ENVIRONMENTAL IMPACT STATEMENT OAKDALE WEST ESTATE

STATE SIGNIFICANT DEVELOPMENT APPLICATION

1 NOVEMBER 2017
SA6642
FINAL
PREPARED FOR GOODMAN LIMITED

URBIS

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	David Hoy
Associate Director	Jacqueline Parker
Consultant	Naomi Weber
Project Code	SA6642
Report Number	EIS_SA6642

TABLE OF CONTENTS

FIGURES

TABLES

DECLARATION BY AUTHOR

ENVIRONMENTAL IMPACT STATEMENT

Prepared under Part 4 of the *NSW Environmental Planning and Assessment Act 1979*

EIS Prepared By:	
Name	Jacqueline Parker
Position	Associate Director
Qualifications	Bachelor of Planning (Hons 1)/Master of Urban Development and Design
Company	Urbis Pty Ltd
Development to which Application Applies:	
Application Reference	SSD 7348
Proposed Development	Stage development of the Oakdale West Estate for warehousing and distribution.
Applicant Details:	
Company/Organisation	Goodman Property Services (Aust) Pty Ltd
Address	Level 17, 60 Castlereagh Street, Sydney
Contact	Guy Smith – Planning Manager
Land to be Developed:	
Name	Oakdale West Estate and Western North South Link Road
Address	Erskine Park
Legal Description	Lot 11 DP1178389, Lot 3031 DP1168407, Lot 6 DP229784, Lot 2 DP84578, Lot 3 DP85393, Lot 11 DP1178389
Declaration:	
	I certify that I have prepared the contents of this document and to the best of my knowledge the EIS: *(a) has been prepared in accordance with Part 4, Division 4.1 and the Regulations;* *(b) contains all available information that is relevant to the environmental assessment of the development; and* *(c) is neither false nor misleading.*

Signature	 Name: Jacqueline Parker Date: 1 November 2017

GLOSSARY OF TERMS

Term	Description	Abbreviation
Construction Stage	The indicative sequence of implementation of the works defined under the Stage 1 Development proposal.	Not applicable
Concept Proposal	A master plan framework for the staged development of the OWE, defining key elements and features of the estate including road layout, development precincts and footprints, environmental conservation and estate landscaping.	Not applicable
Environmental Impact Statement	A development assessment document defined and prepared in accordance with Section 78A, 112 or 115Y of the *NSW Environmental Planning and Assessment Act 1979.*	EIS
Environmental Planning Instrument	A State Environmental Planning Policy or Local Environmental Plan made under Part 3 of the *NSW Environmental Planning and Assessment Act 1979*, including 'deemed' environmental planning instruments, but not including Development Control Plans.	EPI
Environmental Protection and Biodiversity Act 1999	Commonwealth assessment framework in relation to Matters of National Environmental Significance (MNES)	EPBC Act
Estate Roads	The internal estate road network for the OWE, designed to 'Local Road' specifications.	Not applicable
NSW Environmental Planning and Assessment Act 1979	Overarching legislative framework establishing the need for assessment and consent in respect of certain types of development. Establishes the provisions for the identification, assessment and determination of State Significant Development and the need for an Environmental Impact Statement in respect of SSD.	EP&A Act/the Act
NSW Environmental Planning and Assessment Regulation 2000	The regulations, rules, by-laws and proclamations adopted for the purposes of the implementation of the *NSW Environmental Planning and Assessment Act 1979.*	EP&A Reg
Oakdale West Estate (also referred to as 'the Site').	The area of land incorporating Lot 11 DP 1178389, and forming the subject of the Concept Proposal and staged development proposed under this State Significant Development Application.	OWE

Term	Description	Abbreviation
Southern Link Road	A regional road forming part of the WSEA road network, providing an east west connection between the OWE and the M7 Motorway.	SLR
Stage One Development	The combined scope of Stage 1 Estate Works, Stage 1 Precinct Development within the OWE and the construction of the Western North South Link Road, as defined in the EIS.	Not applicable
State Environmental Planning Policy (Western Sydney Employment Area) 2009.	Statutory framework for the definition of the WSEA, its zoning and certain provisions with respect to the development of land in the WSEA.	WSEA SEPP
State Significant Development	Development declared to be *'State Significant Development'* pursuant Section 89C of the *NSW Environmental Planning and Assessment Act 1979,* including development so declared under a State Environmental Planning Policy.	SSD
State Significant Development Application	An application for development consent made in respect of State Significant Development, pursuant to Section 89C and 89E of the *Environmental Planning and Assessment Act 1979.*	SSDA
Western North South Link Road	A regional road forming part of the WSEA road network, providing a north-south connection between the Southern Link Road and Old Wallgrove Road.	WNSLR

EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) has been prepared by Urbis for the Proponent, Goodman Property Services (Australia) (Goodman), and is submitted to the New South Wales Department of Planning and Environment (DP&E) in support of a state significant development for a staged development of land within the Western Sydney Employment Area (WSEA), known as the Oakdale West Estate (OWE). The application seek approval for a staged development of the Oakdale West Estate for a warehousing and distribution hub including a Concept Proposal and Stage 1 Development Application comprising estate-wide earthworks, infrastructure and services and construction and use if warehouse buildings in proposed Precinct 1.

A request for Secretary's Environmental Assessment Requirements (SEARs) was submitted to the DP&E on 23 October 2015. SEARs for SSD 7348 were subsequently provided by the DP&E to Goodman on 26 November 2015. Revised SEARs were issued in October 2017 taking into account the Commonwealth's supplementary requirements for assessment under the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).*

This EIS describes the site and proposed development, provides relevant background information, and assesses the development against relevant legislation, environmental planning instruments, and planning policies, and the SEARs issued.

The proposed development has been informed by specialist technical studies. These studies have provided a detailed assessment of the potential environmental impacts and have provided recommendations to mitigate any potential impacts on the site and surrounding environment.

Project Overview

The proposal comprises of the following aspects:

- A Concept Proposal for the OWE establishing primary site access, road layouts (including internal road network and connections to the external road network), developable and non-developable lands, biodiversity offsets, indicative development stages and development controls for the future development of the site;
- Stage 1 Development of the Estate including:
  - Estate Works, including site preparation, bulk earthworks and retaining walls, catchment level stormwater infrastructure, trunk services connections and utility infrastructure and roads and access infrastructure associated with stage 1 and staged subdivision of precinct 1,
  - Precinct Development, including construction, fit out and use of warehouse buildings within Precinct 1, detailed earthworks, on lot stormwater, services and utility infrastructure and construction of industrial/warehouse buildings.
  - Construction of part of a new regional road known as the Western North-South Link Road (WNSLR) connecting to Lenore Drive to provide the primary access to the site.
  - Western boundary landscaping.

Assessment

The proposal is consistent with the relevant legislation and policy flamework including the *Environmental Planning and Assessment Act* 1979 and *State Environmental Planning Policy (Western Sydney Employment Area).*

The proposed development is classified as 'State Significant Development' (SSD) pursuant to Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP).

The majority of environmental site constraints and impact management have been addressed in Section 6 of this EIS. These matters include:

- Traffic and carparking provisions and traffic generation (both construction and operational).
- Urban Design and Visual Impact.

- Construction and operational noise and vibration.
- Soils and water.
- Air quality.
- Waste management.
- Infrastructure and services.
- Heritage (indigenous and non-indigenous).
- Sustainability management.
- Flooding
- Biodiversity.
- Bushfire.
- Acoustic.
- Flood Impact.

The assessment of the proposal has not identified any significant environmental, social or economic impacts which cannot be appropriately mitigated or managed.

Consultation

Consultation was undertaken with a range of State authorities, services provides and members of the community during the preparation and assessment of the EIS. The following agencies have also been consulted in the preparation of this development application as required by the SEARs.

- NSW Department of Planning and Environment;
- NSW Roads and Maritime Services;
- NSW Office of Water;
- WaterNSW;
- NSW Heritage Council;
- Endeavour Energy;
- Rural Fire Service;
- Fairfield, Blacktown & Penrith City Council;
- DPI Industries – Land;
- DPI Agricultural;
- EPA;
- OEH;
- Sydney Water;
- TransGrid; and
- Surrounding local residential and stakeholders.

All matters were considered to have been adequately addressed within the EIS or in the accompanying consultant reports and plans within the Appendices.

Conclusion

The finding of this EIS and the appended technical reports have concluded the proposal can be accommodated without over and above that considered appropriate by the relevant legislation or environmental capacity.

Moreover, a positive assessment and determination of the project should prevail given:

- The proposed development will result in a land use that is consistent with the zoning of the land and contribute an employment generating use in line with strategic goals for the Western Sydney Employment Area.
- The relationship with the site and surrounding residential and education sites will be protected with appropriate setbacks and landscaped buffers.
- The proposal demonstrates consistency with the relevant environmental planning instruments including strategic planning policy, and State and local planning legislation regulation and policies.
- The proposal will generate 1,065 new construction jobs and 1,854 operational jobs. The proposal has a Capital Investment Value of $447 million.
- It has been demonstrated that the proposed works will result in minimal environmental impacts, all of which can be managed or mitigated through the recommendations outlines in the sections of this report.

Given the merits of the proposal, it is requested that the Minister approve the proposal subject to the mitigation measures outlined in this report being appropriately implemented.

1. INTRODUCTION

1.1. PURPOSE

This report is an Environmental Impact Statement (EIS) prepared pursuant to Section 78(A)(8) of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) and Schedule 2 of the *NSW Environmental Planning and Assessment Regulation 2000* (EP&A Reg) for the staged development of land within the Western Sydney Employment Area (WSEA), known as the Oakdale West Estate (OWE). The proposed development is classified as 'State Significant Development' (SSD) pursuant to Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) and consent is sought for the staged development of the land for warehousing and distribution uses.

This EIS supports the State Significant Development Application (SSDA) for the following development:

- A Concept Proposal for the OWE establishing primary site access, road layouts (including internal road network and connections to the external road network), developable and non-developable lands, biodiversity offsets, indicative development stages and development controls for the future development of the site;
- Stage 1 Development of the Estate including:
  - Estate Works, including 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, including construction, fit out and use of warehouse buildings within Precinct 1, detailed earthworks, on lot stormwater, services and utility infrastructure and construction of industrial/warehouse buildings.
  - Construction of a new regional road known as the Western North-South Link Road (WNSLR) connecting to Lenore Lane to provide the primary access to the site.
  - Western boundary landscaping.

The EIS has been prepared in consideration of the Secretary for Planning and Environment's (the Secretary) Environmental Assessment Requirements (SEARs) issued for the proposal in November 2015 and revised SEARs issued in October 2017 (Appendix A).

1.2. BACKGROUND

The lands known as 'Oakdale' cover an area of some 421ha within the strategically significant WSEA (Figure 1). The WSEA has long been identified as the single largest greenfield industrial precinct to serve the growing demand for industrial lands in the Sydney Metropolitan Area for the next 20 to 30 years.

State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP) establishes the WSEA and identifies eight precincts within its boundary, as shown in Figure 2. The Oakdale lands lie within Precinct *8 – South of Sydney Catchment Authority Warragamba Pipeline and are broken into four sub-precincts. The WSEA SEPP also identifies a strategic road network to service the WSEA as shown in Figure 2. The planned Southern Link Road (SLR) and Western North South Link Road (WNSLR) are the key regional roads that service the OWE and broader Oakdale lands.*

Development of the Oakdale lands commenced in 2009 with the Oakdale Central Estate Concept Approval (ref. MP08_0065) and Project Approval (ref. MP08_0066). To date, Goodman has invested some $140 million in its Oakdale Estate with a further $100 million of new development currently under construction. At full completion, the broader Oakdale Estate will have an end value of some $1.8 billion and will generate 5,000-7,000 new jobs for Western Sydney.

The Oakdale Central Estate is now nearing completion with 6 facilities completed and occupied by DHL and the remaining approximately 98,000sqm under construction for completion of Q2 2018. The Oakdale South Estate was approved in October 2016 (SSDA 6917) and infrastructure works are underway. Separate SSD's have been submitted for Toyota, Sigma and SEARs issued for Costco.

Oakdale East and West (subject of the SSDA) remain undeveloped, providing future stock of some 242 ha of industrial land to supply the Sydney market. The largest proportion of this land lies within the OWE (154ha) which forms the subject of the current SSDA.

Table 1 – Oakdale Estate Lands

Estate	Area	Planning Approvals	Stage of Development
Oakdale Central	61 ha	• Concept Plan Approval 08_0065 (as modified) for employment park for warehousing, distribution and light industrial uses. • Project Approval MP08_0066 (as modified) for DHL Logistics Hub consisting of 2 warehousing and distribution buildings. • Project Approval SSD 6078 for development of remainder of the Oakdale Central Estate.	• Infrastructure works nearing completion. • Four buildings completed. • Two buildings currently under construction.
Oakdale South	117 ha	• SSDA ref. 6917 approved for Concept Proposal and Stage 1 development. • SSDA ref. 16_7663 under assessment for Toyota Spares Parts Warehouse and Distribution Centre. • SSDA ref. 16_7719 under assessment for Sigma Pharmaceutical Warehouse and Distribution Facilities. • SSDA ref. 17_8209 SEARs issued for Costco.	• Infrastructure works under construction. • Separate SSDA under assessment with NSW P&E for a Modification to ref. 6917. • Building works to commence on a staged basis. • Development to commence upon issue of necessary approvals.
Oakdale West	154 ha	• SSDA to be lodged for staged development as described in this report.	• Undeveloped. • Development to commence once approved.
Oakdale East	88 ha	• No current planning approvals.	• Still being used for quarrying activities. • Estimated redevelopment in ten years.

The SSDA the subject of this report relates only to the OWE. Planning and development of remaining lands within the broader Oakdale Estate (Oakdale East and Oakdale South) are subject to separate assessment and approval.

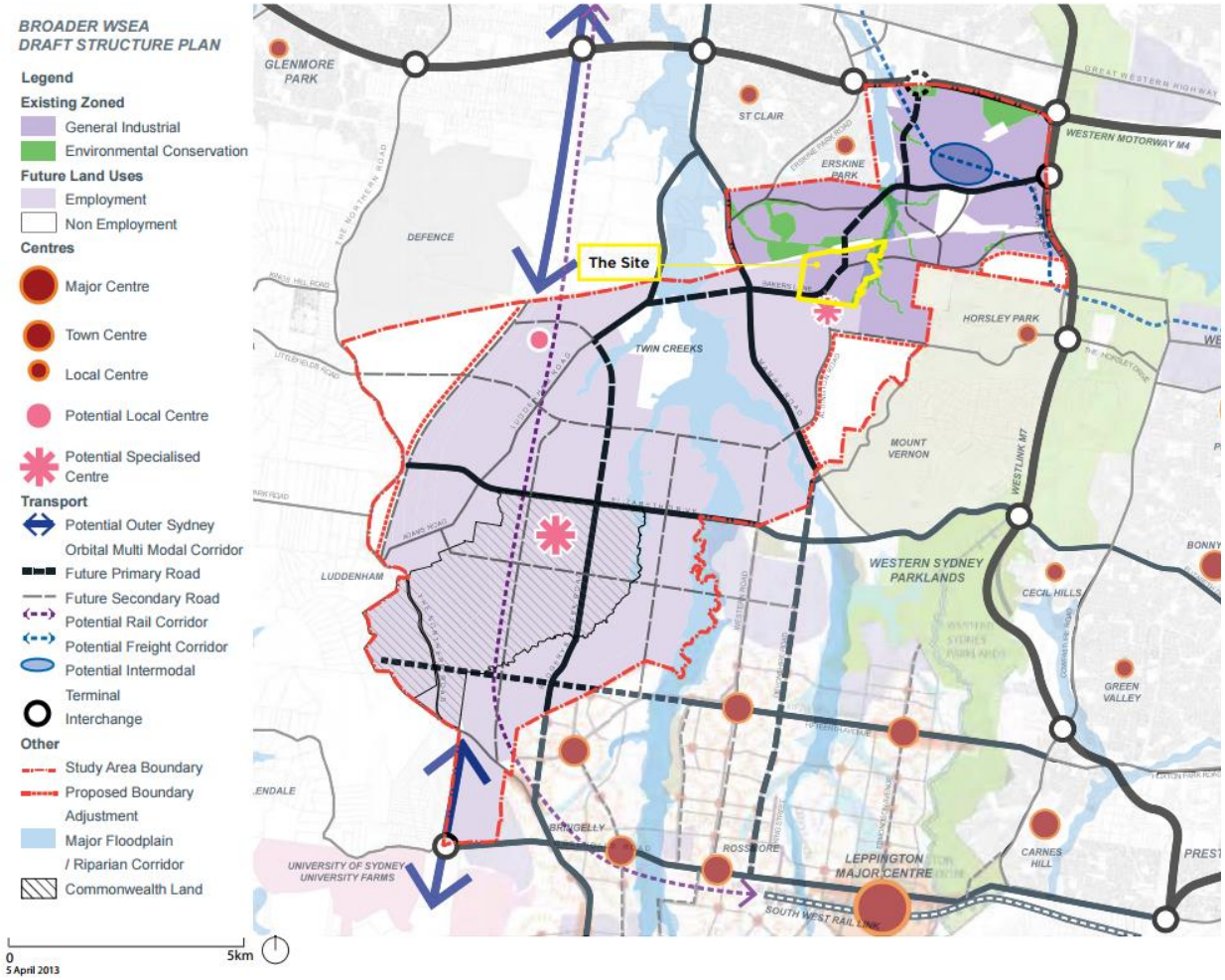
1.3. THE SITE

The OWE is located in the Penrith Local Government Area (LGA) at the far south-western extent of the WSEA. The site 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. Other boundaries interface with adjoining rural lands used for a mix of rural-residential, agricultural. Emmaus Catholic College and Emmaus Retirement Village is located to the west of the site. To the east of the site is Goodman's Oakdale South estate.

Figure 1 – Oakdale Estate

Source: e8urban

Figure 2 – Western Sydney Employment Area Precincts



Source: e8urban

1.4. OVERVIEW OF THE PROPOSED DEVELOPMENT

1.4.1. The Applicant

The subject site is owned by BGMG 11 Pty Ltd, a Joint Venture (JV) between Goodman and Brickworks Limited (Brickworks, parent company of the Austral Brick Company Pty Ltd). Goodman has entered into a JV with Brickworks to develop the broader Oakdale Estate into a regional warehousing and distribution hub. Goodman is the Applicant for the purposes of this SSDA.

Goodman is one of the world's largest industrial land owners and developers, with a significant portfolio of properties across Australia and worldwide. In the Sydney Metropolitan Area (SMA), Goodman owns and manages close to 200 industrial and commercial properties and therefore has a depth of experience and understanding of the key issues, challenges and drivers of employment lands and industrial development across the Sydney Region.

Within the WSEA itself, Goodman owns a number of industrial estates including the M7 Hub Estate, Westpark Industrial Estate, Interlink Industrial Estate, the Interchange Park Estate and the broader Oakdale Estate lands. The majority of this land is now developed, largely for warehousing and distribution uses with key tenants in the WSEA including TOLL, DHL, Coca Cola and Woolworths.

1.4.2. The Proposal

The proposal seeks approval for the staged development of the OWE facilitated via a staged SSDA process. The SSDA seeks consent for:

1. A Concept Proposal for the staged development of the OWE including:

   - Development of a regional warehousing and distribution hub with 24 hour/day, seven day/week operation;
   - Indicative site/lot layout, site access, internal road network, site levels, drainage, building envelopes, parking and landscaping;
   - Development Controls; and
   - Biodiversity Offsets.

2. Stage 1 Development to be implemented in stages including:

   - Estate Works for the entire OWE comprising:
     - Site preparation and mobilisation including clearing of land and importation of fill material;
     - Bulk and detail earthworks and support structures (batters and retaining walls);
     - Estate stormwater management including construction of detention basins;
     - Construction of site access, estate roads for stage 1and utility infrastructure and connection of services;
     - Rehabilitation of creeks and riparian land;
     - Landscaping and public domain works to estate roads, estate entrance and key nodes;
     - Land stabilisation and rehabilitation;
     - Western boundary landscaping;
     - Environmental protection and management measures; and
     - Staged subdivision aligned with infrastructure and servicing.
   - Stage 1 Precinct Development comprising:
     - Staged construction of buildings on Development Sites 1A, 1B and 1C;
     - On-lot stormwater, infrastructure and services;

- Construction and fit out of buildings;
- Construction of hardstand, loading and car parking;
- Landscaping and signage; and
- Use of buildings on Development Sites 1A, 1B and 1C for generic 'warehousing and distribution' with 24 hour/day, seven day/week operation plus fit-out (office fit-out and racking in warehouse).

3. Construction of a road connecting the OWE to the Lenore Drive referred to as the WNSLR.

The remainder of the OWE would be developed over four further stages, with the development of Stages 4, 4 and 5 subject to separate detailed design, assessment and approval in line with the fundamental layout and development controls established under the OWE Concept Proposal.

1.5. PLANNING FRAMEWORK

1.5.1. Approvals Process

Schedule 1, Group 12 of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) identifies development for the purposes of '*warehouses or distribution centres'* to be SSD if it:

> *'has a capital investment value of more than **$50 million for the purpose of warehouses or distribution centres** (including container storage facilities) at one location and related to the same operation.'*

The works comprising Stage 1 of the SSDA for the OWE (incorporating infrastructure and building works) would have a value of approximately $465 million. The project is therefore appropriately characterised as SSD pursuant to Section 89C of the EP&A Act.

The SSDA seeks consent for 'staged development' as defined under Section 83B of the EP&A Act. The Minister for Planning is the consent authority.

Other approvals, permits or concurrences that do apply to the proposed OWE development are detailed in Appendix R of the EIS.

1.5.2. Planning Controls

The principal environmental planning instrument applying to the OWE is the WSEA SEPP under which the site is zoned a combination of IN1 – General Industry and E2 – Environmental Protection. Within the IN1 zone, 'warehouse and distribution centres' are permissible with consent. Within the E2 zone, only limited development is permitted. The OWE Concept Proposal responds to the zone boundaries on the site and is entirely permissible with consent.

The site is also subject to the provisions of Penrith Development Control Plan 2014 (DCP 2014), specifically section E6 Erskine Business Park.

1.6. STRUCTURE OF EIS

In the consideration and design of the OWE SSDA package, a range of baseline environmental studies were undertaken to identify inherent site constraints and opportunities, followed by an impact assessment for key issues as relevant to the proposed development of the estate. Table 4 summarises the suite of technical studies and assessments underpinning the OWE SSDA package and where these documents can be found in the EIS.

