detailed in this report.

By implementing all energy efficiency measures described in Section 6 of this report, the project is predicted to achieve a 130.8% GHG emission reduction when compared with 2019 NCC Reference Building.

By installing 4-star rated toilets, urinals and taps and the proposed rainwater harvesting facility the proposed development will reduce its potable water demand by approximately 35%.

In conclusion, the relevant ESD initiatives and Energy Efficiency measures outlined in this report are incorporated into the proposed building and development details. The proposed ESD initiatives will help to achieve significant reductions in the energy required by the development both in building and operation.

Building tuning will be conducted by builder and SLR recommends that quarterly reviews of actual building energy and water consumption be carried out once the warehouses are operational to check the actual energy usage and energy savings and verify that all systems are performing at their optimum efficiency. This will provide an opportunity for the systems to be tuned to optimise time schedules to best match occupant needs and system performance while satisfying the sustainability target for the project.

APPENDIX A

Energy Saving Lighting Design Recommendations

BCA Lighting Requirements Oakdale West Lot 3C & Lot 5								
BCA Comply Building	BCA Requirements	Area	Operating Hrs	Lighting Control				Total Annual Energy Consumption (kWh)
Lot 3c	Warehouse 3C1 W/m2	4	4,270	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	0.6	80,795
	Warehouse 3C2 W/m2	4	15,000	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	0.6	283,824
	Offices 3C1 W/m2	4.5	400	Monday to Sunday 24 hours	Motion Detector	0.9	1	14191.2
	Offices 3C1 W/m2	4.5	1,000	Monday to Sunday 24 hours	Motion Detector	0.9	1	35,478
Lot 5	Warehouse 5A W/m2	4	25,915	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	1	817255.44
	Warehouse 5B W/m2	4	4,661	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	1	146,989
	Offices and Dock Office 5A W/m2	4.5	1,200	Monday to Sunday 24 hours	Motion Detector	0.9	1	42,574
	Offices 5B W/m2	4.5	400	Monday to Sunday 24 hours	Motion Detector	0.9	1	14191.2
	Gatehouse 5B	4.5	70	Monday to Sunday 24 hours		1	1	2,759
			52,916				Total	1,438,057
						kWh/m2	27.18	

BCA Lighting Requirements Oakdale West Lot 3C & Lot 5								
BCA Comply Building	BCA Requirements	Area	Operating Hrs	Lighting Control				Total Annual Energy Consumption (kWh)
Lot 3c	Warehouse 3C1 W/m2	3.5	4,270	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	0.6	70,696
	Warehouse 3C2 W/m2	3.5	15,000	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	0.6	248,346
	Offices 3C1 W/m2	4	400	Monday to Sunday 24 hours	Motion Detector	0.9	1	12614.4
	Offices 3C1 W/m2	4	1,000	Monday to Sunday 24 hours	Motion Detector	0.9	1	31,536
Lot 5	Warehouse 5A W/m2	3.5	25,915	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	1	715098.51
	Warehouse 5B W/m2	3.5	4,661	Monday to Sunday 24 hours	Motion Detector, Daylight Sensor	0.9	1	128,616
	Offices and Dock Office 5A W/m2	4	1,200	Monday to Sunday 24 hours	Motion Detector	0.9	1	37,843
	Offices 5B W/m2	4	400	Monday to Sunday 24 hours	Motion Detector	0.9	1	12614.4
	Gatehouse 5B	4.5	70	Monday to Sunday 24 hours		1	1	
		52,916				Total	1,257,364	
						kWh/m2	23.76	

APPENDIX B

Water Saving Recommendations

WATER SAVINGS CALCULATION OAKDALE West LOT 3C and LOT 5

Table B1 - Number of fixtures

Area	Toilets	Urinal	Basins	showers
Amenities 3C	21	7	30	7
Amenities Lot 5	27	9	34	8
Total	48	16	64	15

Assume 80% of toilet water usage is supplied by rainwater

Fraction not supplied	0.2
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Table B2 - Results

No water saving measures		Max water usage rate ¹		
Toilet	Adopt 3* Average Flush Usage in Table C3	192 L/s		
Tap	Adopt 3* Tap Usage in Table C3	576 L/s		
Urinal	Adopt 3* Urinal Usage in Table C3	32 L/s		
Water reuse measures (4*) with RWH		Max water usage rate ¹		
Toilet	Adopt 4* Average Flush Usage in Table C3	168 L/s		
Tap	Adopt 4* Tap Usage in Table C3	480 L/s		
Urinal	Adopt 4* Urinal Usage in Table C3	24 L/s		
Water reuse measures (5*) with RWH		Max water usage rate ¹		
Toilet	Adopt 5* Average Flush Usage in Table C3	144 L/s		
Tap	Adopt 5* Tap Usage in Table C3	384 L/s		
Urinal	Adopt 5* Urinal Usage in Table C3	16 L/s		
	3* with RWH	4* with RWH	5* with RWH	
Improvement Percent	22	35	48	

Calculation Notes

¹ Water usage rate per use = Number of items in Table C1 x Usage rate in Table C3

² Assume total water usage is proportional to max water usage rate

³ Improvement percentage = % difference between 3* rated fixtures max water usage rate with no rainwater harvesting and design fixture max water usage rate with 70% of toilet and

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