Table 2 – OWE SSDA – Supporting Technical Studies and Documents

Supporting Technical Studies and Assessments	Reference in EIS/SSDA
SEARs and Response to SEARs	Appendix A
Detailed Table of Consultation	Appendix B
QS Report	Appendix C

Supporting Technical Studies and Assessments	Reference in EIS/SSDA
Concept Proposal Drawings	Appendix D
Stage 1 Development - Civil Design Drawings	Appendix E
Stage 1 Development – Architectural Drawings	Appendix F
Landscape Architectural Drawings	Appendix G
Urban Design Study	Appendix H
Civil, Stormwater, Infrastructure and Services Strategy	Appendix I
Traffic and Transport Impact Assessment	Appendix J
Biodiversity Assessment Report	Appendix K
Waterways and Riparian Lands Report	Appendix L
Indigenous and Non-Indigenous Heritage Assessment	Appendix M
Biodiversity Offset Strategy	Appendix N
Flood Impact Assessment	Appendix O
Bushfire Assessment Report	Appendix P
Planning Compliance Assessment	Appendix Q
Energy Efficiency Report	Appendix R
Geotechnical and Soils Assessments, including: • Phase 1 Contamination Report • Geotechnical and Hydrogeological Report • Mineral Resources Assessment • Salinity and Soil Aggressivity Report and Management Plan	Appendix S
Noise Impact Assessment	Appendix T
Air Quality Assessment	Appendix U
Waste Management Plan	Appendix V
Building Code Australia	Appendix W
Fire Safety Strategy	Appendix X
Visual Impact Assessment	Appendix Y
Risk Assessment	Appendix Z
EPBC Act – Supplementary Ecological Assessment	Appendix AA

2. SITE ANALYSIS

The site subject of the SSDA is best described in two key components:

- OWE: A single allotment of land, comprising 154ha of land at the western extent of the WSEA; and
- Road Corridor: A number of allotments in a linear configuration forming the corridor for the proposed new road linking the OWE with the WNSLR.

2.1. OAKDALE WEST ESTATE

The OWE is shown in Figure 2 and is legally described as Lot 11 DP1178389. The site is roughly rectangular in shape with an irregular eastern boundary that follows the alignment of a creekline.

The site is bound to the north by the Water NSW Pipeline, to the east by the Ropes Creek riparian corridor and to the south and west by adjoining rural lands.

The OWE exists as predominantly cleared, rural land currently used for low intensity cattle grazing. Remnant native vegetation is concentrated along the eastern site boundary along the riparian corridor, with some small remaining patches of vegetation in the north-west corner of the site.

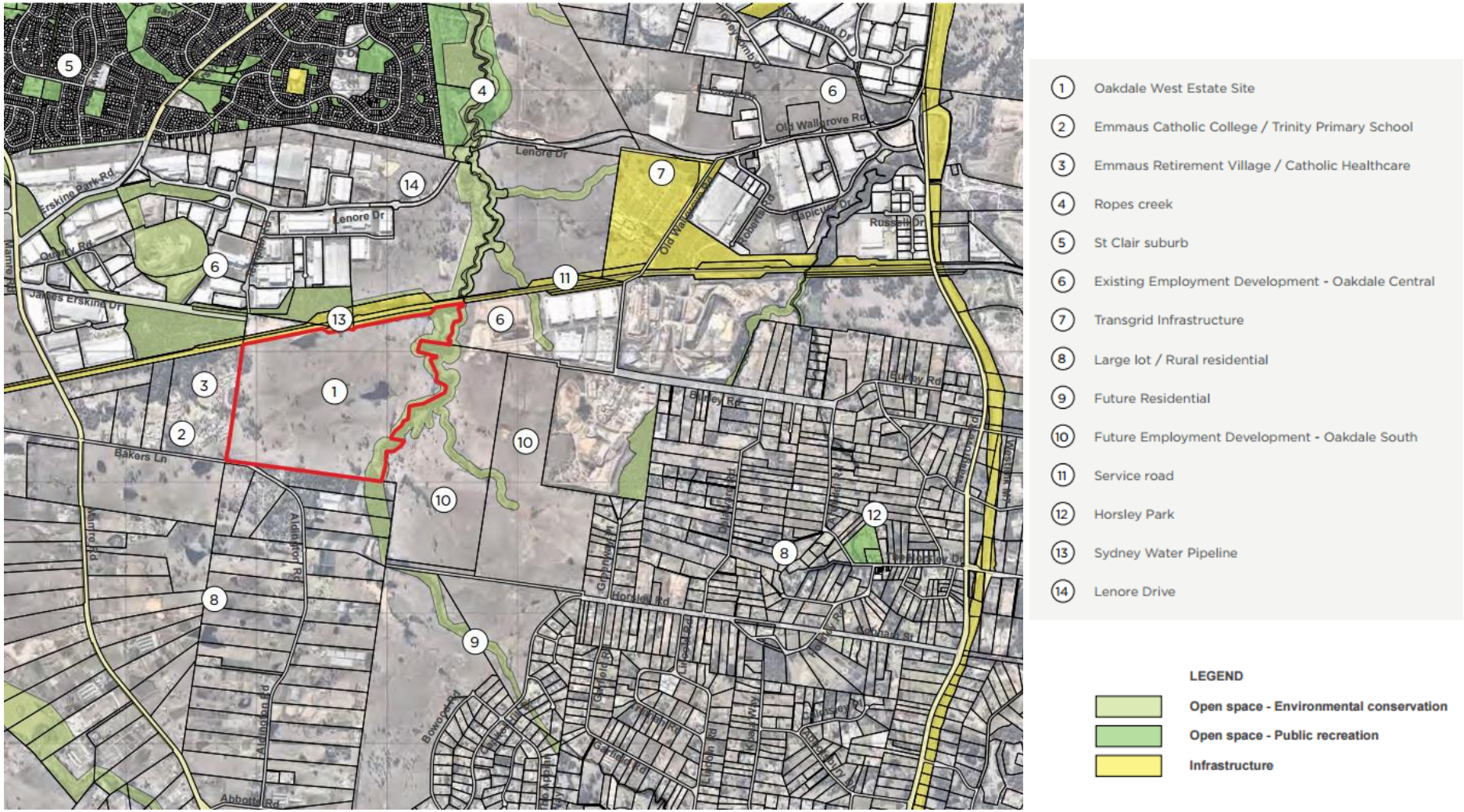
Landform across the site is relatively uniform with undulating rises and alluvial flats and no significant topographic features. Notable site features include:

- The presence of waterways/drainage lines on the site including Ropes Creek on the eastern site boundary;
- Trees and remnant native vegetation along the creekline;
- Two large farm dams in the central and western areas of the site;
- House and associated outbuildings in the south-west of the site.

Surrounding land uses include:

- North: Water NSW Pipeline with industrial lands within the WSEA beyond;
- South: Rural land zoned under Penrith LEP 2010;
- East: Ropes Creek and Oakdale South Estate; and
- West: Rural lands zoned RU2 under Penrith LEP 2010. These lands include a number of sensitive uses such as an aged care facility (Catholic Health Care) and three schools – Mamre Anglican School, Emmanuel Catholic College and Trinity Primary School. Other uses include rural residential development and recreational/sporting facilities, refer to Figure 3.

Figure 3 – Surrounding Context



Source: e8urban

2.2. ROAD CORRIDOR

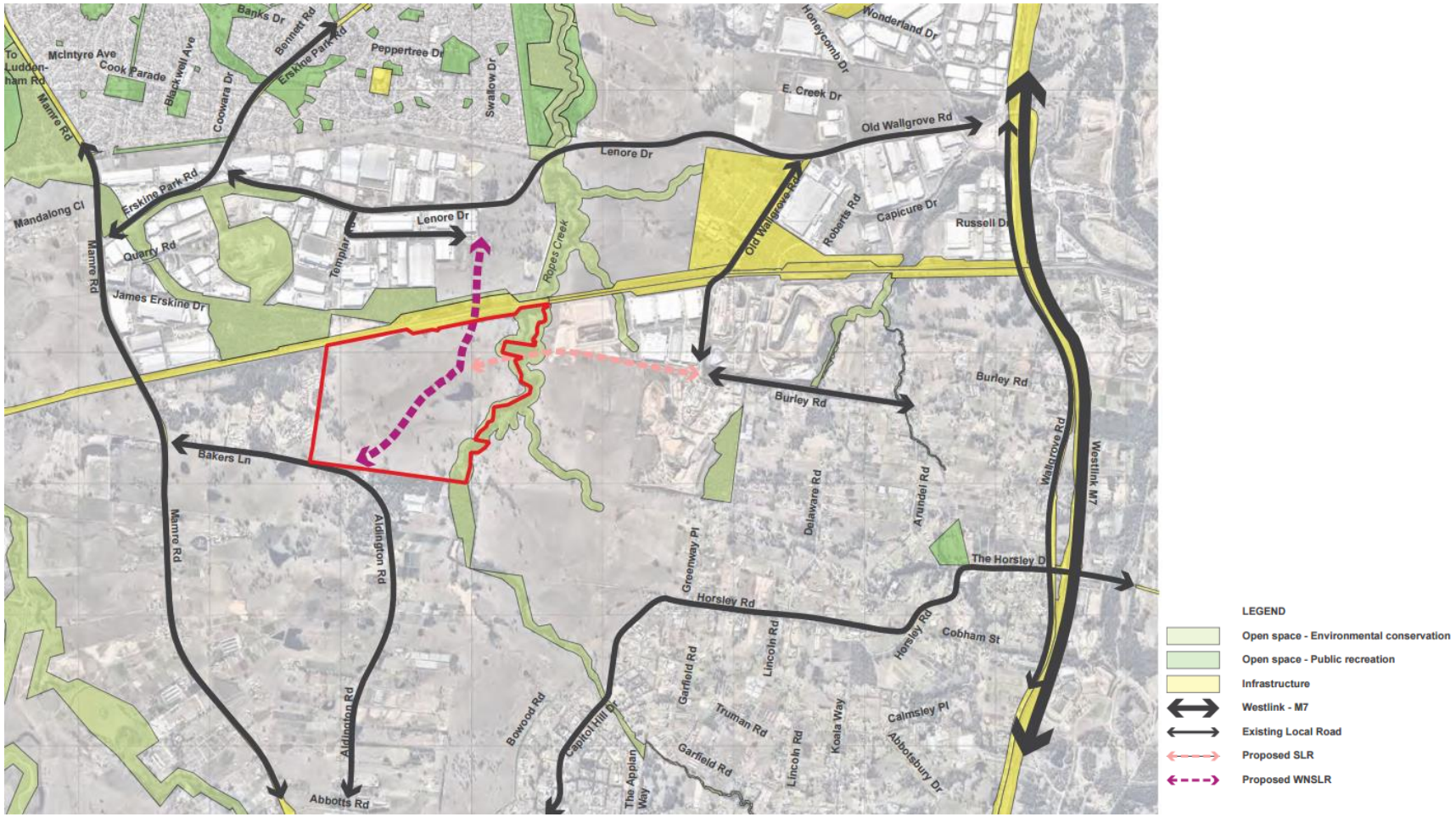
The proposed new regional road, known as the WNSLR, would be constructed from the north-eastern corner of the OWE, crossing over the Water NSW Pipeline, to connect to Lenore Drive approximately one kilometre north of the OWE. The proposed new road would follow a roughly north-south alignment, providing access to the OWE as well as a regional road connection to the Southern Link Road (SLR).

The road corridor would be 1.3km in length with a 30m wide reserve as shown in Figure 4. The road corridor would affect five separate properties, as described in Table 3. Lands affected are owned by Goodman, Fitzpatrick Investments (Fitzpatrick) and Water NSW. Affected land is predominantly cleared for the purpose of cattle grazing but has a conservation corridor that runs along the southern boundary of the site that has been revegetated by Greening Australia. The SCA pipeline intersects the proposed road corridor and overheard power lines are also present within the corridor.

Table 3 – Legal Description of Land in Proposed Road Corridor

Legal Description	Landowner
Lot 3031 DP 1168407	Fitzpatrick Investments
Lot 6 DP 229784	WaterNSW
Lot 2 DP 84578	WaterNSW
Lot 3 DP 85393	WaterNSW
Lot 11 DP1178389	Goodman

Figure 4 – Proposed Road Corridor



Source: e8urban

2.3. SITE FEATURES AND CHARACTERISTICS

The key features and characteristics of the site and considerations/implications for concept planning and development of the OWE are summarised in **Table 4** and key constraints are mapped in **Figure 5.** Further detailed analysis of these site characteristics is provided in the relevant technical appendices to the EIS.

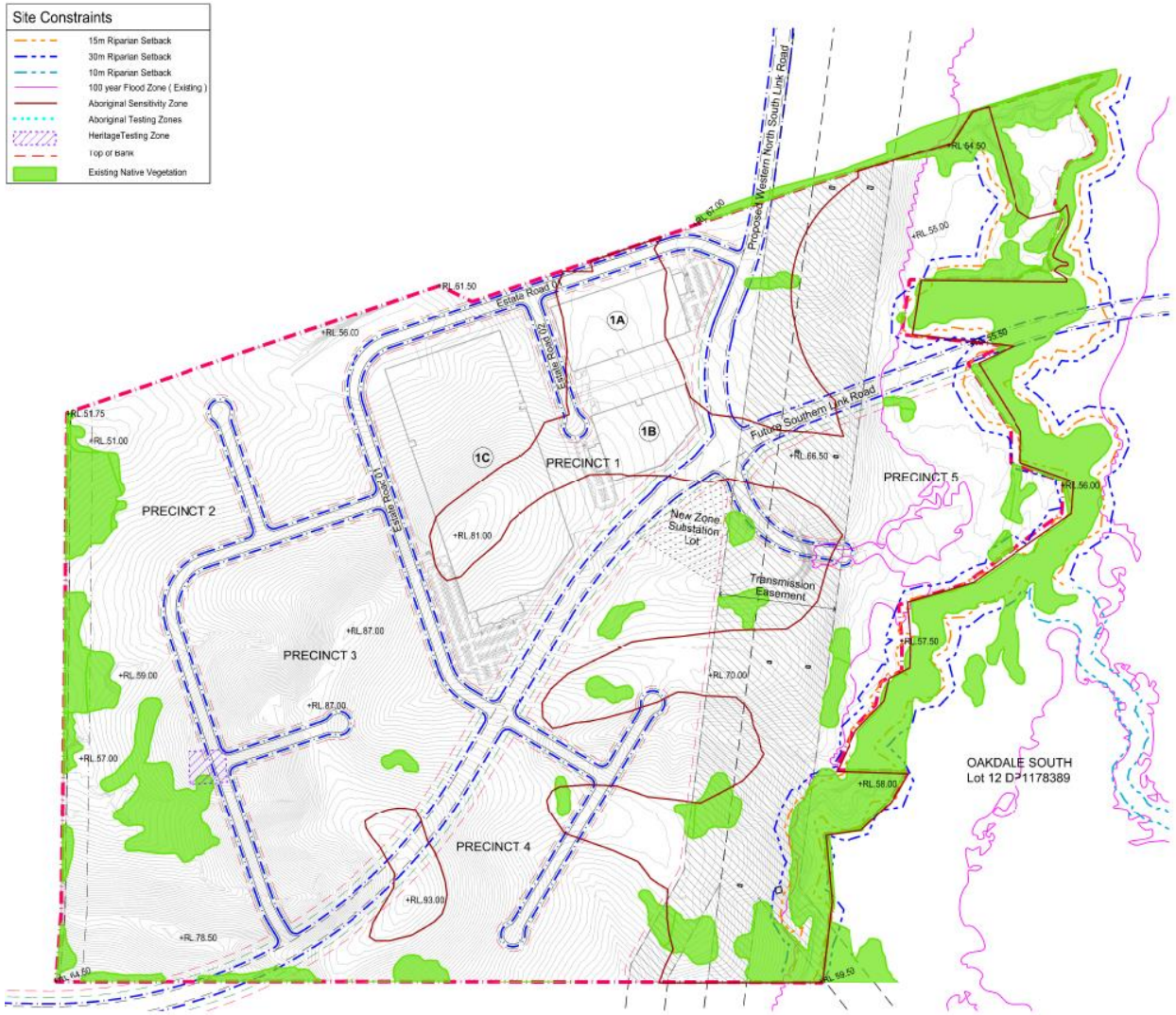
Table 4 – Summary of Site Features and Characteristics

Issue	Key Features
Land Use and Character	• The site has been used for rural (pastoral lands) since the early to mid 1800s. The central portion of the site was used a piggery sometime prior to 1965. • Site character is predominantly rural, comprising pasture lands used for low intensity grazing. • Existing site features include grassed paddocks, scattered trees, wire fences, and several farm dams. A collapsed cottage is located in the south-eastern quadrant of the site. • Industrial development, quarries and brick-making facilities are located to the south and east.
Surrounding Land Use	• North: Erskine Park residential suburban area, approximately 1,500 m from the OWE boundary. • East: Oakdale South Estate and Oakdale Central Estate development sites immediately to the east. • South: residences in the Kemps Creek rural-residential area. • West: Emmaus Village and Emmaus Catholic College immediately west, and Trinity Primary School, Mamre Anglican School and a childcare centre further west. • Land surrounding the proposed WNSLR is principally industrial in nature as the road traverses from the OWE north, through the existing WSEA.
Topography and 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. • 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 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.
Soils	• Residual soils, characteristic of the Blacktown soil landscape, generally consist of shallow duplex soils over a clay base (OEH 2014).

Issue	Key Features
	• 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. • Two small farm dams are located on the western boundary of the site, while two larger dams and one smaller dam are located on the eastern and northern portions of the site.
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.
Vegetation	• Approximately 4% of the vegetated cover of the development site is native, with the majority of site cleared for agriculture and dominated by exotic pasture grasses. • Native vegetation is limited to small remnant patches and sparsely scattered trees through the paddocks. There are areas of regenerating woodland that connect to larger patches of woodland to the west and south of the development site. • Condition of vegetation is degraded due to persistent impacts from grazing, even within areas of native vegetation.
Easements	• Two converging power easements meet in the south east of the development site and run through the eastern portion of the lot. • Water NSW Mains Pipelines run immediately to the north of the development site.
Bushfire	• Kemps Creek riparian corridor (including Ropes Creek) contains Category 1 Bushfire Prone Vegetation. • The vegetation within the site is mapped as Category 2 Bushfire Prone Vegetation.

Issue	Key Features
Heritage	• No identified State or local items of environmental heritage. • Five potential indigenous heritage sites identified. • Area of archaeological sensitivity identified along Ropes Creek and the eastern portion of the site. • One non-indigenous archaeological site identified (known as the collapsed cottage).

Figure 5 – OWE Constraints and Characteristics



Source: SBA Architects

3. DESCRIPTION OF PROPOSAL

3.1. OVERVIEW

The proposal seeks approval for the staged development of the OWE facilitated via a staged SSDA process. The SSDA seeks consent for:

1. A Concept Proposal for the staged development of the OWE including:
   - Development of a regional warehousing and distribution hub with 24 hour/day, seven day/week operation;
   - Indicative site/lot layout, site access, internal road network, site levels, drainage, building envelopes, parking and landscaping;
   - Development Controls; and
   - Biodiversity Offsets.
2. Stage 1 Development to be implemented in stages including:
   - Estate Works for the entire OWE comprising:
     - Site preparation and mobilisation including clearing of land and importation of fill material;
     - Bulk and detail earthworks and support structures (batters and retaining walls);
     - Estate stormwater management including construction of detention basins;
     - Construction of site access, estate roads and utility infrastructure and connection of services;
     - Realignment and rehabilitation of creek and riparian land;
     - Landscaping and public domain works to estate roads, estate entrance and key nodes;
     - Land stabilisation and rehabilitation;
     - Environmental protection and management measures; and
     - Staged subdivision aligned with infrastructure and servicing.
   - Stage 1 Precinct Development comprising:
     - Staged construction of buildings on Development Sites 1A, 1B and 1C;
     - On-lot stormwater, infrastructure and services;
     - Construction and fit out of buildings;
     - Construction of hardstand, loading and car parking;
     - Landscaping;
     - Signage; and
     - Use of buildings on Development Sites 1A, 1B and 1C for generic ‘warehousing and distribution’ with 24 hour/day, seven day/week operation.
3. Construction of a new road to form part of the SEA road network, connecting the OWE to the Lenora Drive referred to as the WNSLR.

The remainder of the OWE would be developed over four further stages, with the development of Stages 2, 3, 4 and 5 subject to separate assessment and approval in line with the fundamental layout and development controls established under the OWE Concept Proposal.

The details of the OWE proposal are summarised in **Table 5.**

Table 5 – Summary of OWE SSDA

Oakdale West Estate – PROPOSED STATE SIGNIFICANT DEVELOPMENT	
Concept Proposal	
General	• Staged development for a regional 'warehousing and distribution' hub and road connecting to EPLR. • State Significant Development pursuant to State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). • CIV - $447 million. • 1,062 new construction jobs and 1,854 new operational jobs. • Total of 476,924m^2 of warehousing/industrial and ancillary office GFA.
Proposal	• Regional 'warehousing and distribution' hub. • 24 hours/day, seven day/week operation. • Access via new road connection to EPLR. • Indicative lot layout, site levels, concept stormwater drainage and internal road network. • Trunk infrastructure and services connections.
Indicative Development Figures	• Site Area – 154.12ha • Developable Area – 89.53ha • Non-Developable Area – 64.48ha • Development Precincts – 5 • Development Stages - 5 • Warehouse/Industrial GFA – 453,369m^2 • Office GFA – 23,555m^2 • Building Envelopes – 24
Planning and Development Controls	• Zoned IN1 – General Industry and E2 – Environmental Protection under WSEA SEPP. • Maximum building height – 15m • Site Coverage – 65% • Car Parking – 1 space per 300m^2 for warehousing, 1 space per 75m^2 for industry, 1 space per 40m^2 for office.
Staging	• Five development stages to be implemented in line with infrastructure delivery and market demand.

Oakdale West Estate – PROPOSED STATE SIGNIFICANT DEVELOPMENT	
Stage 1 Development	
General	• Estate Works across entire OWE including site preparation, fill importation, bulk and detailed earthworks, infrastructure and services. • Construction and use of three warehouse buildings in the Stage 1 Precinct Development. • Total development area – 224,130m^2 • Total Warehouse GFA – 111,560m^2 • Total Ancillary Office GFA – 6,465m^2 • Total Stage 1 GFA – 118,025m^2 • Total parking spaces – 636
Subdivision	• Staged subdivision of site alongside infrastructure and services delivery. • Indicative subdivision layout to include four development lots, four biodiversity offset lots, one Estate Road lot, one Regional Road lot, seven detention basin lots and one services lot.
Earthworks and Retaining Walls	• Bulk and detail earthworks across entire estate including site preparation, fill importation, grading and benching. • Approximately 454,850m^3 of net cut and 473,126m^3 of net fill, equating to an overall balance of 18,276m^3. • Realignment of drainage line. • Where possible, batter slopes will be provided to accommodate level changes. Where this is not possible, retaining walls will be constructed along the estate road, lots and basins based on the current civil and earthworks design.
Roads and Access	• Construction of new regional road connection to EPLR to RMS Standards. • Primary access via connection to new road. • Internal Estate Road network designed to Council specifications and consistent with Oakdale Central and Oakdale South Estates.
Infrastructure and Services	• Seven stormwater detention basins and reticulation in estate road reserves. • Connection of trunk services including potable water, sewer and electricity along with internal reticulation. • Provision for new zone substation to service future development stages. • Provision for gas and telecommunications infrastructure.
Development Site 1A	• Site Area – 44,321m^2

Oakdale West Estate – PROPOSED STATE SIGNIFICANT DEVELOPMENT	
	• Warehouse GFA – 21,115m^2 • Ancillary Office GFA – 1,370m^2 • Total GFA – 22,485m^2 • Parking – 144 spaces
Development Site 1B	• Site Area – 38,491m^2 • Warehouse GFA – 15,190m^2 • Ancillary Office GFA – 990m^2 • Total Precinct 4 GFA – 16,180m^2 • Parking – 106 spaces.
Development Site 1C	• Site Area – 141,390m^2 • Warehouse GFA – 75,255m^2 • Ancillary Office GFA –4,105m^2 • Total GFA – 79,360m^2 • Parking – 386 spaces.

Future stages of the OWE would be subject to separate assessment and approvals processes in line with market demand.

3.2. DEVELOPMENT OBJECTIVES

The Concept Proposal for the OWE was developed in consideration of a comprehensive constraints analysis of the site, with particular reference to riparian lands, vegetation and flooding. The constraints analysis resulted in the identification of 64.48ha of undevelopable land across the site. Much of this land lies adjacent to the creekline running along the eastern boundary of the site and has been reserved to protect the integrity of the waterway and associated vegetation. Some of this vegetation has been identified as being of particular significance and will be retained in perpetuity as an offset to the loss of other, less significant vegetation on the site.

The proposed development is consistent with the overarching aim for the broader Oakdale Estate to create high quality warehouse and logistics estate which maximises the employment generating potential of the land to create an efficient, attractive and high quality employment zone for Western Sydney. The proposal elicits a design response that delivers architectural diversity within a coordinated palette of materials and colours. This will unite the overall presentation of the estate as a high quality logistics precinct whilst enabling sufficient diversity to maintain interest and individual customer diversity and expression of corporate identity.

A fundamental consideration in the formulation of the Concept Proposal is to create large development lots which provide for the flexibility to suit the broad range of end user requirements as well as maximising the potential to accommodate larger footprint facilities in keeping with current best practice for efficiency of warehouse and distribution supply chain operations.

To this end, the core objectives of the OWE proposal are to:

- Secure developable areas and high level development controls to provide certainty and minimise risk in the future development of the site;
- Deliver critical regional road infrastructure to connect the site to the external road network to allow for timely development of the Estate in line with market demand;

- Allow for the staged development of the site over time in line with infrastructure delivery and market demand;
- Facilitate earthworks and infrastructure/services development on the land concurrently with the delivery of regional road infrastructure; and
- Secure approval for the first stage of development within the site to allow for a timely response to enquiry as infrastructure issues are resolved;
- Respond to the site context and key interfaces with surrounding lands, including sensitive receivers to ensure an appropriate and sustainable development outcome.

The OWE has been designed as a continuation of the Oakdale Central (SSD 6078) and Oakdale South Estates, subject to separate approvals (ref. MP08_0065, MP08_0066 and MP_6917) and integrates with these estates as shown in Figure 3. For consistency in branding, identity and management, planning for the OWE seeks to reflect the key development principles which apply under the Oakdale Central and Oakdale South Concept Plans. This includes core development controls as well as design principles, landscaping, signage and public domain treatments.

3.3. THE OWE CONCEPT PROPOSAL

3.3.1. Overview

The OWE is intended to become a significant warehousing and distribution complex, forming part of a larger, integrated network of facilities to be operated by Goodman in the WSEA.

The Concept Proposal has been derived to accommodate warehouse and distribution development in a functional and efficient manner whilst respecting key environmentally sensitive land. Key principles determining the Concept Proposal layout are as follows:

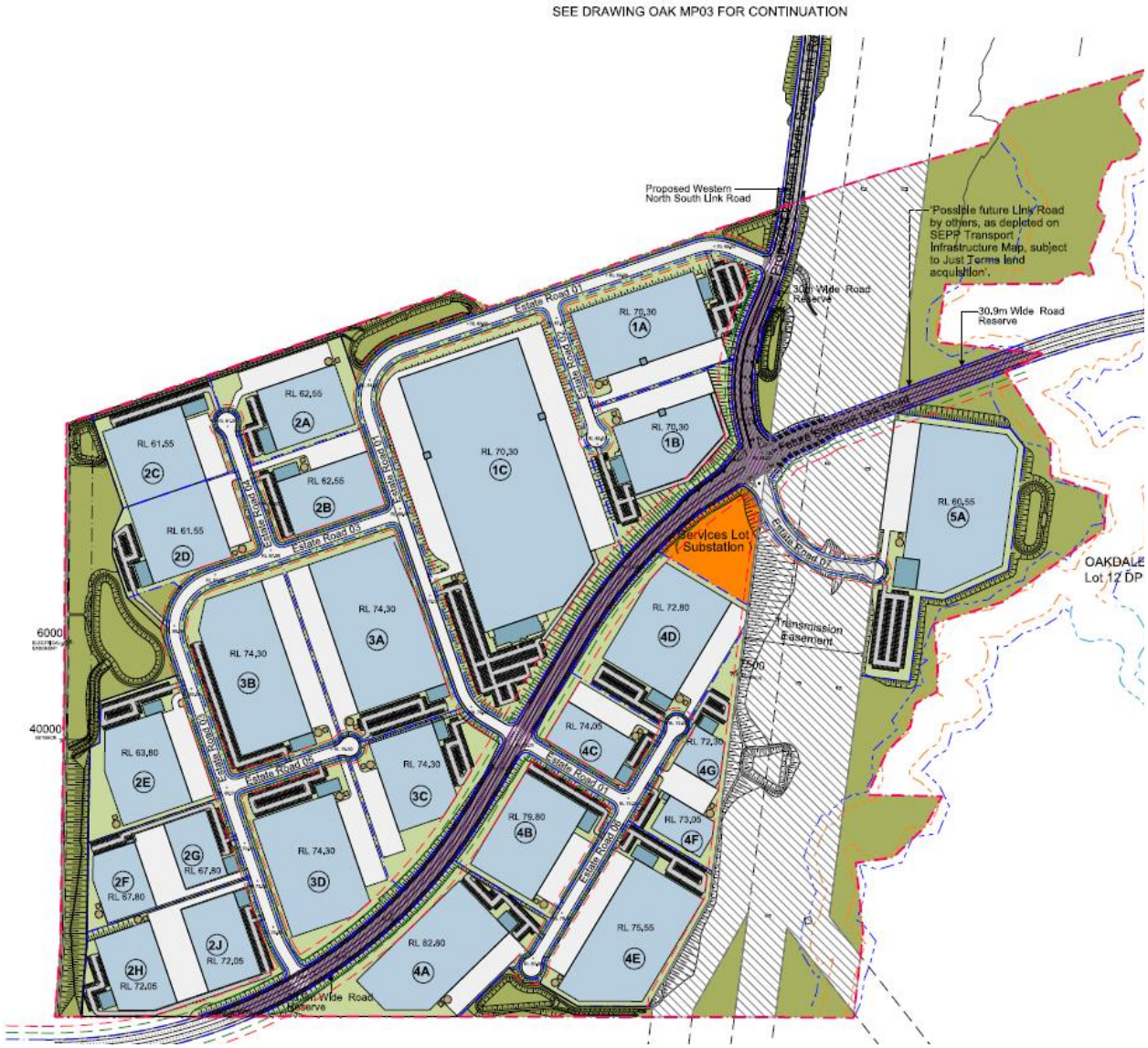
- Provide a rational, efficient road access system which is integrated with the future regional road network;
- Provide large, flexible, regular shaped ‘lots’ to cater for a diverse range of sizes having regard to the market demand for different sized warehouses and particularly large footprint facilities;
- Respect existing water ways and environmentally sensitive land;
- Address the limitations of the easement existing on the eastern boundary of the site;
- Provide land for a future zone substation in the location required by Endeavour Energy based on demand modelling.

The OWE would be developed over five stages, with timing determined by market demand. **Table 6** summarises the key elements of the OWE Concept Proposal which is shown in **Figure 6**. Full details of the proposed Concept Proposal are provided in the drawings within the architectural package at Appendix D.

Table 6 – Summary of Proposed OWE Concept Proposal

Oakdale West Estate – Project Snapshot	
Total Site Area	154.12 ha
Total Undevelopable Land	25.20 ha
Public Infrastructure and Encumbrances (easements, road reserves, services and sediment basins)	39.28 ha
Total Developable Area	89.53 ha
Development Precincts	5
Development Lots	5
Total Warehouse/Industrial GFA	453,369m^2
Total Ancillary Office GFA	23,555m^2
Total GFA	476,924m^2

Figure 6 – OWE Concept Proposal



Source: SBA Architects

3.3.2. Key Elements

The OWE Concept Proposal provides for the staged development of the site for industrial and warehousing uses, with associated infrastructure and services. The Concept Proposal is designed around the alignment of the proposed future SLR that bisects the site in a roughly east-west direction and the transmission easement bisecting the site along the eastern boundary. The estate road network branches from the future SLR, with provision made for future connections in certain locations. Primary access to the site is in the far north, via the WNSLR proposed to be delivered as part of the Oakdale West proposal.

The Concept Proposal divides the site into five development precincts, each incorporating a number of indicative building footprints. Provision is made for a services lot to accommodate a future substation for electricity supply.

The key elements of the proposed OWE Concept Proposal are described in **Table 7.**

Table 7 – Key Elements of Proposed OWE Concept Proposal

Element	Description	Design Parameters
Site Access	• Primary access via connection to the proposed WNSLR to be delivered as part of the proposal. • Proposed future SLR forming central spine road of the Estate.	• Designed to relevant AS and RMS standards.
Estate Roads	• Seven local estate roads (Estate Roads 01 to 07) extending from the WNSLR and future SLR, providing access to development precincts. • Provision made for future connection to SLR in certain locations.	• Estate road network designed to match the specifications of the approved road network for Oakdale Central and Oakdale South. • Estate road network designed in consideration of Penrith Council engineering requirements. • Estate Roads to be dedicated to Penrith Council at estate completion.
Subdivision and Development Lots	• Six development lots where future industrial/warehousing development would take place. • Six estate road lots for future dedication. • Seven detention basin to be subdivided into individual lots for future dedication.	• Development lots to have minimum area of 5,000m^2. • Development lots to provide opportunity for a variety of sizes, layouts and configurations of development. • Subdivision to respond to the needs and requirements of relevant roads and drainage authorities for future dedication and management.

Element	Description	Design Parameters
Development Precincts	• Five ‘Development Precincts’ which provide indicative locations for future development of buildings and associated hardstand areas.	• Estate divided into distinct development ‘Precincts’ to allow for flexibility in the detailed design and staging of development to respond to market demand.
Utilities and Services	• Utility infrastructure requirements accommodated in Concept Proposal layout. • Provision for services lot within the site to accommodate electricity infrastructure. • Services lot to be dedicated to Endeavour Energy for the construction of a new zone substation to meet the needs of future stages of the OWE development.	• Services Lot to be 1ha in area to meet the requirements of Endeavour Energy. • Location of the Services Lot selected in consultation with Endeavour Energy and in consideration of the future electrical load of the area. Note: final location and size subject to further consultation with Endeavor Energy.
Stormwater and Drainage	• Seven bio-retention basins.	• Stormwater management for the OWE designed in accordance with Penrith Council requirements and WSUD principles. • Detailed design and capacity of basins included in Civil Engineering Report at Appendix I.
Riparian Lands	• Concept Proposal observes a 30m setback to Ropes Creek (3rd order stream).	• Management of riparian lands on the site informed by NOW guidelines/standards and consultation.
Open Space	• Concept Proposal includes landscaped open space areas along riparian corridor and surrounding detention basins as well as landscaped nodes along estate roads.	• Open space along riparian corridor and around detention basins not publicly accessible.
Public Domain and Landscaping	• Landscape Concept Plan for the OWE establishes landscaping principles and guidelines for the OWE including landscape typologies and planting schedules.	• Minimum setbacks and landscape treatments to be consistent with those adopted for Oakdale Central and Oakdale South.

Element	Description	Design Parameters
		• Landscaped setback to regional roads to be average of 20m. • Landscaped setback to local roads to be average of 7m.

3.3.3. Access

The OWE has been designed to integrate with the regional road network planned for the WSEA as shown in **Figure 7**.

Access to the site would be facilitated via the proposed WNSLR which would connect in the north-eastern part of the site, providing a link north to Lenore Drive and the broader external road network. Construction of the WNSLR between the site and Lenore Drive forms part of the proposed Stage 1 works. Completion of the WNSLR as the primary access for the OWE would eliminate any reliance on Bakers Lane for site access. Bakers Lane would only be used for access during the early stages of the construction process, prior to the completion of the WNSLR. In the north-east corner of OWE the WNSLR will cross over the SCA Pipeline via a proposed bridge and connect into Lenore Drive approximately 1km to the north.

Other access arrangements for the OWE are proposed as follows:

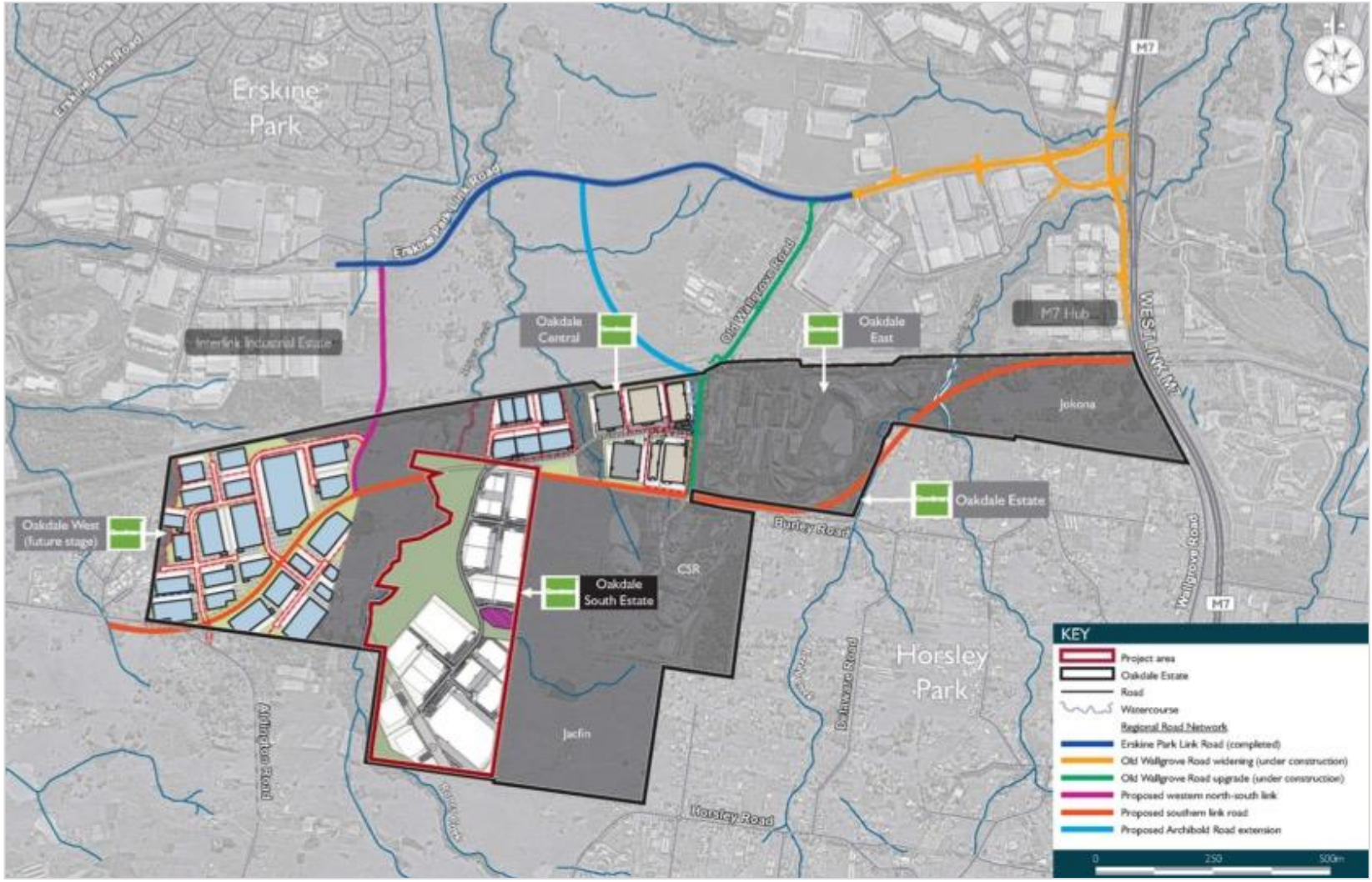
- Provision for future connection to the proposed SLR at three points within the OWE at Estate Road 01, 03 and 07, the connection will be consistent with the AECOM concept alignment (ref: AECOM Broader WSEA SLRN – Options Refinement, Final Report).
- Internal access to development sites via a network of seven estate roads;
- Access across the easement provided via Estate Road 07.

Proposed connections to the future SLR would be treated as follows:

- Eastbound left-in/left-out to/from Estate Road 1 and Estate Road 3, serving Precincts 1-3,
- Westbound left-in/left-out to/from Estate Road 1, serving Precinct 4; and
- A new approach to form a 4-leg intersection with the SLR connecting to Estate Road 7.

All site access points, internal driveways, service and circulation areas have been considered in the development of the Concept Proposal and provision is made for compliance with the relevant requirements of AS2890.1 and 2890.2. Further detailed description of the road infrastructure proposed as part of the OWE development is provided in Section 6.6 of the EIS and in the plans at Appendix I.

Figure 7 – Integration with Regional Road Network



Source: Goodman

3.3.4. Development Controls

The OWE lies within the Penrith LGA in the 'Erskine Business Park' precinct. Penrith Development Control Plan 2014 (DCP 2014) establishes development controls for the Erskine Business Park, however it is noted that pursuant to clause 11 of the SRD SEPP, DCPs do not apply to SSD. Consistent with the approved approach taken for Oakdale Central and Oakdale South, development controls for the OWE will be established via the Concept Proposal. The controls have been drafted to allow for easy integration into DCP 2014.

The proposed controls have been designed to be consistent with those applied at Oakdale Central and Oakdale South and to respond to the particular constraints and characteristics of the OWE. Proposed development controls for the OWE are summarised in **Table 8** and in drafted form in Appendix Q.

Table 8 – Principal OWE Development Controls

Issue	Key Issues/Considerations	Proposed Control/Standard
Lot Size	• Flexibility in lot sizes and dimensions required to accommodate a diversity of development typologies and configurations. • Lot size and width must respond to contemporary industrial development standards and requirements and the needs of modern industrial operations. • Lot size to provide sufficient area for unrestricted heavy vehicle access and manoeuvring, loading and car parking. • Lot size and dimension to maximise efficiencies in the construction process.	• Minimum lot size: 5,000m^2 • Minimum frontage (excluding cul-de-sacs): 40m • Minimum lot width at building line: 40m
Site Coverage	• Development of the OWE needs to respond to the site's environmental constraints and attributes. • Development of the OWE must preserve minimum standards of internal and external amenity. • Amenity within industrial estates is becoming more important to industrial operators. • Potential visual impacts of the OWE development on surrounding lands must be considered in the Concept Proposal design and planning process.	• Maximum site coverage: 65% (excluding awnings), unless it can be demonstrated that there would be no adverse impact on the estate and/or the amenity of adjoining properties.

Issue	Key Issues/Considerations	Proposed Control/Standard
Setbacks	• Development within the OWE must respond to required setbacks to regional roads. • Road setbacks within the OWE must be sufficient to allow for services infrastructure (as required), pedestrian pathways (as required) and appropriate landscaping. • Setbacks within the OWE to be consistent with those at Oakdale Central and Oakdale South for branding and efficiencies in the coordinated management of the estates. • Side and rear setbacks to accommodate and/or respond to emergency vehicle access, asset protection zones, fire rating and BCA standards and amenity for adjoining landowners.	• Minimum building setbacks for the OWE: – Southern Link Road/WNSLR: 20m. – Local Estate Roads: 7.5m with 3.75m landscaping. – Western site boundary: 40m. – Southern site boundary: 9.95m. – Rear boundary: 5m. – Side boundary setback: 0m*. ** Subject to compliance with fire rating requirements.*
Landscaping	• Landscaping to balance the need for amenity and functionality on the estate. • Landscaping to communicate a consistent brand and identity with other Oakdale lands. • Landscape treatments to provide appropriate transitions between public and private domain and between developable and non-developable lands on the site.	Minimum Landscaped Setbacks: • Southern Link Road: Average of 20m depth along the site frontage. 20m building setback of which 10m will be landscape. • Collector Road: 7.5m, or average of 50% of setback along the frontage. • Local Estate Road: Average of 50% of setback along the frontage. • Side boundary: No minimum requirement (except for western site boundary as described above). • Rear boundary: 2.5m.
Car Parking	• Car parking rates to recognise the needs of modern warehousing operations and the unique characteristics of the WSEA and typical WSEA operations.	On-site car parking for the OWE to be provided at the following rates: • Warehouses and Bulk Storage: 1 space/300m$^{2;}$ • Office: 1 space/40m$^{2;}$

Issue	Key Issues/Considerations	Proposed Control/Standard
	• Car parking rates to provide flexibility to respond to the demands of different operators that may locate on the site.	Disabled Parking • Development requiring more than 50 car parking spaces to provide a minimum of 2% of spaces as disabled parking.

Further discussion of development controls applying to the OWE and variations to existing development controls established under Penrith Council DCP 2014 is provided in Section 4.2.3.

3.3.5. Development Precincts

The Concept Proposal for the OWE establishes indicative locations across the site for development, access, drainage, environmental protection and infrastructure and services. The Concept Proposal identifies five proposed development 'Precincts' (Precincts 1 to 5). Details of each of the five development precincts established under the OWE Concept Proposal are provided in Table 9.

Table 9 – OWE Development Precincts

PRECINCT	lot	Stage	Area*	Built Form*
1	1	1	22.41ha	Three building pads serviced by Estate Road 01 and 02.
2	Part Lot 2 Part Lot 3	2	21.57ha	Eight building pads serviced by Estate Roads 03 and 04.
3	4	3	18.49ha	Four building pads serviced by Estate Roads 03 and 05.
4	5	4	21.04ha	Seven building pads serviced by Estate Roads 01 and 06.
5	6	5	6.02ha	A single building pad serviced by Estate Road 07.

3.3.6. Infrastructure and Servicing

The servicing of lands within the WSEA, and more specifically Oakdale Estate lands has been the subject of extensive planning and consultation with relevant utility providers over many years. As a result, the works required to service these lands have been considered in the development of forward work programs for State and local authorities and providers including Sydney Water, Endeavour Energy, NSW RMS and Penrith Council.

Infrastructure and servicing requirements for the OWE are well understood, with most infrastructure and services to be provided through connections from the recently approved Oakdale South Estate. The OWE

Concept Proposal includes provision for a new zone substation on the site in accordance with the requirements of Endeavour Energy.

The delivery of essential infrastructure and services would form part of the proposed Stage 1 development and is described in detail in Section 3.4.

3.3.7. Staging

The Concept Proposal allows for flexibility in the staging and timing of development of the OWE to enable development to respond to changing site conditions, opportunistic efficiencies, infrastructure delivery and market demand.

Staging of the OWE under the Concept Proposal responds to the availability of access to the development precincts. Stage 1 is proposed at in the north-west of the Estate where the primary access connection to the WNSLR will be located. Development would then progress westward with access provided via the internal estate road network as shown in

Figure 8.

Stage 1 development of the OWE Concept Proposal includes the site preparation and infrastructure works required to facilitate further development of the estate in line with the Concept Proposal, along with the development of Precinct 1 for warehousing and distribution.

The remainder of the OWE is expected to be developed over four further stages with Stage 2 being the development of Precinct 2, Stage 3 being Precinct 3, Stage 4 being Precinct 4 and Stage 5 being Precinct 5.

3.3.8. Landscaping

Landscaping for the OWE responds to the key interfaces of the estate with the public domain, adjoining/surrounding properties such as the nearby Catholic School and retirement village and environmentally sensitive lands such as riparian corridors. The landscape strategy for the OWE aims to reflect a consistent image and maintenance regime as that established for the Oakdale Central and Oakdale South Estates whilst also responding to the unique characteristics of the OWE.

Full details of proposed concept OWE landscaping and Precinct 1 are provided in the drawing package at Appendix G, prepared by Site Image Landscape Architects.

Stage 1 Landscaping

Figure 9 illustrates the proposed landscaping works that form part of the Stage 1 including:

- Landscaping along the western boundary to soften the interface with Emmaus Catholic College and Retirement Village,
- Landscaping along the northern boundary;
- On-lot landscaping around Building 1A, 1B & 1C; and
- Landscaping along a proportion of the proposed WNSLR.

Concept Plan Landscaping

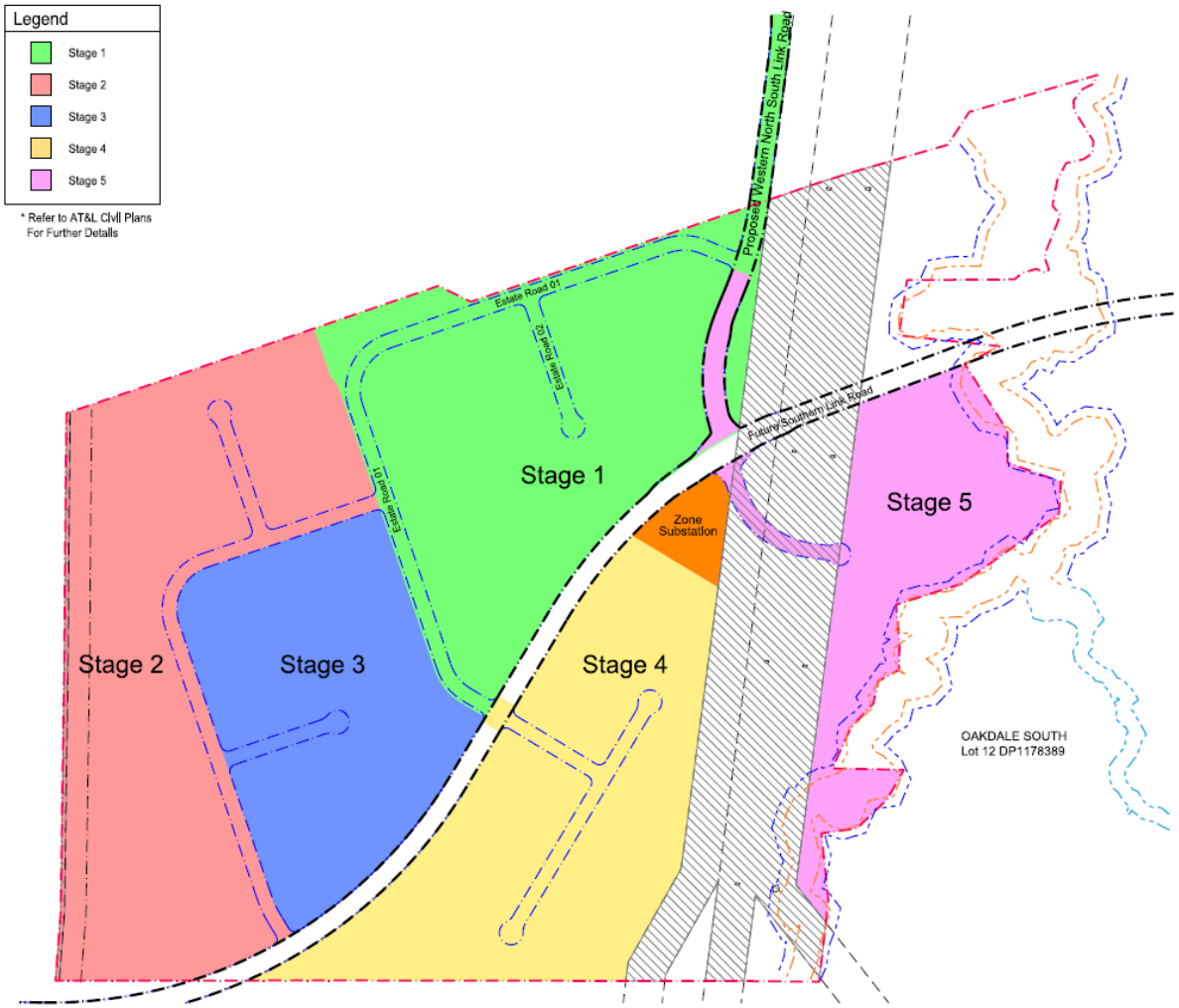
Subsequent estate and on-lot landscaping will be subject to separate SSD applications for individual development sites, including internal landscaped setbacks and presentational landscaping of car parking/hardstand areas.

Landscaped setbacks are proposed along site boundaries to maximise amenity within and surrounding the estate and provide visual screening of the development from surrounding areas, with focus on properties to the west and south. A 9.95m landscaped setback will be maintained to the southern boundary to soften the interface to residential receivers, this landscape work is likely to accompany construction works associated with Precinct 4.

3.3.9. Signage

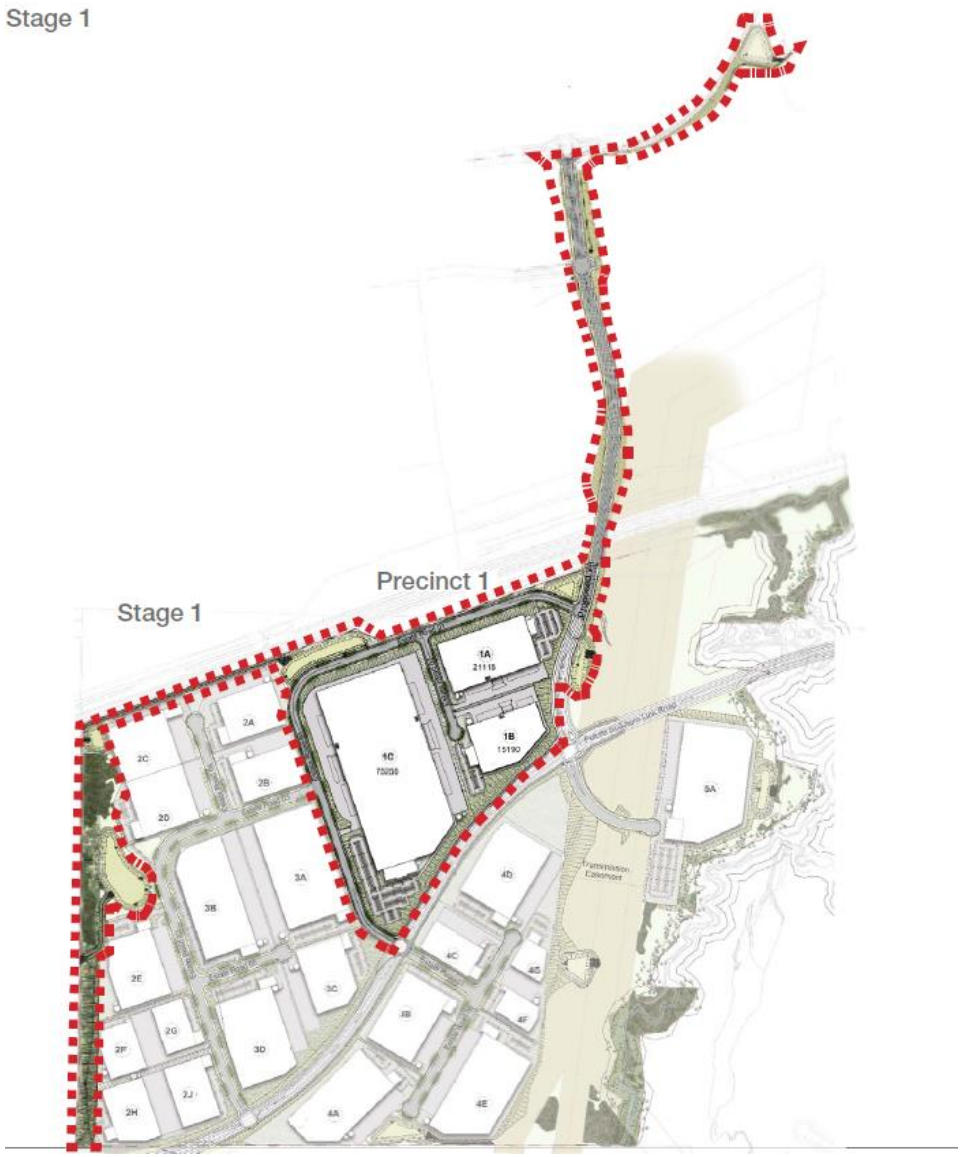
Goodman's corporate branding strategy includes pre-approved signage for use across its estates including the signage typologies described in the plans at Appendix F**.** Signage within the OWE would incorporate a combination of these typologies with details of signage to be used within specific areas of the site to be provided in applications for the future staged development of precincts.

Figure 8 – Proposed Development Staging



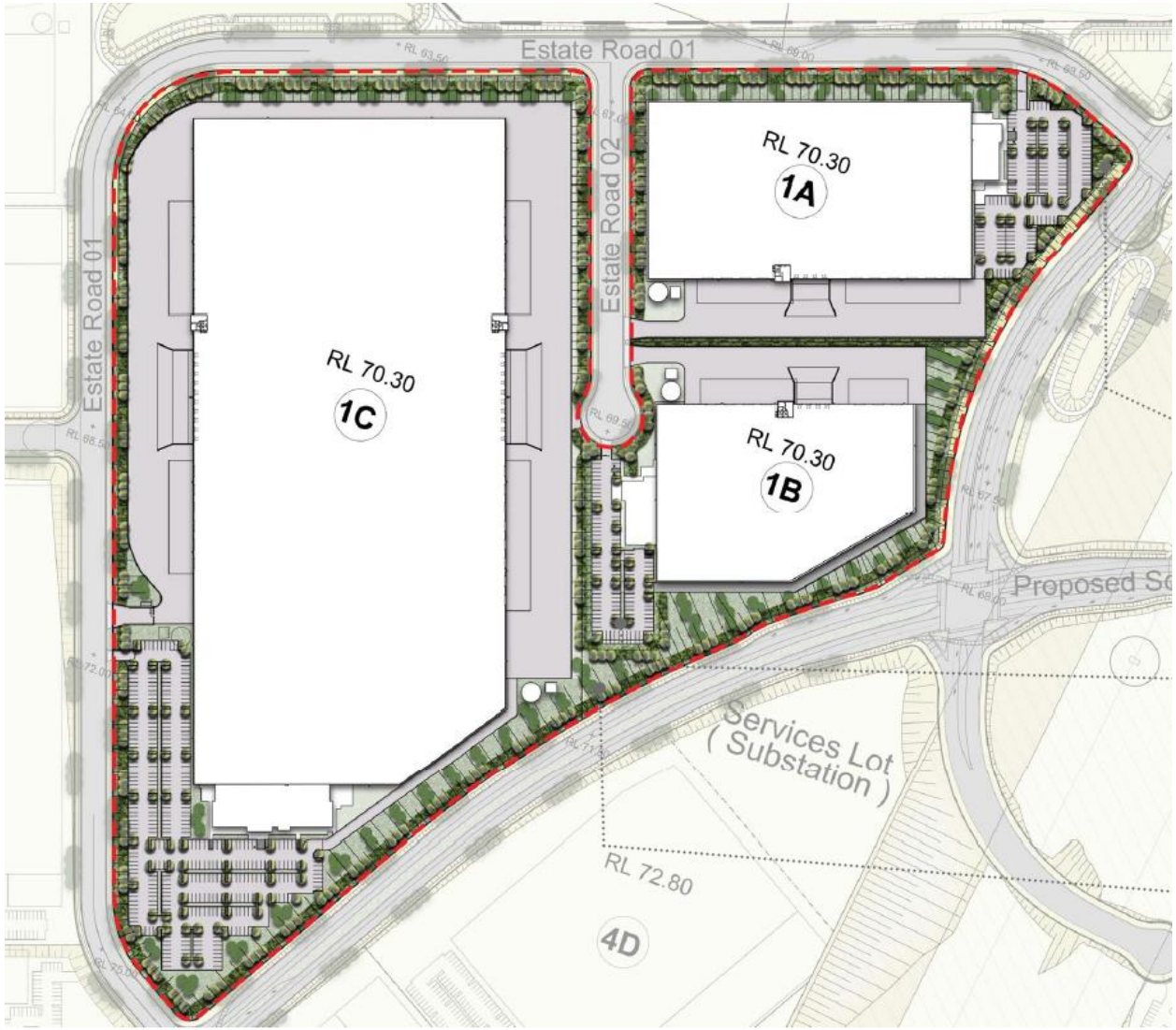
Source: SBA Architects

Figure 9 – Landscape Scope of Works Stage 1



Source: Site Image Landscape Architects

Figure 10 – On Lot Landscaping: Phase 1



Source: Site Image Landscape Architects

3.4. STAGE 1 DEVELOPMENT

3.4.1. Overview

The Stage 1 Development for the OWE comprises:

- Demolition of existing farm structures on the site;
- Estate Works across the entire estate including site preparation, earthworks, stormwater management, roads and access and services and utilities;
- Construction, fit out and use of buildings in Precinct 1;
- Construction of the WNSLR and connection to the estate road network; and
- Subdivision of the estate.

Further detail on each of the elements of the Stage 1 development is provided in the following sections.

3.4.2. Western North South Link Road

Overview

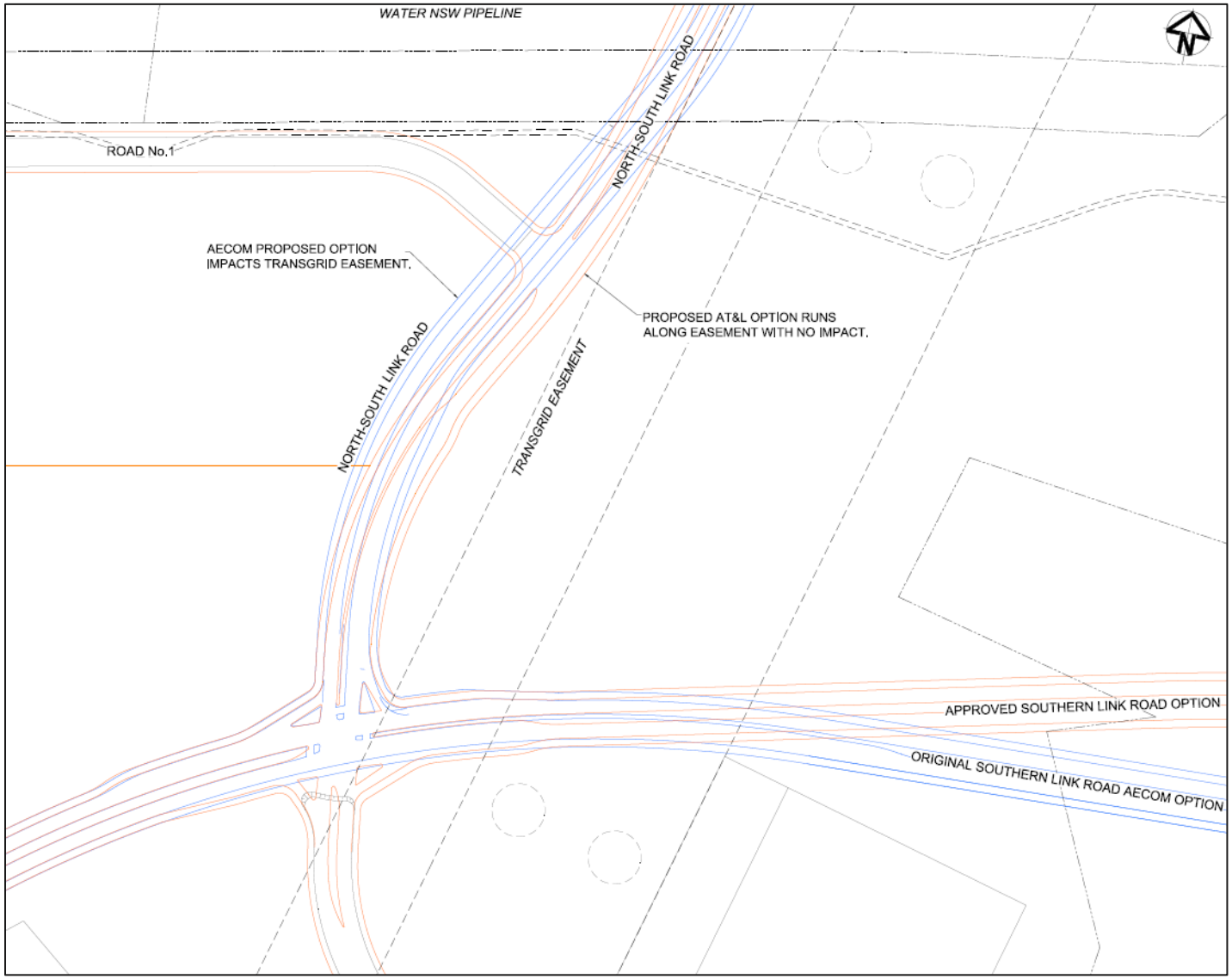
The proposed WNSLR will provide a link between the OWE and the RMS state road, Lenore Drive. The road will connect the north-east corner of OWE and cross over the WaterNSW Pipeline via a proposed bridge and connect into Lenore Drive approximately one kilometre to the north. The road will be designed to accommodate B-doubles. The road will be classified as an Interim Regional Road, dedicated to the appropriate road authority (either Council or RMS) as a public road reserve for future management. The civil drawings at Appendix E provide details of the road design with a summary of key elements provided in the following sections.

Road Alignment

The WNSLR will run through the eastern portion of OWE and until such time the SLR is completed, all access to and from OWE will be provided from this road. The proposed alignment of the road is presented in Figure 9 &10, comparing the proposed Goodman option against the AECOM strategic option.

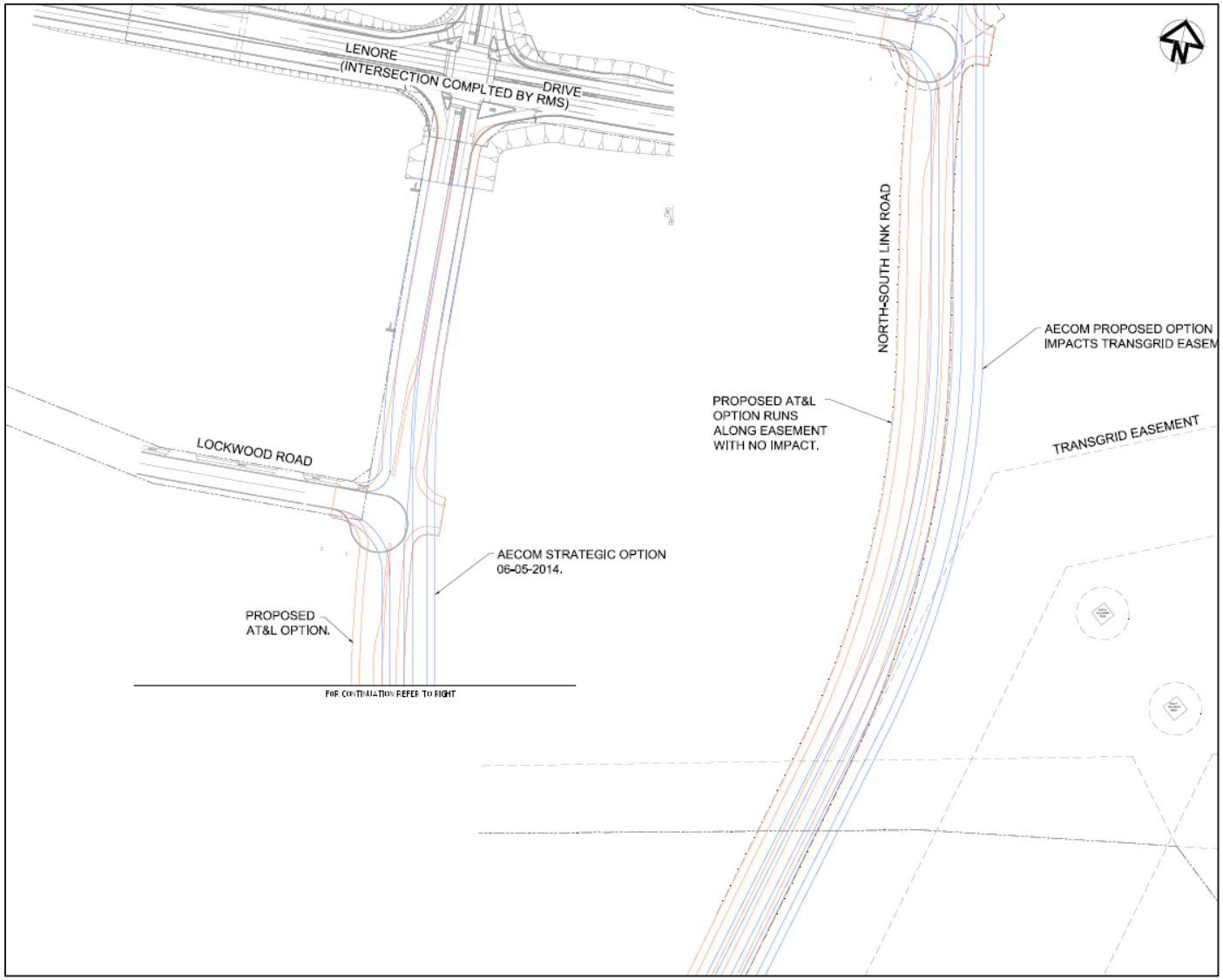
The WNSLR will form major intersections with Lenore Drive, the SLR and minor intersections with Lockwood Drive and Estate Road 1.

Figure 11 - WNSLR Alignment



Source: AT&L

Figure 12 – WNSLR Alignment



Source: AT&L

Road Design

The proposed WNSLR has been designed in accordance with relevant Austroads, RMS and Australian Standards, with key design elements summarised in **Table 10**. A typical cross section is provided in Figure 14.

Table 10 – Proposed WNSLR

DESIGN ELEMENT	DESCRIPTION
Length	1 km
Road Reservation Width	30m
Road Configuration	2 x 8.0m wide carriageways, comprising: • 2 x 3.5m traffic lanes; • 2 x 4.5m traffic lanes adjacent kerb 4.5m wide verge on eastern and western sides
Lane Widths	4.5m kerbside lane 3.5m median side lane
Median	5.0m wide raised median
Footpaths	2.5m shared footpath on eastern side of road
Landscaping	Minimal landscaping within verges
Road Classification	Interim Regional Road under control of RMS.
Design Speed	90km/hour, signposted at 80kmk/hr
Design Vehicles	Capable of accommodating B-Double vehicles.
Typical Crossfall	3.0%

Bridge

A bridge crossing is proposed to provide an elevated connection over the Water NSW pipeline. The concept design has been prepared having regard to the requirements of Water NSW for access, maintenance and protection of the pipelines. Further consultation will be required during design prior to commencement of construction.

Intersections

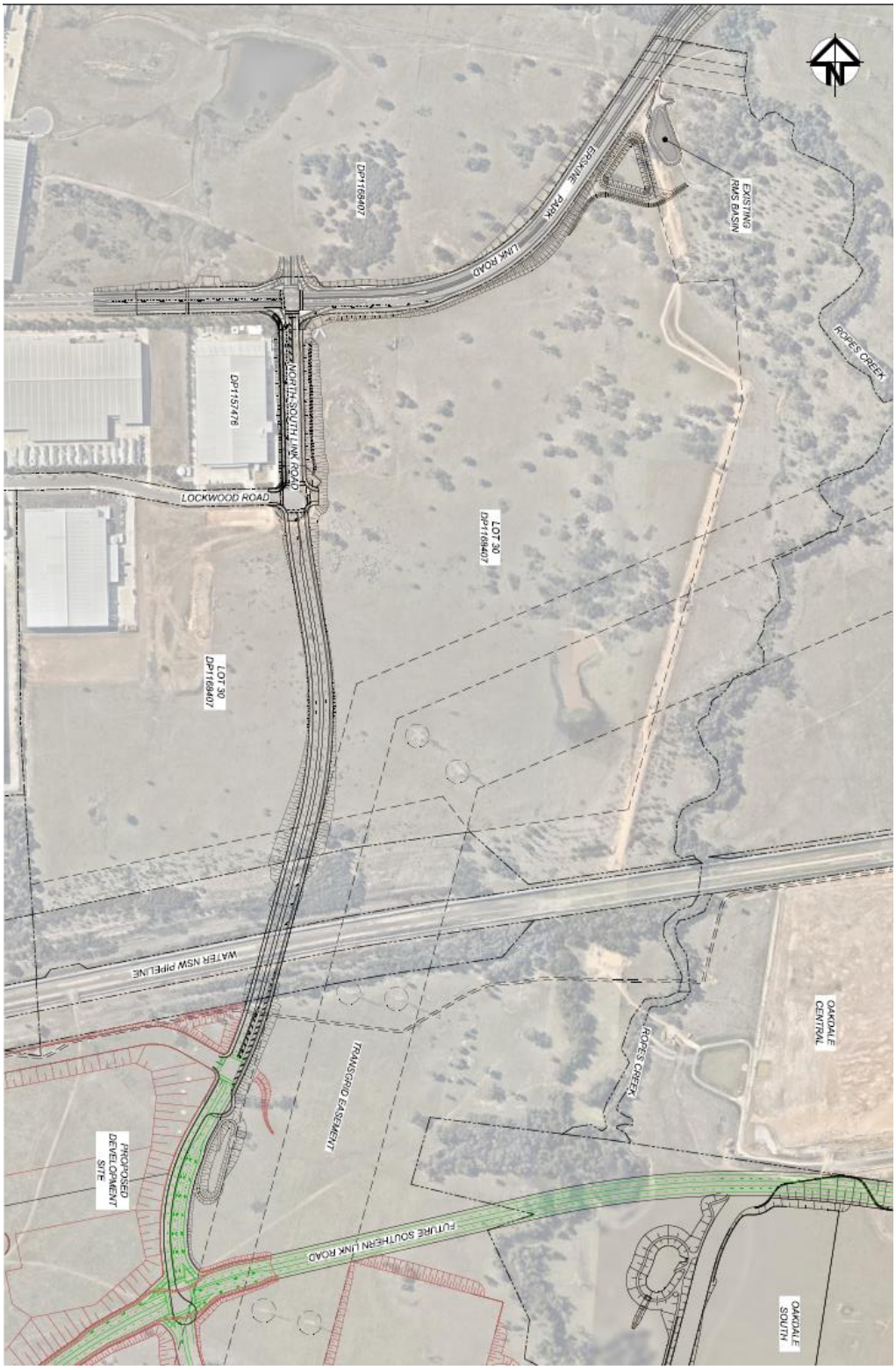
The following intersections along the WNSLR are proposed:

- A 4-leg intersection with Lenore Drive, providing access to the regional road network and a local connection.
- A 4-leg intersection with Lockwood Road (previously a T-junction), providing a local connection between WNSLR and Templar Road as well as providing a connection for a local road supporting development to the east, comprising the balance of Fitzpatrick lands.
- A T-junction to Estate Road 1, providing primary access to OWE and will be the sole access provided to Precincts 1 - 4 until the completion of the SLR.

- A half road construction between road 01, future SLR to provide connection to Precinct 5 in advance of the SLR (by others).

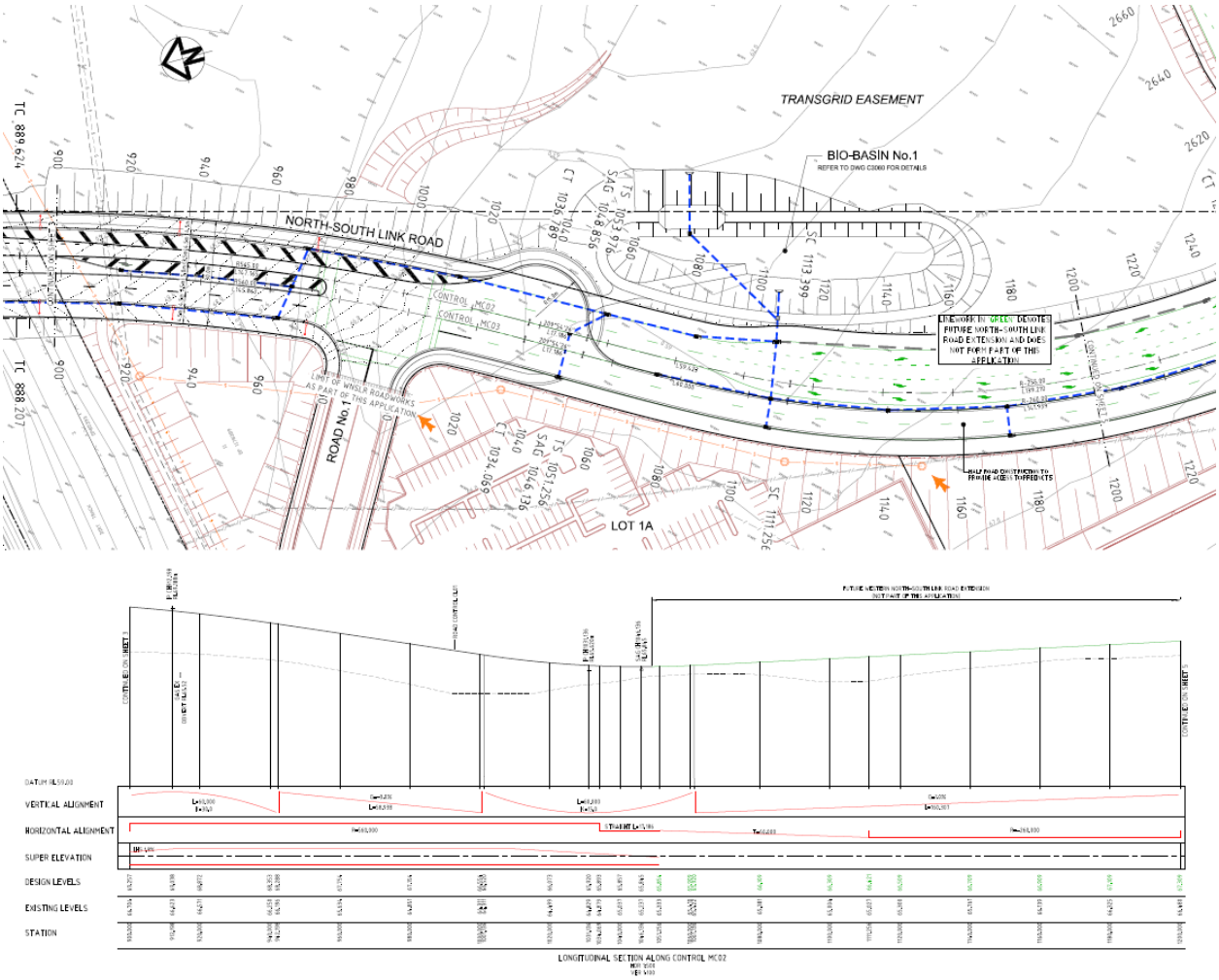
Figure 11 & 12 shows the concept design for the key intersection of the WNSLR with the OWE, providing primary access to the estate.

Figure 13 – Concept Design



Source: Site Image Landscape Architects

Figure 14 – Concept Design – Intersection of WNSLR and Estate Road 01



Source: AT&L

3.4.3. Estate Works

The extent of the proposed Estate Works is shown in Figure 10 and details are provided in the drawings included at Appendix E and Appendix J. A summary of the key elements of the proposed Stage 1 – Estate Works is provided in **Table 11**.

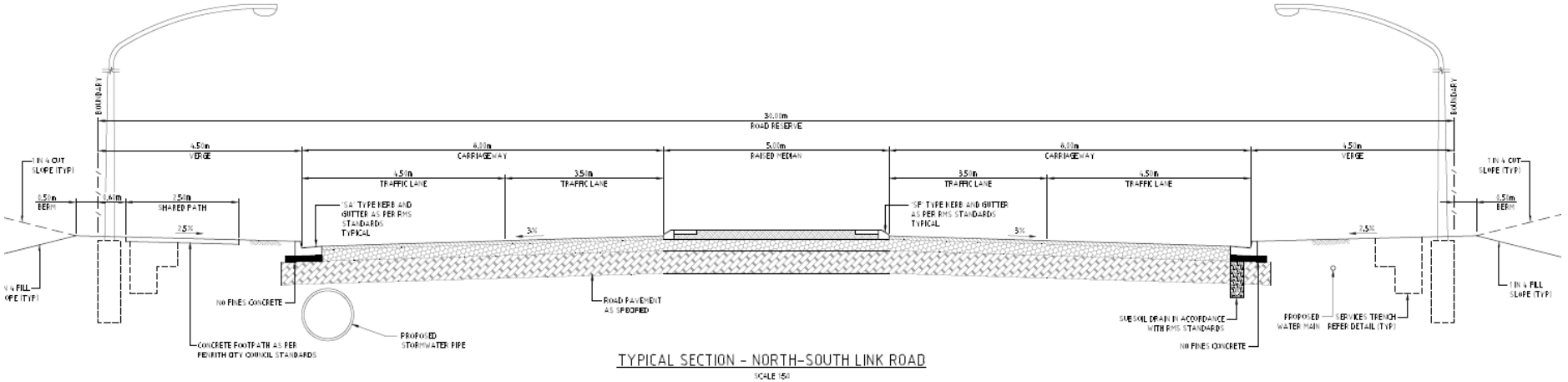
Table 11 – Key Elements of the Proposed OWE Stage 1 Development – Estate Works

Oakdale west Estate – Snapshot of Estate Works	
Site Preparation	Clearing and grubbing – including slashing, removal of existing trees and vegetation in Concept Proposal 'developable area' and removal of grass and roots within the top layer of topsoil.
Earthworks	Importation of fill required to achieve site levels. Bulk earthworks across the site, including cut and fill, road grading, benching and stabilisation (batters and/or retaining walls). Retaining walls will be constructed along the north-west edge of Lot 1C and around bio-retention basins ranging in height with a maximum height of 8.3m.

Oakdale west Estate – Snapshot of Estate Works	
Road Infrastructure	Staged construction of internal estate road network and connection to the WNSLR for primary site access.
Stormwater Infrastructure	Staged construction of stormwater infrastructure and bio-retention basins across the site.
Utilities and Services	Construction of lead in services, utility reticulation and other service infrastructure to provide water, sewer, gas, electricity and telecommunications services to the site.
Environmental protection/management works	Installation and maintenance of erosion and sediment control measures, water quality management measures and land stabilisation works across the site. Staged rehabilitation/restoration of riparian land and vegetation offset areas.

The following subsections describe the proposed Stage 1 Development – Estate Works in further detail.

Figure 15 – Typical Section Western North South Link Road



TYPICAL SECTION - NORTH-SOUTH LINK ROAD

SCALE 1:50

Source: AT&L

Stormwater Management

Currently the land within the proposed road reserve is farmland with minimal impervious areas. The road alignment runs along an existing ridgeline with the Water NSW water main splitting the catchment in a north-south direction. To the south of the Water NSW pipeline all overland flows drain to the south east into the existing Ropes Creek to the south. North of the Water NSW pipeline overland flow drains to the north west into the existing sediment basin south of Lockwood Road and north east into a low lying area to the south of Lenore Drive.

Under the SSD proposal, the post-developed catchments would be split to closely match the pre-developed catchments, with the intent to drain into the same low lying areas as under existing conditions.

Stormwater generated within the road reserve would be collected via pits and pipes and connect into OSD basins. Basins would treat the water before discharge at rates compliant with Council requirements. Basins would have an outlet structure and overland flow weir system to drain into the adjacent Ropes Creek to the east. Discharge from the basins would be controlled via rock-lined swales that will intersect the existing creek system, designed in accordance with NOW guidelines for outlet structures on waterfront land.

Stormwater drainage has been designed in accordance with the Penrith City Council Engineering Guidelines, including design of all pipework, OSD basins and WSUD infrastructure.

A range of utility infrastructure and services would be constructed in the WNSLR corridor as part of its construction. This infrastructure would provide service connections to the road corridor itself, as well as connections to future development within and around the OWE. Proposed utilities and services to be included in the WNSLR development include:

- Water mains sized in accordance with the Oakdale LAPS (Local Area Servicing Plan) along the eastern side verge.
- Telecommunication conduits and cables along the eastern side verge.
- Low voltage power along the eastern and western side verge and high voltage power on the western side verge.

It is also proposed to install street lighting on both sides of the road in accordance with Council requirements. The lighting would be designed in accordance with AS1158.1 to a category V3 standard.

Interface with WaterNSW Pipeline

The WaterNSW pipeline runs underneath the proposed WNSLR alignment, requiring a crossing of the road and the pipeline to facilitate the proposed road construction. Consultation has been undertaken with WaterNSW in this regard and it has advised of its requirements with respect to this interface.

In accordance with SCA requirements, a bridge is proposed to provide an adequate interface between these two items of infrastructure. The proposed bridge will provide adequate clearance from the pipes and allow for the existing access track to be used and/or maintained. Details of the proposed bridge crossing are provided in the civil plans at Appendix E.

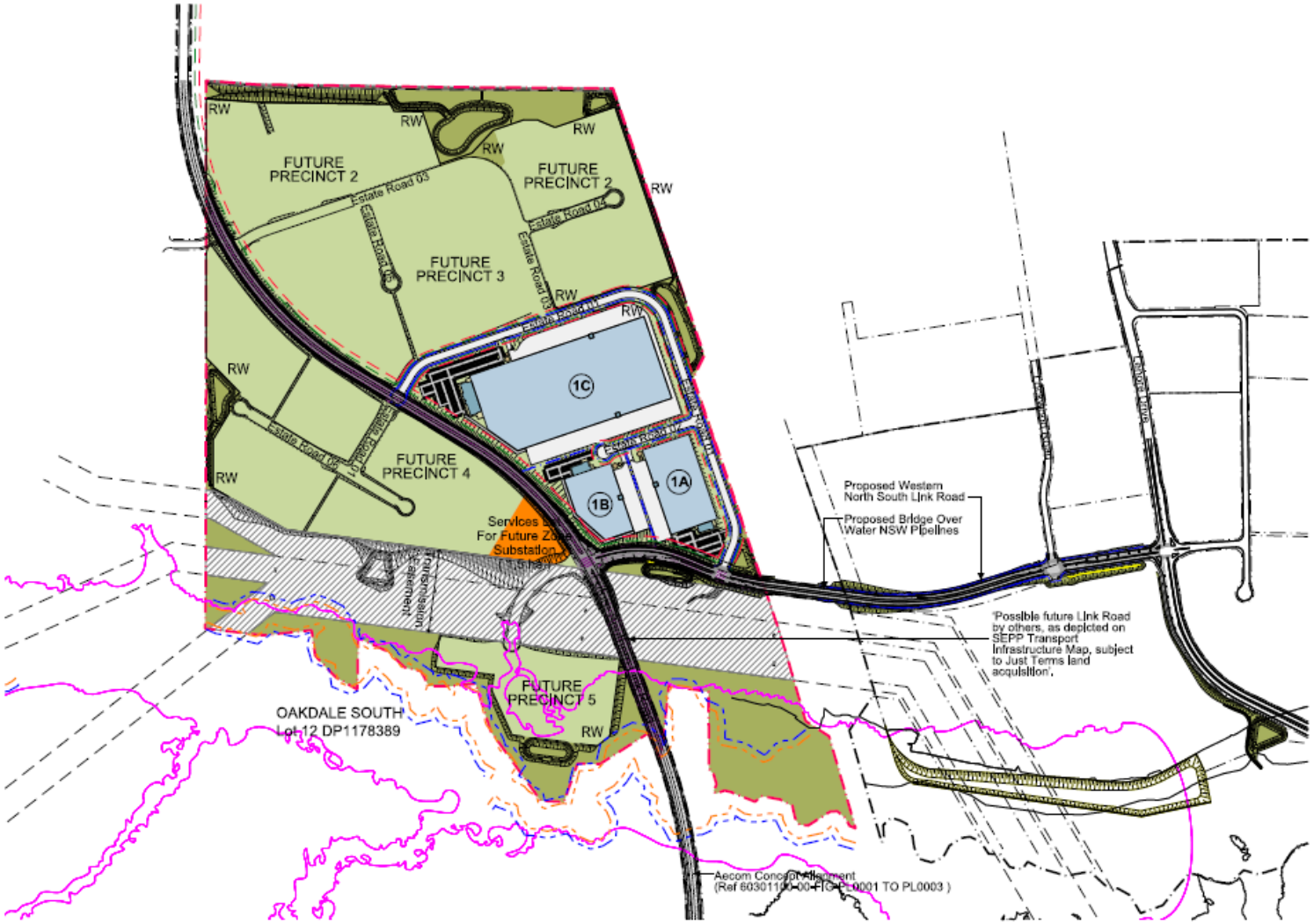
Construction and Staging

The proposed construction and staging timeline is set out in Table 12 below, in respect to stage 1 the WNSLR will be constructed first to improve accessibility to the site. Bakers Lanes will be used as an access point initial to provide access from precinct 1 pad levels and basin construction.

Table 12 – Staging Plan

Staging	Precinct Building
1	Western N/S Link
1	Precinct 1 – Building 1A – Building 1B – Building 1C
2	Precinct 2 – Building 2A – Building 2B – Building 2C – Building 2D – Building 2E – Building 2F – Building 2G
3	Precinct 3 – Building 3A – Building 3B – Building 3C – Building 3D
4	Precinct 4 – Building 4A – Building 4B – Building 4C – Building 4D – Building 4E – Building 4F – Building 4G
5	Precinct 5 – Building 5A

Figure 16 – Proposed Stage 1 Development



Source: SBA Architects

Site Preparation

Site preparation works typically comprise demolition, clearing and grubbing, fencing and demarcation of construction zones, establishment of site facilities, storage areas and stockpile locations and installation of environmental protection and management measures as appropriate.

Table 13 summarises the key site preparation activities and works to be implemented prior to the commencement of earthworks and construction.

Table 13 – Summary of Site Preparation Works

Site Preparation – Elements	Proposed OWE Activity/Work
Demolition	No proposed demolition.
Clearing and Grubbing	Slashing, tree removal, removal of grass, groundcover and roots within topsoil. Vegetation removed would be mulched and reused on site as part of landscape treatment. Clearing and grubbing to be implemented in stages in line with civil works so that groundcover is retained up until the commencement of construction.
Fencing/Demarcation	Riparian and offset lands to be fenced and marked.
Construction Zones and Site Facilities	Construction site compound to be established. Compound to incorporate site accommodation, staff parking, machinery and goods storage.
Stockpile Locations	Stockpile locations for fill, spoil and vegetation to be identified and demarcated.
Environmental Protection measures	Riparian and offset lands in the vicinity of works would be fenced off and trees to be retained marked prior to commencement of construction.

Earthworks

The Stage 1 Estate Works include bulk and detail earthworks across the entire OWE to grade the site and create building platforms. The civil design for the proposed OWE earthworks considered a number of potential options informed by baseline information on the inherent characteristics and constraints of the site including existing levels, geotechnical and soil characteristics, hydrology, vegetation and waterways as well as a range of criteria related to the efficiency of the ultimate development of the site.

The adopted civil design for the OWE is detailed in the drawings at Appendix E and described in the following sections.

Site Levels and Grading

Bulk earthworks would be undertaken across the OWE to achieve overall finished site levels as shown in the civil drawings at Appendix E. Table 14 breaks down the finished site level for each lot.

Table 14 – Finished Level

Lot	Finished Level * +/- 500mm	
Lot 1A, 1B & 1C	70.00 RL	
Lot 2A & 2B	62.25 RL	Reference:
Lot 2C & 2D	61.25 RL	Emmaus Catholic College Average RL 64.00
Lot 2E	63.50 RL	
Lot 2F	67.50 RL	Emmaus Residential Aged Care Average RL 56.00
Lot 2G	71.75 RL	
Lot 3A, 3B, 3C & 3D	74.00 RL	
Lot 4A	82.50 RL	
Lot 4B	79.50 RL	
Lot 4C	73.75 RL	
Lot 4D	72.50 RL	
Lot 4E	75.25 RL	
Lot 4F	72.75 RL	
Lot 4G	72.00 RL	
Lot 5A	60.25 RL	

*Subject to final detailed design.

Cut and Fill

To achieve the required finished site levels across the entire OWE, the proposal requires the import of approximately 8,307m3 of fill. Fill would be imported to the site in stages to reflect the overall construction staging strategy.

Fill material would be screened and validated at the source, prior to being trucked to the OWE. All fill material brought to the site would be classified as Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM) and geotechnically suitable for the OWE and the proposed development in accordance with the Geotechnical Report at Appendix S to the EIS.

Upon delivery, fill would be immediately unloaded, placed and compacted on the site. There would be no permanent stockpiles of fill material on the site during construction works.

Topsoil would be stripped from cut areas and/or areas that have less than one metre of proposed fill only. Topsoil would be left insitu in other areas of the site with fill placed directly over. Where topsoil is stripped, it would be blended with the cut material or imported material to be used on the site as general fill.

A summary of the staged cut and fill works for the OWE is provided in **Table 15**.

Table 15 – Summary of Proposed Cut and Fill

Stage/precinct	Net Cut (m^3)	Net Fill (m^3)	Balance (m^3)
Stage 1 (Precinct 1)	454,850	473,126	18,276
Stage 2 (Precinct 2)	218,955	636,036	417,081
Stage 3 (Precinct 3)	1,045,709	153,821	- 891,888
Stage 4 (Precinct 4)	257,586	652,662	395,076
Stage 5 (Precinct 5)	7,231	170,132	162,901
WNSLR	112,724	19,585	- 93,139
Total OWE	2,097,055	2,105,362	8,307

Precinct 1 work will involve bulk and detail earthworks with approximately 454,8503 of net cut and 473,126m3 of net fill, equating to an overall balance of 18,276m3. Precinct 1 will have an average daily import of fill material in between 100 and 1,000m3.

Oakdale West will minimise import and maximise cut across the site, through the use of large flat pads. This design has limited the height of required retaining to a maximum of 6m for cut walls and generally 6-8m for fill walls. Unlike the neighbouring site Oakdale South Estate, the import has been dramatically reduced as the topography requires significantly more cut than OSE.

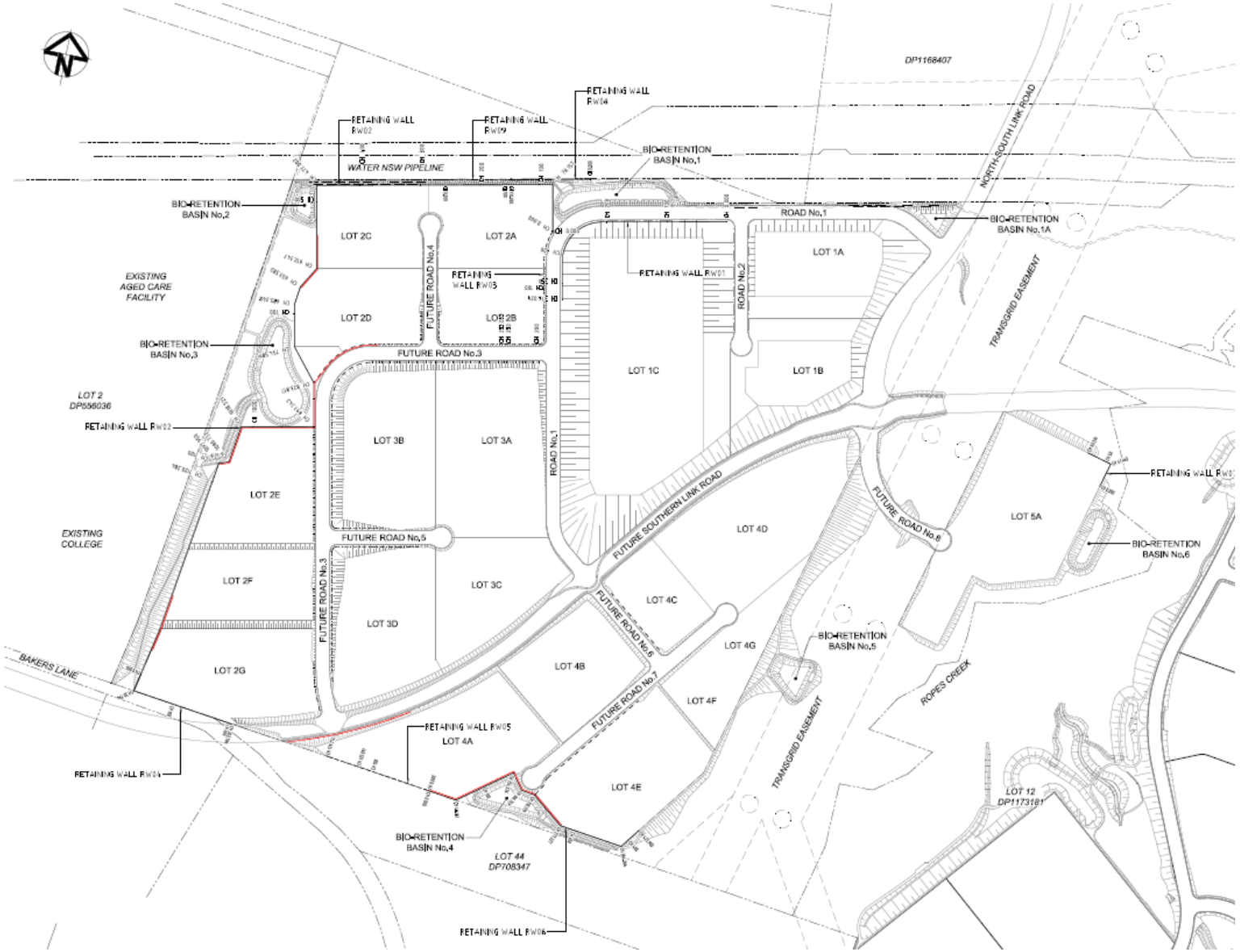
It is estimated that earthworks and local infrastructure construction will generate 50 employee vehicles per day and 50 construction vehicles per day accessing the estate via Bakers Land until the WNSLR is complete. Later stages will utilise the WNSLR for all access.

Structural Support and Stabilisation

Retaining is required along the southern and northern boundary of the OWE. Retaining walls are also required around bioretention basins on the site. All retaining walls will be constructed on a stage basis.

Figure 15 and Appendix E illustrates the location and extent of retaining walls. Retaining walls will be constructed along the north-west edge of Lot 1C and around bio-retention basins ranging in height with a maximum height of 8.3m.

Figure 17 – Retaining Walls



Source: AT&:L

Stormwater and Drainage

The proposed OWE stormwater management system is based around six stormwater catchment areas within the OWE draining to six, precinct-based, combined stormwater detention and bio-retention basins, with final discharge into Ropes Creek. With regard to the WNSLR, stormwater drainage is based around two catchments, serviced by two detention basins draining to Ropes Creek. A summary of the stormwater management strategy is provided in

Table 16 with detailed specifications provided in the Civil drawings at Appendix E and the Civil, Stormwater, Infrastructure and Services Strategy at Appendix I.

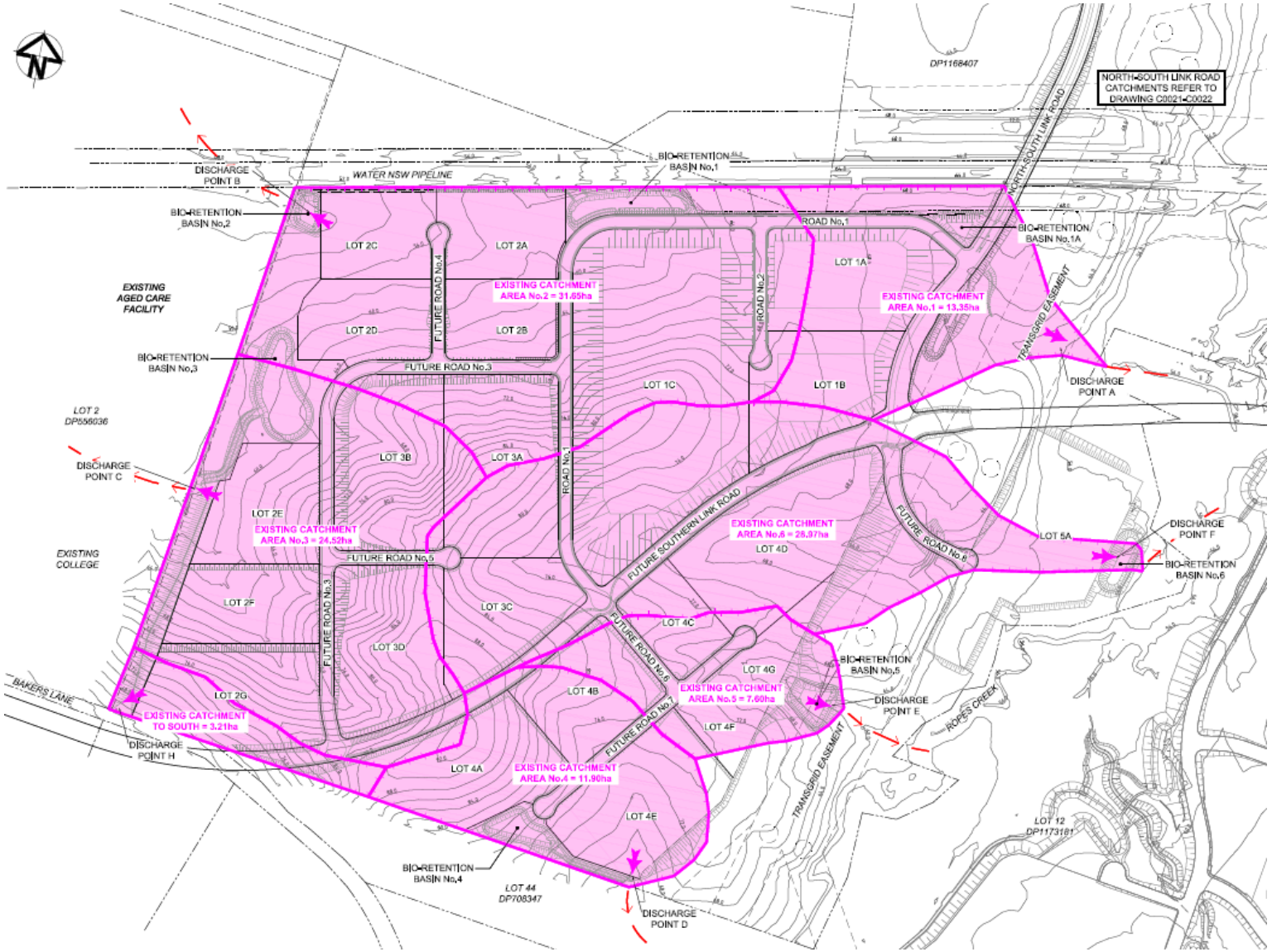
Table 16 – Summary of Stormwater Management for OWE

Catchment	Area	Development Lots	Flow Path
Catchment 1	31.6ha	Lots 1A, 1B, 1C, 2A and 2B	• Flow path to north-west of catchment into Basin 1. • Outlet and overland flow from Basin 1 drains to west, north of Lots 2A and 2C into the existing low lying vegetated area adjacent to the north-west corner of the site.
Catchment 2	3.26ha	Lot 2C	• Flow path to north-west of catchment into Basin 2. • Outlet and overland flow from Basin 2 to drain to west into the existing low lying vegetated area adjacent to the north-west corner of the site.
Catchment 3	36.63ha	Lots 2D, 2E, 2F, 2G, 3A, 3B, 3C and 3D	• Flow path to north-west of catchment into Basin 3. • Outlet and overland flow from Basin 3 to drain to west into the existing creek north of Emmaus Catholic College.
Catchment 4	10.46ha	Lots 4A and 4E	• Flow path to north-west of catchment into Basin 4. • Outlet and overland flow from Basin 4 to drain to east along southern boundary into Ropes Creek to the east.
Catchment 5	15.05ha	Lots 4B, 4C, 4D, 4G and 4F	• Flow path to north-east of catchment into Basin 5. • Outlet and overland flow from Basin 5 to drain to east through proposed Stage 6 into Ropes Creek to the east.
Catchment 6	7.20ha	Lot 5A	• Flow path to east of catchment into Basin 6.

Catchment	Area	Development Lots	Flow Path
			• Outlet and overland flow from Basin 6 to drain to east into Ropes Creek to the east.
Catchment 7	2.30ha	Southern Catchment of WNSLR	• Flow path to south of catchment into WNSLR South Basin. • Outlet and overland flow from WNSLR South Basin to drain to east into Ropes Creek.
Catchment 8	2.89ha	Northern Catchment of WNSLR.	• Flow path to north of catchment into WNSLR North Basin. • Outlet and overland flow from WNSLR North Basin to drain to east into Ropes Creek.

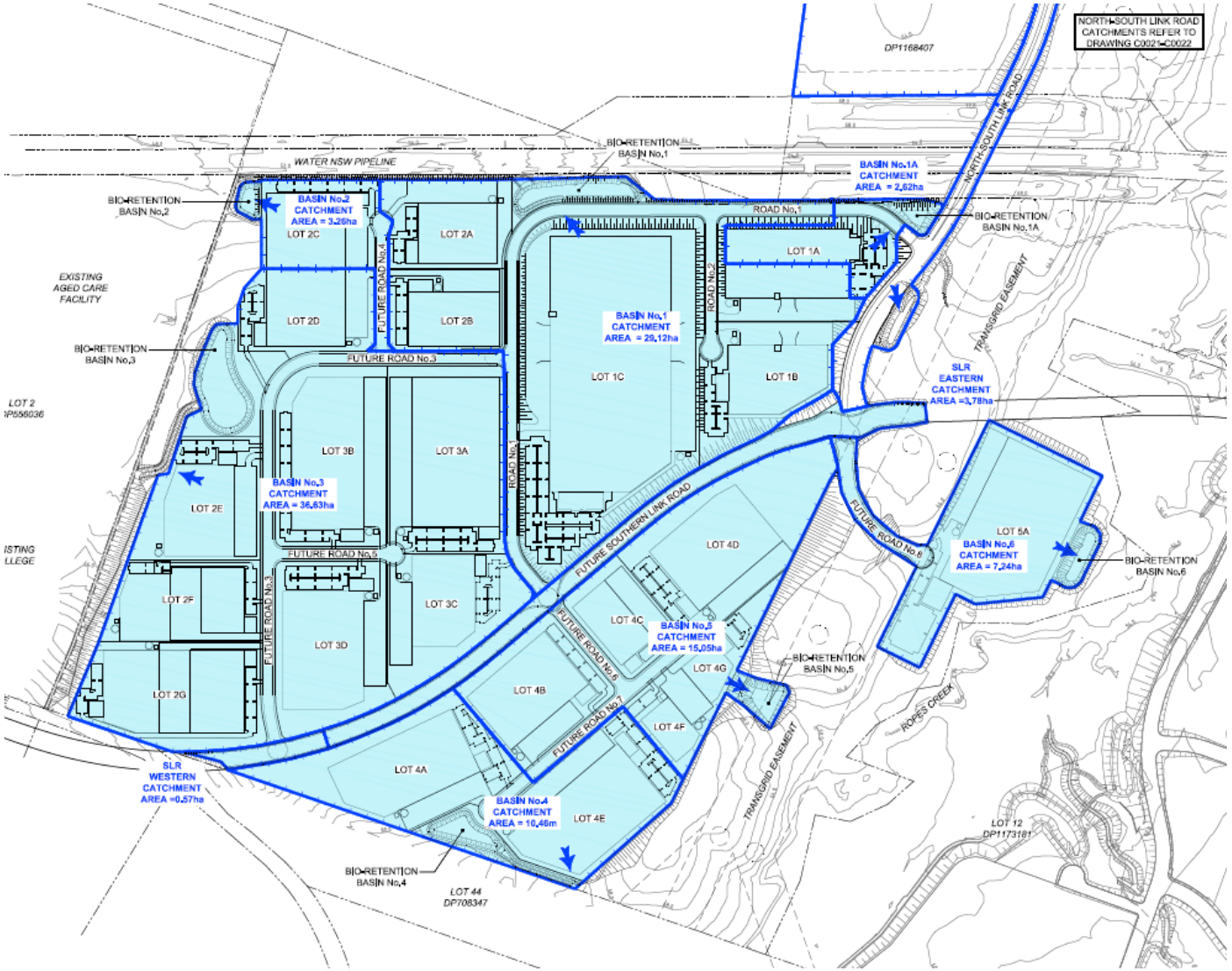
All stormwater runoff from Catchments 1 to 6 would be diverted to the bioretention basins noted above for treatment and discharge at rates in accordance with relevant Council guidelines. A summary of basin design parameters is provided within the Civil Engineering Report at Appendix I.

Figure 18 – Stormwater Drainage Catchments (pre development)



Source: AT&L

Figure 19 - Stormwater Drainage Catchments (developed)



Source: AT&L

Proposed Stormwater Infrastructure

Proposed stormwater infrastructure for the OWE comprises eight bio-retention basins to be constructed within the OWE and within the WNSLR corridor to capture and treat stormwater runoff from the OWE site and new regional road prior to discharge into Ropes Creek.

Stormwater infrastructure within the OWE has been designed to safely convey overland flows within access roads, car parks and hardstand areas within the road carriageway in compliance with the flow widths and velocities specified in Council's Design Guidelines for Engineering Works.

Stormwater on the lots and within road reserves would be collected via pits and pipes and diverted into the storage basins designed to provide two key functions:

- Detention of stormwater flow; and
- Water quality treatment through bio-retention.

Basins would have an outlet structure and overflow weir system to drain into Ropes Creek to the east or the creek system to the west. Discharge from basins would be controlled via a rock-lined swale that will intersect the existing creek system. These discharge swales would be designed and documented to meet relevant NOW guidelines for outlet structures on waterfront land.

Modelling undertaken based upon the proposed stormwater management system for the OWE indicates that:

- Target pollutant reductions would be achieved under the proposed system;
- Post-development flows would remain the same, or less than existing pre-development flows; and
- Peak stormwater flows downstream of the site would not be increased as a result of the proposal.

Details of the modelling undertaken in respect of stormwater management are included in Appendix Ito the EIS.

Stormwater infrastructure would be constructed in stages, as per the overall construction staging strategy for the OWE described in 3.3.6. OSD infrastructure would be dedicated to Council at 80%-90% estate completion, with a commitment to maintenance for an agreed period. All on-lot stormwater infrastructure would remain under the management of Goodman.

Estate Road Infrastructure

The OWE would be accessed via the connection of Estate Road 01 to the proposed WNSLR. Construction of the WNSLR is detailed in Section 3.4.2 of this EIS.

The OWE Estate Road network is consistent with typical road sections adopted and approved for the Oakdale Central and Oakdale South Estates to allow for consistent levels of access and maintenance regimes. Design specifications are generally consistent with Austroad requirements and Australian Standards (AS) to accommodate B-Double vehicles. The design speed of the estate road network is 60km/hour.

Typical cross sections of the OWE Estate Roads are provided in the civil drawings at Appendix E and comprise:

- A road reserve of 23.0m;
- A 15.5m carriageway incorporating two 3.5m wide central traffic lanes and two, 4.25m wide kerbside traffic lanes; and
- A verge ranging from 3.5m to 4.0m wide, incorporating a shared path in certain locations.

Upon completion, the Estate Road network would be dedicated to Council.

Utilities and Services

Essential services would generally be provided to the OWE via connections to utility infrastructure as described in **Table 17**. An overall servicing strategy was prepared as part of early planning for the broader

Oakdale Estate therefore infrastructure and servicing requirements for the OWE have been known to utility providers for some time and reflected in forward work programs.

Table 17 – Utility Infrastructure and Requirements

Utility	Existing Services	Proposed OWE Services
Potable Water	The applicant has finalised a Local Area Servicing Plan (LASP) which has been adopted by Sydney water for the broader Oakdale Estate. This plan sets out the required sewer and water infrastructure to service the Oakdale Estate as well as the neighbouring Jacfin and SCR estates. The OWE would be serviced via a connection to the existing 375mm water main located within Lenore Drive.	A 300mm main would be connected to the existing main in Lenore Drive running along the WNSLR to connect to OWE.
Non-Potable Water	Not applicable.	Rainwater tanks would form part of the development of each lot on the estate to collect roof runoff. Collected water would provide an alternative to potable water for a variety of end uses such as vehicle washing, air conditioning cooling and toilet flushing. For the purposes of the current OWE SSDA, irrigation and toilet flushing would be plumbed to the rainwater tanks. Rainwater tanks have been designed to allow for a maximum of 50% of all non-potable water demand for Lots 1A, 1B and 1C to be sourced from the onsite tanks.
Sewer	As part of the St Clair carrier construction as part of the Oakdale Central estate works, a connection point is located in the north east corner of the OWE.	Servicing of the OWE would be via extension of the St Clair sewer trunk main to the OWE. The infrastructure to be delivered as part of the OWE will provide an opportunity for sewer services to be extended to the adjacent school and retirement village to the west of the estate that currently operate on a low pressure pump sewer system.
Electricity	There are existing 11kV reticulation within the Lenore Drive and an existing zone	Stage 1 of the OWE would be services via connection to the existing 11kV

Utility	Existing Services	Proposed OWE Services
	substation at Erskine Park (Erskine Park Zone Substation). Existing infrastructure has the capacity to serve the initial stage of the OWE development, however Endeavour Energy has indicated that a new zone substation will ultimately be required to service the full development. This substation would be supplied via the overhead 132 kVA feeder 93X located approximately 400m east of Old Wallgrove Road.	reticulation within Lenore Drive or to the existing Erskine Park Zone Substation. Reticulation would be extended along the proposed WNSLR corridor to the OWE and then reticulated along the estate road network to service development lots. A new Zone substation would be constructed on the proposed services lot on the OWE to service future stages of development. Endeavour Energy would construct, own and operate this substation and as such it does not form part of the OWE SSDA. Once the new substation is completed all stages of the OWE would be connected and serviced by this infrastructure.
Gas		Conduits would be extended and reticulated through the estate road network to service development lots if gas services are required. It is not proposed to reticular gas at this stage of the OWE development put provision is made for future connection.
Telecommunications	Existing Telstra services are located in Burley Road, OWR and Bakers Road.	Communication conduits would be extended along the proposed WNSLR to service the OWE. The pit & pipe network would be extended and reticulated through the estate road network to service each development lot.

Landscaping

The extent of landscaping works to form part of the Stage 1 Estate Works package is described in **Table 18** and detailed in the drawings at Appendix G. The staging of these works would align with the proposed construction staging for the Estate Works. On-lot landscaping would be completed as part of the staged development of each precinct with only Precinct 1 on-lot works included in the current SSDA.

Landscaping Stage 1 scope is only for WNSLR, Precinct 1 Estate works western boundary buffer planning and precinct 1 on-lot landscaping.

Table 18 – OWE Stage 1 Proposed Landscaping

Landscape Zones	Landscape Character
Estate Entry and Primary Road Frontage	• A 20m setback is established along the boundaries to the SLR and WNSLR. • An average 10m landscaped setback would be established within the 20m setback along the SLR and WNSLR. • Site entry to be marked with Goodman Estate Signage and associated landscape treatment.
Estate Streetscapes	• Landscaping of Estate Roads to be contiguous with Oakdale South Estate. • Street-tree planting in the form of copses rather than traditional avenue tree planting, emulating a more natural pattern of vegetation.
Estate Landscape Nodes	• Nodes to include seating, buffer vegetative planting, shade structures, open lawn space and/or hardstand area. • Landscape design to provide shade, seating, views and visual separation from vehicles, and buildings as appropriate. • Fencing shall be installed to create balustrades adjacent to and demarcation of landscape.
Landscape Interfaces and Transitions	Bio-Retention Basins: • Landscaping of basins to be principally functional and informed by the WSUD strategy and relevant Penrith Council requirements. Defendable Zones: • 'Defendable zones' to be established within landscape zones as required for bushfire protection. • Defendable zones to be delineated by maintenance pathways or concrete strip edging (or similar). • Landscape treatment to consist of managed lawn area (mowed and maintained). Scattered tree plantings as appropriate designed to avoid connecting canopy areas across the defendable space. Western Site Boundary • Establish a 40m setback to western boundary incorporating an earth mound, retention of existing vegetation and landscaping to screen the proposed development. Southern Site Boundary • No landscape works are proposed along the southern boundary in Stage 1.

Landscape Zones	Landscape Character
Batters and Retaining Walls	• Batters and retaining walls highly exposed to the public domain would be landscaped to soften and screen appearance and integrate them into the landscape of the OWE. • Landscape treatment of embankments would be designed to serve the dual purpose of stabilising the landform and integrating it into the landscape of the OWE through tree planting and groundcover.

3.4.4. Precinct 1 Development

Overview

The SSDA includes the construction, fit out and use of buildings and associated on-lot works within Precinct 1 as part of Stage 1 of the development. Precinct 1 is the northern-most development precinct within the OWE, representing the gateway to the estate. The proposed Precinct Plan recognises this through the orientation of proposed warehouse buildings to address the dual frontage to the WNSLR and Estate Road 01, along with a generous landscaped setback to the proposed future SLR. The precinct would accommodate three large warehouse buildings of varying size. The Precinct is primarily accessed via Estate Road 01, with a secondary access via Estate Road 02.

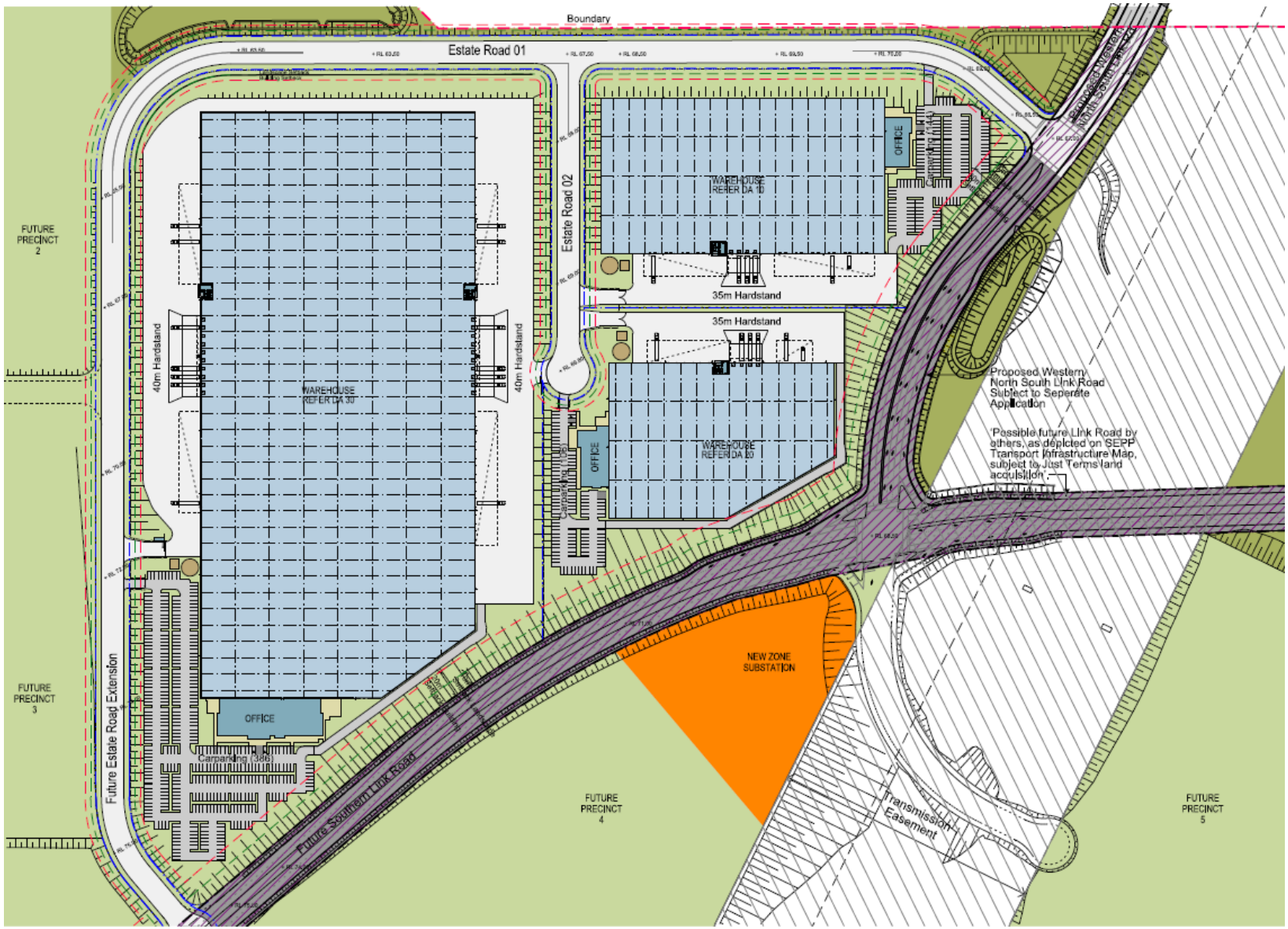
As the proposed development is currently speculative, the design of the precinct aims to maximise flexibility in site layout and configuration and building floor plates to accommodate a range of potential end users. The Stage 1 precinct development proposal includes:

- Detailed on-lot earthworks to refine final levels and establish final building pads;
- On-lot stormwater and utility infrastructure and services connection (including gas if required);
- Construction of warehouse buildings on the three development sites in the configuration shown on the development plans for each precinct;
- Construction of site access, hardstand, car parking and loading areas;
- Fit out of buildings as shown on development plans, including standard racking and office fit out; and
- Landscaping of development sites in accordance with landscape plans for each precinct.

Figure 20 – Illustrative Image of Precinct 1 Development

Source: e8urban

Figure 21 – Proposed Precinct 1 Development



Source: SBA Architects

Development Sites

Precinct 1 contains three development sites, referred to as Development Site 1A, 1B and 1C. The warehouse buildings proposed on each site range in size to provide flexibility and choice for a range of potential end users.

Warehouse floorplates in the precinct range from approximately 16,000m^2 to almost 80,000m^2 to provide a diversity of product and maximum flexibility in the ultimate internal configuration of space.

Each warehouse building is serviced by a central hardstand area for loading and manoeuvring, a separate car park and landscaped perimeters.

Building heights respond to the needs of modern warehousing operations in terms of clearance, with a maximum height of 13.7m (excluding plant). Mechanical units would be approximately 1m high, however, this is dependent on the type of facility.

Buildings are designed to address street frontages with office areas and primary entrances oriented toward key access roads. Building materials are similar to those adopted for Oakdale Central and Oakdale South to encourage consistent branding across the two estates.

A summary of the proposed Precinct 1 development is provided in Table 18, with detail provided in the architectural drawings at Appendix F.

Table 19 – Summary of the Proposed OWE Precinct 1 Development

Oakdale South Estate – Snapshot of Stage 1 Precinct Development				
	Building 1A	**Building 1B**	**Building 1C**	**Total**
Site Area	44,321m^2	38,419m^2	141,390m^2	224,130m^2
Total GFA	22,485m^2	16,180m^2	79,360m^2	118,025m^2
Warehouse GFA	21,115m^2	15,190m^2	75,255m^2	111,560m^2
Office GFA	1,370m^2	990m^2	4,105m^2	6,465m^2
Site Coverage	50%	42%	56%	53%
Building Height	13.7m	13.7m	13.7m	N/A

Access and Loading

Each warehouse is provided with separate access for heavy and light vehicles, with car parking also separated from loading and manoeuvring areas. All access points and internal driveways, service and circulation areas are deigned to be compliant with AS 2890.1 and 2890.2 and to accommodate the turning paths of B-Double vehicles (the largest proposed vehicle to access the OWE). Access and loading arrangements for each proposed warehouse buildings are summarised in **Table 20**.

Table 20 – Proposed Access and Loading

Precinct	DS	Access & Circulation	Loading
Precinct 1	1A	• Service/loading access from Estate Road 02; • Car park only access from Estate Road 01, east of Estate Road 01. • Internal hardstand designed for one-way circulation with ingress and egress via same access point.	• Four recessed docks.
	1B	• Separate service vehicle and car park access from Estate Road 02; • Car park only access from Estate Road 02, east of Estate Road 01. • Internal hardstand designed for one-way circulation with ingress and egress via same access point.	• Four recessed docks.
	1C	• Separate car park access from Estate Road 01 extension. • Two service vehicle access points from Estate Road 01 extension and Estate Road 02 • Internal hardstand designed for two-way circulation along the southern and eastern boundaries for all vehicle types up to B-Doubles.	• Ten recessed docks on the western side and a further ten on the eastern side of the building.

Car Parking

Parking rates for the proposed Precinct 1 development were determined based on a parking demand survey of similar, established warehousing and industrial operations in the WSEA. The result of the survey are discussed in Section 6.5 and in more detail in Appendix J. The proposed development of Precinct 1 at the OWE were designed with similar rates of on-site parking, as described in **Table 21**. Two percent of on-site parking spaces would be provided as accessible parking spaces, designed in accordance with AS 2890 *Part 6: Off-Street parking for people with disabilities*.

Table 21 – On-Site Parking 1, 4 and 5

Precinct	Building	Parking Provided
Precinct 1	1A	144
	1B	106
	1C	386
TOTAL		636

Landscaping

Landscaping proposed as part of the development of Precinct 1 includes on-lot presentational landscaping as described in the plans at Appendix G.

Stage 1 also includes the provision for western boundary landscaping, Figure 15 illustrates the proposed planting types.

Figure 22 – Western Boundary Planting

Source: Site Image Landscape Architects

Signage

Site signage has been designed to support the overall urban and landscape masterplan. Larger corporate signs, designed for viewing from moving vehicles have been located in strategic positions to reinforce main streets and give a consistent corporate identity across the whole estate. Smaller tenant signs are located closer to office entry courtyards to reinforce pedestrian paths and clearly identify entries into office buildings.

Signage to be installed as part of the development of Precinct 1 is in accordance with the typologies, scale and typical use. The plans at Appendix F illustrate proposed signage within these precincts to form part of the Stage 1 SSDA.

Figure 23 – Proposed Precinct 1 Signage

Source: SBA Architects

Warehousing and Distribution Use

The SSDA proposes use of the Stage 1 buildings for 'warehousing and distribution' as defined under the WSEA SEPP including ancillary office space with operations 24 hours a day, seven days a week.

Fit Out

Proposed fit out of buildings within Precinct 1 would comprise the following key elements:

- Installation of basic racking system within warehouse space;
- Basic fit out of office and dock office space including flooring, ceiling, lighting, services and amenities; and
- Standard finishes to lobby/reception areas.

3.4.5. Subdivision

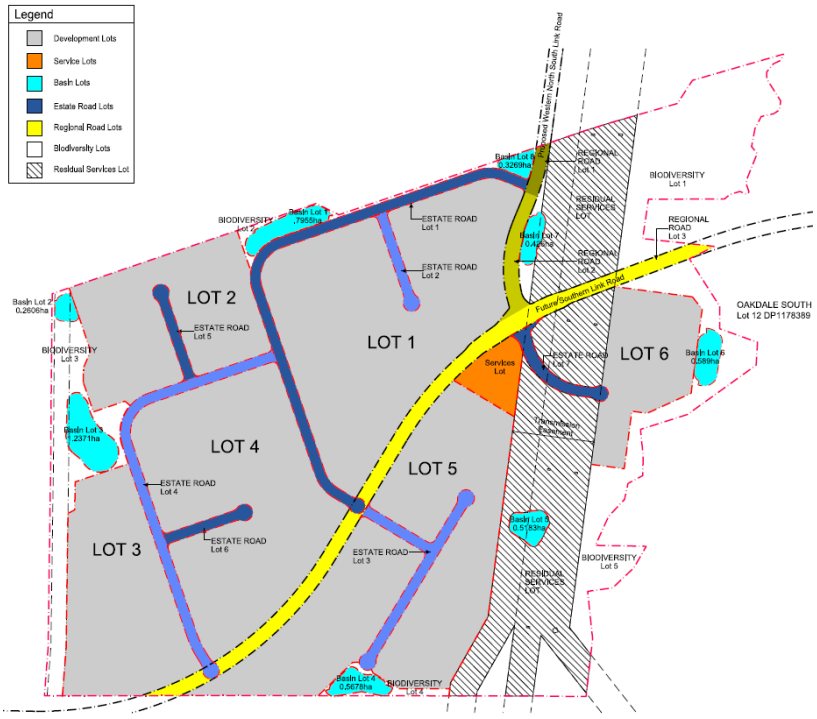
The subdivision of the OWE would take place in a staged manner, in line with the staged delivery of infrastructure and services. The subdivision would be based around the following:

- Six development lots to remain under the ownership and management of Goodman;
- One biodiversity lot to be maintained in perpetuity in accordance with the OWE Vegetation Management Plan;
- One services lot to be used for the construction of a new zone substation and ultimately dedicated to Endeavour Energy;
- Six Estate Roads lot incorporating internal estate roads, to be dedicated to Penrith Council;
- One regional road lot to be dedicated to relevant roads authority subject to resolution of compensation in accordance with Just Terms Act;
- Seven basin lots to be dedicated to Penrith Council.

The proposed final subdivision layout for the OWE is shown in

Figure 24**.**

Figure 24 – Proposed Plan of Subdivision



Source: SBA Architects

3.4.6. Construction Staging

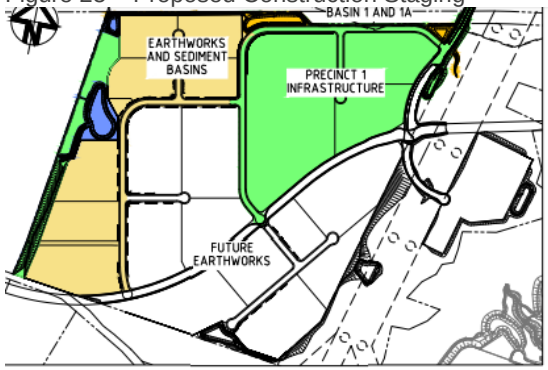
The proposed estate works would be implemented in stages, with timing generally determined by market demand for sites. The long lead times associated with site preparation and infrastructure delivery can often result in lag between market demand and the availability of completed building stock which results in inefficiencies in the development process. The OWE proposal seeks to address this by allowing for maximum flexibility in the timing and staging of early works to facilitate rapid response to enquiry.

It is proposed that the OWE Estate Works would be constructed in five distinct stages, as shown in **Figure 25** and including:

- Construction Stage 1 – Precinct 1
- Construction Stage 2 – Precinct 2
- Construction Stage 3 – Precinct 3
- Construction Stage 4 – Precinct 4
- Construction Stage 5 – Precinct 5

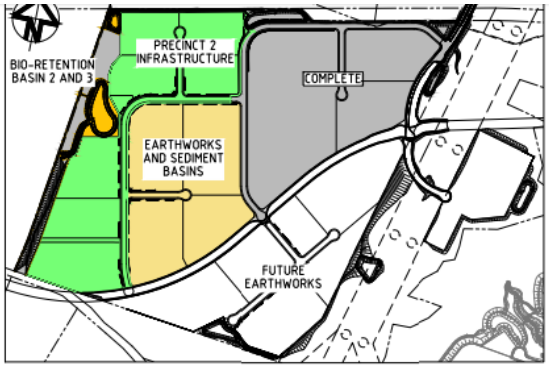
Stage 1 development is described in Section 3.4 of this EIS. Stage 1 construction is expected to commence in 2017 and would take place over approximately 18 months.

Figure 25 – Proposed Construction Staging



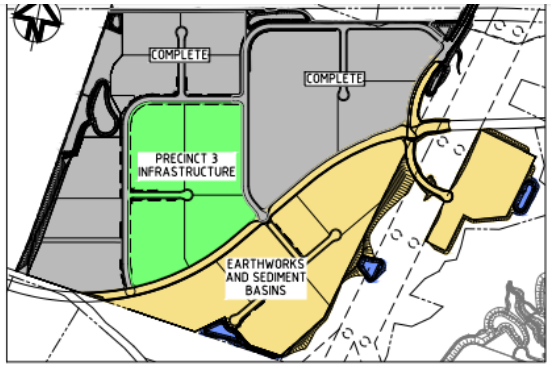
STAGE 1

- BULK EARTHWORKS PRECINCT 1 & 2
- DETAILED EARTHWORKS PRECINCT 1
- SEDIMENT BASINS
- ROAD & LOT RETAINING WALLS
- LEAD IN SERVICES INCLUDING POWER, COMMUNICATIONS, GAS, SEWER & WATER
- ROAD CONSTRUCTION INCLUDING SERVICES RETICULATION
- STORMWATER DRAINAGE
- STORMWATER BIO-RETENTION BASIN 1 & 1A
- OUTLET SWALES FROM BASINS
- LANDSCAPE
- NORTH SOUTH LINK ROAD



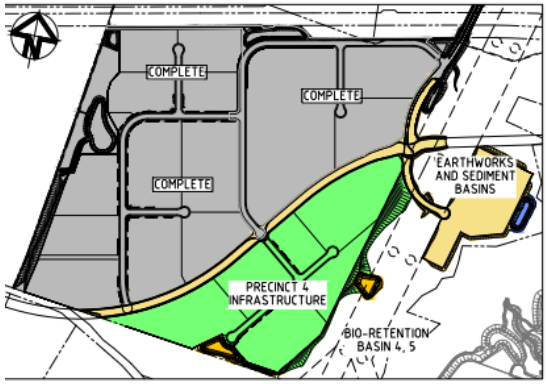
STAGE 2

- BULK EARTHWORKS PRECINCT 3
- DETAILED EARTHWORKS PRECINCT 2
- ROAD & LOT RETAINING WALLS
- LEAD IN SERVICES INCLUDING POWER, COMMUNICATIONS, GAS, SEWER & WATER
- ROAD CONSTRUCTION INCLUDING SERVICES RETICULATION
- STORMWATER DRAINAGE
- STORMWATER BIO-RETENTION BASIN 2 & 3
- OUTLET SWALES FROM BASINS
- LANDSCAPE



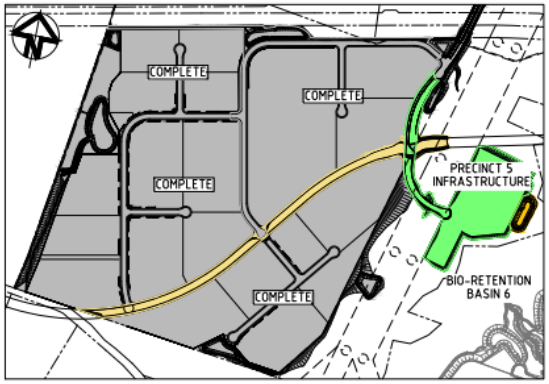
STAGE 3

- BULK EARTHWORKS PRECINCT 4, 5 & SOUTHERN LINK ROAD
- DETAILED EARTHWORKS PRECINCT 3
- SEDIMENT BASINS
- ROAD & LOT RETAINING WALLS
- LEAD IN SERVICES INCLUDING POWER, COMMUNICATIONS, GAS, SEWER & WATER
- ROAD CONSTRUCTION INCLUDING SERVICES RETICULATION
- STORMWATER DRAINAGE
- LANDSCAPE



STAGE 4

- BULK EARTHWORKS PRECINCT 5 & SOUTHERN LINK ROAD
- DETAILED EARTHWORKS PRECINCT 4
- SEDIMENT BASINS
- ROAD & LOT RETAINING WALLS
- LEAD IN SERVICES INCLUDING POWER, COMMUNICATIONS, GAS, SEWER & WATER
- ROAD CONSTRUCTION INCLUDING SERVICES RETICULATION
- STORMWATER DRAINAGE
- STORMWATER BIO-RETENTION BASIN 4 & 5
- OUTLET SWALES FROM BASINS



STAGE 5

- DETAILED EARTHWORKS PRECINCT 5
- SEDIMENT BASINS
- ROAD & LOT RETAINING WALLS
- LEAD IN SERVICES INCLUDING POWER, COMMUNICATIONS, GAS, SEWER & WATER
- ROAD CONSTRUCTION INCLUDING SERVICES RETICULATION
- STORMWATER DRAINAGE
- STORMWATER BIO-RETENTION BASIN 6
- OUTLET SWALES FROM BASINS
- LANDSCAPE

4. PLANNING FRAMEWORK

4.1. STRATEGIC PLANNING CONTEXT

4.1.1. A Plan for Growing Sydney

The OWE and surrounding Oakdale estate lands lie in the strategically significant employment WSEA, within the West Subregion of the SMA as shown in Figure 24. *A Plan for Growing Sydney* (NSW P&E, December 2014) identifies a series of goals for each of the Sydney subregions including the following for the West Subregion:

- Retain and protect distinctive rural landscapes, extensive agriculture and resource lands;
- Badgerys Creek Airport to be a catalyst for significant new infrastructure investment; and
- Penrith to be a focus for housing and jobs growth, particularly in professional services, health and education.

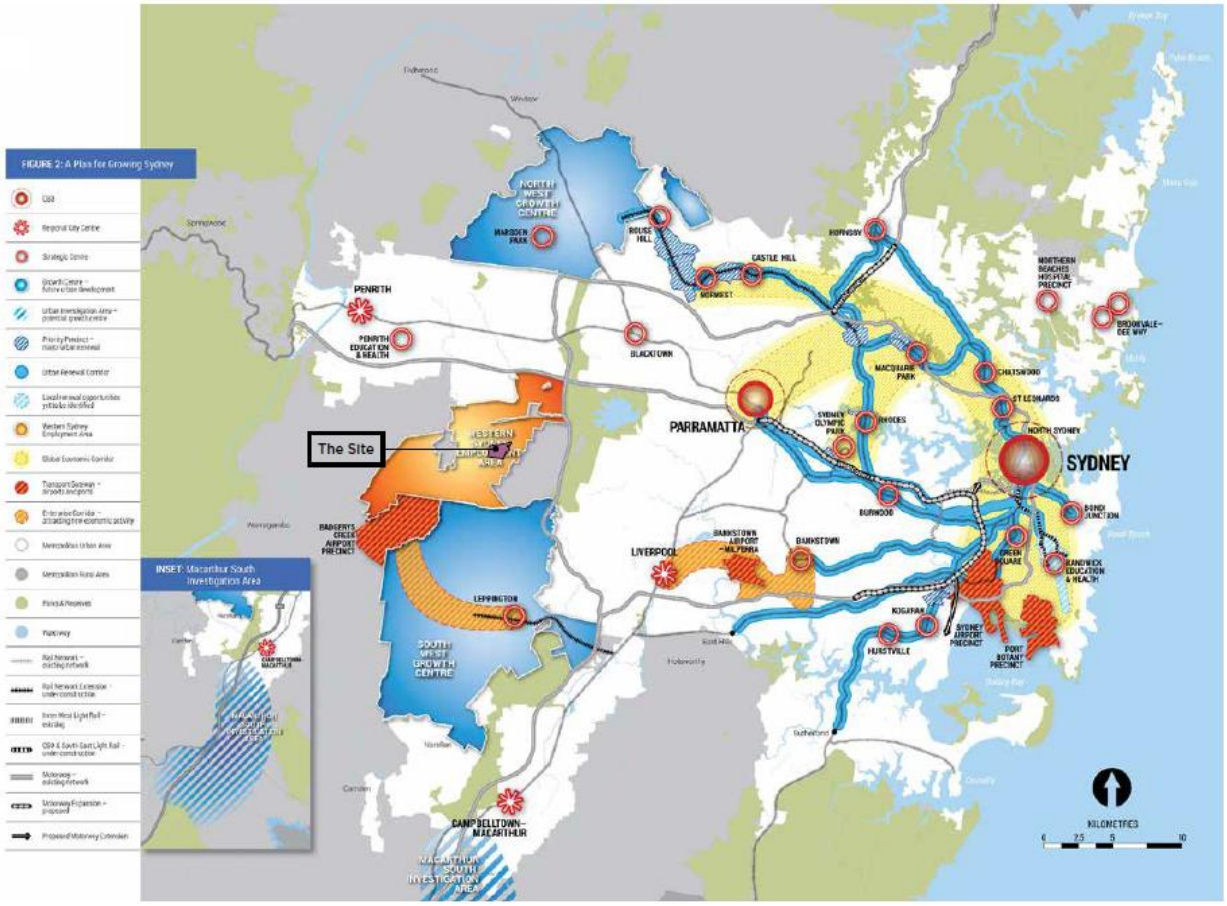
In order to deliver on these goals, the NSW government has committed to a range of catalytic infrastructure projects and infrastructure Sydney that will see a substantial change in the accessibility and economic diversity of the region over the coming decades including:

- Significant upgrades to critical roads in the WSEA;
- Delivery of a new road network for the Western Sydney Priority Growth Area (WSPGA), directly to the south of the site, including potential links to the WSEA; and
- Commitment to the delivery of the Western Sydney Airport (WSA) at Badgerys Creek, within the WSPGA.

The delivery of these critical projects will not only result in direct changes to the context of the WSEA in terms of infrastructure and services, but will also result in significant changes to the character and landscape of the region, converting existing rural lands into active employment precincts. In particular, the delivery of the WSA would permanently alter the land use pattern and environment of the WSPGA.

The changing context of the OWE will only reinforce its role as a critical component of a strategically important employment hub, serving the direct and indirect needs of the growing Western Sydney region, including the future proposed airport at Badgerys Creek.

Figure 26 – Strategic Context



Source: e8urban

4.1.2. Western Sydney Employment Area

The OWE forms part of the strategically significant employment precinct known as the WSEA - identified and endorsed in metropolitan and local planning strategies.

Since the delivery of the M7 Motorway, the WSEA has developed rapidly into a freight and logistics hub which rivals many other industrial locations in Greater Sydney. The greenfield location offers opportunities for modern, custom designed facilities and its proximity to Sydney's Motorway Network provides convenient access to Port Botany and Sydney Airport without exposure to the congestion and vehicle restrictions present in many of the more established, inner ring industrial areas. Shifting land economics in these inner ring areas has also contributed to the growing dominance of the WSEA in the Sydney industrial market, due to its ability to offer a supply of large, flat sites at a competitive market rate.

The Metropolitan Plan for Sydney (A Plan for Growing Sydney) identifies and recognises the strategic significance of the WSEA and surrounding lands to the productivity of the wider SMA and strongly promotes the continued growth of this area into a major economic and employment hub. Some of the key strategic objectives established for the WSEA and surrounding lands include:

Encouraging critical industries that support the economy's global functioning and promote employment, such as industrial uses, freight, logistics and research and development functions, as well as opportunities for agribusiness and food production.

Identifying and supporting opportunities to improve transport connections to the area, including protecting a corridor for the Western Sydney Freight Line and completing the WSEA arterial network.

Investigating opportunities for better connections with surrounding centres such as possible transport connections to Mount Druitt, Fairfield and Leppington.

The proposed development of the OWE responds to and aligns with this strategic context and presents a design solution that respects the important role of the WSEA to the broader economy of the SMA.

4.1.3. Western Sydney Priority Growth Area

The WSPGA has been identified by the NSW Government as a strategic location for new employment lands surrounding the site earmarked for the proposed WSA. The land lies directly to the south of the WSEA and approximates the boundaries of the former Broader WSEA. A Land Use and Infrastructure Strategy is currently being prepared by the NSW DPE for this area of land to identify the future land use, road network, servicing and staging strategy for the lands which are expected to constitute primarily employment land to support the future operations of the airport.

Connections from the WSEA into this new growth area will position the OWE and surrounding sites to provide a timely supply of zoned and serviced employment lands to support the early stages of development in this precinct. The development of the OWE as proposed would not preclude or adversely affect the future planning and development of the WSPGA and would deliver key regional and local road infrastructure which would ultimately support the connectivity of the WSA and WSPGA to the WSEA lands in the north.

4.1.4. Draft West District Plan

The Draft West District Plan sets out aspirations and proposals for Greater Sydney's West Precinct. In 2036, the District will leverage investment in the proposed Western Sydney Airport, connecting the region to the rest of the world. The District will be planned in a way that protects the rural landscape. The Western City will be focused around the Airport to deliver local jobs and business activity to the area.

The District's resilient economy will also draw on new opportunities and innovations, providing jobs and services for more than one million people.

Section 3 of the Plan recognises the importance of industrial activity within the district, noting that the West District's major economic asset is its significant concentration of employment and urban services land. The district currently accommodates 13% of Greater Sydney's zoned industrial land, with around 700 hectares as part of the Western Sydney Employment Area. Utilisation of the WSEA as employment and urban services areas will be crucial for employment and economic activity as the District's economy, and that of Western Sydney, grows and evolves.

Section 5 of the District Plan outlines objectives to promote a sustainable city. A sustainable city protects and enhances its natural environment, integrating its bushland, open space, waterways and vegetation into the planning for how the city will grow and be built. The sustainability priorities include protecting the District's waterways, protecting and enhancing biodiversity, deliver Sydney's Green Grid and planning for a resilient West District.

Consideration for these strategic objectives and ecological values has informed the master plan design for the Oakdale West Estate.

4.1.5. Towards our Greater Sydney 2056

Towards our Greater Sydney 2056 outlines a draft amendment to A Plan for Growing Sydney to align with the vision established in the draft District Plans. The aim of the Plan is to establish a 40-year vision to enable a more productive, liveable and sustainable Greater Sydney.

The draft amendment discusses the Western Sydney City Deal, which pledges to:

- Target additional infrastructure investment to increase public transport and reduce traffic congestion, so people can spend more time with their families;
- Deliver more jobs closer to homes and services, with a focus on youth and Aboriginal training and skills development;
- Increase housing through better planning and density done well, and streamlining approvals across all three levels of government; and

- Support clean air, green spaces, vibrant arts and cultural initiatives.

OWE is providing additional infrastructure through the delivery of the proposed Western North South Link Road and providing employment opportunities for the growing population of Western Sydney.

4.2. STATUTORY PLANNING CONTEXT

4.2.1. Approvals Process

The OWE proposal is classified as SSD pursuant to Section 89C of the EP&A Act and is also 'staged development' as defined under Section 83B of the EP&A Act. The OWE proposal therefore seeks consent for a staged SSD as described under Section 89D of the SRD SEPP. The Minister for Planning is the consent authority.

Pursuant to Section 89J of the EP&A Act, the following approvals, permits and concurrences do not apply to SSD:

- Concurrence under Part 3 of the *Coastal Protection Act 1979*;
- A permit under section 201, 205 or 219 of the *Fisheries Management Act 1994*,
- Approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977*,
- An Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*,
- An authorisation referred to in section 12 of the *Native Vegetation Act 2003* to clear native vegetation or State protected land,
- A bushfire safety authority under section 100B of the *Rural Fires Act 1997*,
- A water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act 2000*.

Other approvals, permits or concurrences that do apply to the proposed OWE development are detailed in Appendix Q of the EIS.

4.2.2. State Environmental Planning Policies

The principal environmental planning instrument (EPI) applying to the OWE is the WSEA SEPP which establishes the zoning and core development controls for the site. The OWE Concept Proposal has been designed in the context of the WSEA SEPP and associated planning policies and documents as shown Figure 19 which illustrates the statutory planning framework within which the OWE SSDA sits and under which future development of the estate will be assessed.

Relevant provisions of key statutory planning instruments applying to the OWE are discussed in relation to the proposal in the following sections with further detail on related planning instruments provided in Appendix Q

SRD SEPP

The SRD SEPP identifies and establishes assessment frameworks for SSD and State Significant Infrastructure (SSI). Projects that fall within these categories are subject to an alternative assessment and approval process with the Minister for Planning being the consent authority. Schedule 1 of the SEPP identifies the general classes of SSD including development for the purposes of 'warehouses and distribution centres' with a capital investment value (CIV) of more than $50 million at one location and related to the same operation as SSD.

The works comprising Stage 1 of the SSDA for the OWE (incorporating infrastructure and building works) would have a value of approximately $447 million. The project is therefore appropriately characterised as SSD and approval is sought via a SSDA to NSW P&E. The Minister for Planning is the consent authority.

Other notable provisions of the SRD SEPP including:

- Clause 11 which states that Development Control Plans do not apply to SSD.

- Clause 12 which confirms that staged development applications may still be considered as SSD despite that if individual stages of the development do not meet the minimum threshold.

WSEA SEPP

The WSEA SEPP applies to lands within the WSEA and provides a framework to guide the efficient release and development of land within eight key precincts. The SEPP zones the land and establishes core development controls and design principles as well as setting the framework for regional infrastructure contributions. Part 4 of the SEPP requires the preparation of a development control plan for any land within the WSEA prior to development consent being granted.

Of key importance to the design of the OWE proposal are the provisions of Clause 21, Clause 23 and Clause 26 of the SEPP.

Clause 21

Clause 21 of the WSEA SEPP addresses building height and states that:

> *'The consent authority must not grant consent to development on land to which this Policy applies unless it is satisfied that:*
>
> *(a) building heights will not adversely impact on the amenity of adjacent residential areas, and*
>
> *(b) site topography has been taken into consideration'.*

Building heights proposed for the OWE have been established in consideration of the needs of current and emerging industrial/warehousing development typologies and the potential visual impacts of the proposed OWE development. A maximum building height of 15m is established for the OWE under the SSDA, consistent with the maximum building height adopted under DCP 2014. However, the adopted design proposes buildings of a maximum height at the ridgeline of 13.7m and a height at the eaves of approximately 10m.

In relation to the provisions of clause 21, a detailed analysis of the proposed built form in the context of existing topography and potential for impact on surrounding residential development has been undertaken as part of the visual impact assessment (VIA) discussed in Section 6.2 and included in full at Appendix Y. The VIA makes a series of recommendations which have been adopted in the design of the proposal and/or through mitigation measures to ensure that built form on the site responds appropriately to the local context and that local amenity is preserved.

It is noted that the VIA finds that the underlying topography of the OWE site means that the scale of built form can be absorbed without significant adverse impacts upon view corridors and residential amenity.

Clause 23

Clause 23 relates to development in the WSEA that adjoins residential land and applies to land that is within 250m of land zoned primarily for residential purposes. The clause requires that the consent authority cannot grant consent to development on such land unless it is demonstrated that:

- wherever appropriate, proposed buildings are compatible with the height, scale, siting and character of existing residential buildings in the vicinity, and
- goods, plant, equipment and other material resulting from the development are to be stored within a building or will be suitably screened from view from residential buildings and associated land, and
- the elevation of any building facing, or significantly exposed to view from, land on which a dwelling house is situated has been designed to present an attractive appearance, and
- noise generation from fixed sources or motor vehicles associated with the development will be effectively insulated or otherwise minimised, and
- the development will not otherwise cause nuisance to residents, by way of hours of operation, traffic movement, parking, headlight glare, security lighting or the like, and

- the development will provide adequate off-street parking, relative to the demand for parking likely to be generated and access to the site does not share access with any other lands, and
- the site of the proposed development will be suitably landscaped, particularly between any building and the street alignment.

The OWE adjoins rural residential lands to the south and west which include some residential dwellings. The provisions of clause 23 are therefore triggered in relation to development on the OWE within 250m of the southern and western boundaries. Consideration of the detailed requirements of Clause 23 of the WSEA SEPP in relation to the OWE proposal is provided in **Table 22.**

Table 22 – Consideration of Clause 23 of WSEA SEPP

REQUIREMENT	RESPONSE
Wherever appropriate, proposed buildings are compatible with the height, scale, siting and character of existing residential buildings in the vicinity.	This provision requires development within the WSEA that is visible from residential areas to be compatible, goods, plant and other such elements to be screened from view and the facade of buildings exposed to view to present in an appropriate way that preserves an acceptable level of visual amenity. Acceptable solutions to address compatibility (as supported by planning and legal principles) include the siting and scale of buildings, architectural design and façade treatments and/or landscaping of sufficient density to create a visual buffer. The proposed OWE Concept Proposal responds to its local context by preserving a substantial 40m setback to the western site boundary which would be screened and landscaped with an earth bund and a range of planting to present an appropriate interface to the adjoining residential, educational and health care uses. The proposed OWE development also adopts building heights which achieve the minimum requirements for a modern warehousing and distribution facility but which remain below the maximum building heights established under Penrith DCP 2014. A VIA has been prepared in respect of the OWE proposal and confirms that the proposed design and visual treatment for the OWE would preserve an appropriate outlook and level of amenity for surrounding landowners and adequately addresses the requirements of clause 23 of the WSEA SEPP.
Goods, plant, equipment and other material resulting from the development are to be stored within a building or will be suitably screened from view from residential buildings and associated land.	Goods, plant and equipment would be stored inside at all times or suitably screened to avoid potential visual impacts in compliance with these requirements.
The elevation of any building facing, or significantly exposed to view from, land on which a dwelling house is situated has	The proposed OWE development would not be significantly exposed to view from existing dwellings, but would be visible in certain locations.

REQUIREMENT	RESPONSE
been designed to present an attractive appearance	The architectural design statement and perspectives submitted with the SSDA describe and illustrate the appearance of the proposed development of the OWE. The adopted design balances the functional requirements of a modern warehousing development with the need to maintain an aesthetically appealing outlook for surrounding sensitive users. Importantly, the proposed Precinct 1 development – the only location where buildings are proposed to be constructed as part of the current SSDA, is located in the far north-east of the OWE, a significant distance from surrounding sensitive land uses. Therefore, the current Stage 1 development would have a limited impact on views and outlook from the rural residential, educational and health care uses to the south and west of the site. Architectural features have been used in the design to break up the bulk and scale of the proposed warehouse buildings and proposed colours and materials have been selected to further minimise any potential impact. Future stages of the OWE proposal would be subject to separate assessment and approvals processes with particular focus on the potential visual impacts of the development and the requirements of clause 23 of the WSEA SEPP.
Noise generation from fixed sources or motor vehicles associated with the development will be effectively insulated or otherwise minimised	As noted above, the Stage 1 development includes the construction of warehouse buildings within Precinct 1 only, located some distance away from the nearest sensitive receivers. Noise impact assessment carried out with respect to the Precinct 1 development proposed concludes that during standard construction hours, exceedance of the NMLs of up to 16 dB and 32 dB are predicted at the most affected residential receivers in Emmaus Village and immediately to the south of the OWE in Kemps Creek respectively. It is also noted that construction noise would be periodic, temporary and short term and therefore would not present permanent noise impacts on surrounding receivers. Detailed noise impact assessment (NIA) is included at Appendix T with further details provided in Section 6.5. Overall, the NIA concludes that noise impacts on surrounding lands can be effectively maintained at acceptable levels with the mitigation measures proposed.
The development will not otherwise cause nuisance to residents, by way of hours of operation, traffic movement,	The proposed OWE development includes 24/7 operation, however noise assessment demonstrates that this would not result in significant adverse impacts on surrounding sensitive receivers. Further, traffic and parking analysis (documented in Section 6.6 and Appendix J) shows that the proposed parking levels and traffic

REQUIREMENT	RESPONSE
parking, headlight glare, security lighting or the like	generation would not generate adverse impacts on traffic flows on the local or regional road network. All proposed building will have a reflectivity coefficient of less than 20% and comply with AS 4282-1997 Control of the obtrusive effects of outdoor lighting. All sites will be fences and secured with sufficient lighting at entrances. Cameras and guards will also be utilised.
The development will provide adequate off-street parking, relative to the demand for parking likely to be generated	The proposal makes provision for parking in excess of RMS Guidelines. Survey of existing warehouse and distribution facilities operated by Goodman in the WSEA and similar locations demonstrate that these parking rates are sufficient to meet the demands of a typical, modern warehousing operation. Accordingly, the car parking rates for the OWE have been established based on the approved car parking rates for the Oakdale South Industrial Estate and the warehouse car parking rates outlined in the RMS Guide. In this regard, Section 5.11.2 of the RMS Guide requires parking for warehouse developments be provided at the rate of 1 space per 300m^2 of GFA and 1 space per 40m^2 of GFA for office use.
The site of the proposed development will be suitably landscaped, particularly between any building and the street alignment	Landscape plans are included at Appendix G to the EIS detailing the landscaping proposed across the site. Key features of the landscaping approach include: • Establishment of a significant 40m setback to proposed buildings from the western site boundary to respect the sensitive land uses to the west of the site. This setback would be landscaped with an earthern bund and a range of canopy, understorey and groundcover to present an appropriate interface with these land uses and to preserve an adequate level of amenity. • Establishment of 20m landscaped setbacks to the proposed WNSLR and SLR to ensure an appropriate interface to the regional road network and preserve amenity for future operators within the OWE and for the public domain surrounding the site. • Minimum 10m landscaped setbacks to the internal estate road network including street tree planting to create a high quality environment within the estate. • On-lot landscaping within each development precinct to complement and soften the appearance of the warehouse buildings. Landscape and visual analysis prepared in respect of the proposal has informed the design of the landscape treatment and confirms that

REQUIREMENT	RESPONSE
	the proposed landscaping response is appropriate to preserve the amenity of surrounding residential areas.

Clause 26

Clause 26 of the WSEA SEPP relates to the regional road network established under the SEPP as a framework for the delivery of future road connections within and surrounding the WSEA. The provisions of clause 26 apply to land which is situated on, or in the vicinity of a proposed transport infrastructure route illustrated on the 'Transport and Arterial Infrastructure Plan Map' (the map), shown in Figure 27.

The clause requires that the consent authority must, before determining a development application for development on such land, consider any comments made by the Director-General as to the compatibility of the development to which the application relates with the proposed transport infrastructure route concerned.

The OWE is affected by two proposed roads shown on the map:

- The site is bisected in an east-west direction by the proposed SLR; and
- The proposed WNSLR runs in a north-south direction, roughly along the eastern boundary of the site, intersecting the site at certain points.

The SLR forms the primary east-west estate road for the OWE. The OWE proposal incorporates the SLR as core component of its infrastructure and the configuration in the Concept Proposal reflects the indicative alignment shown in the WSEA SEPP. OWE can operate without the reliance on the SLR. The proposal would not therefore hinder the delivery of this regional road as currently planned.

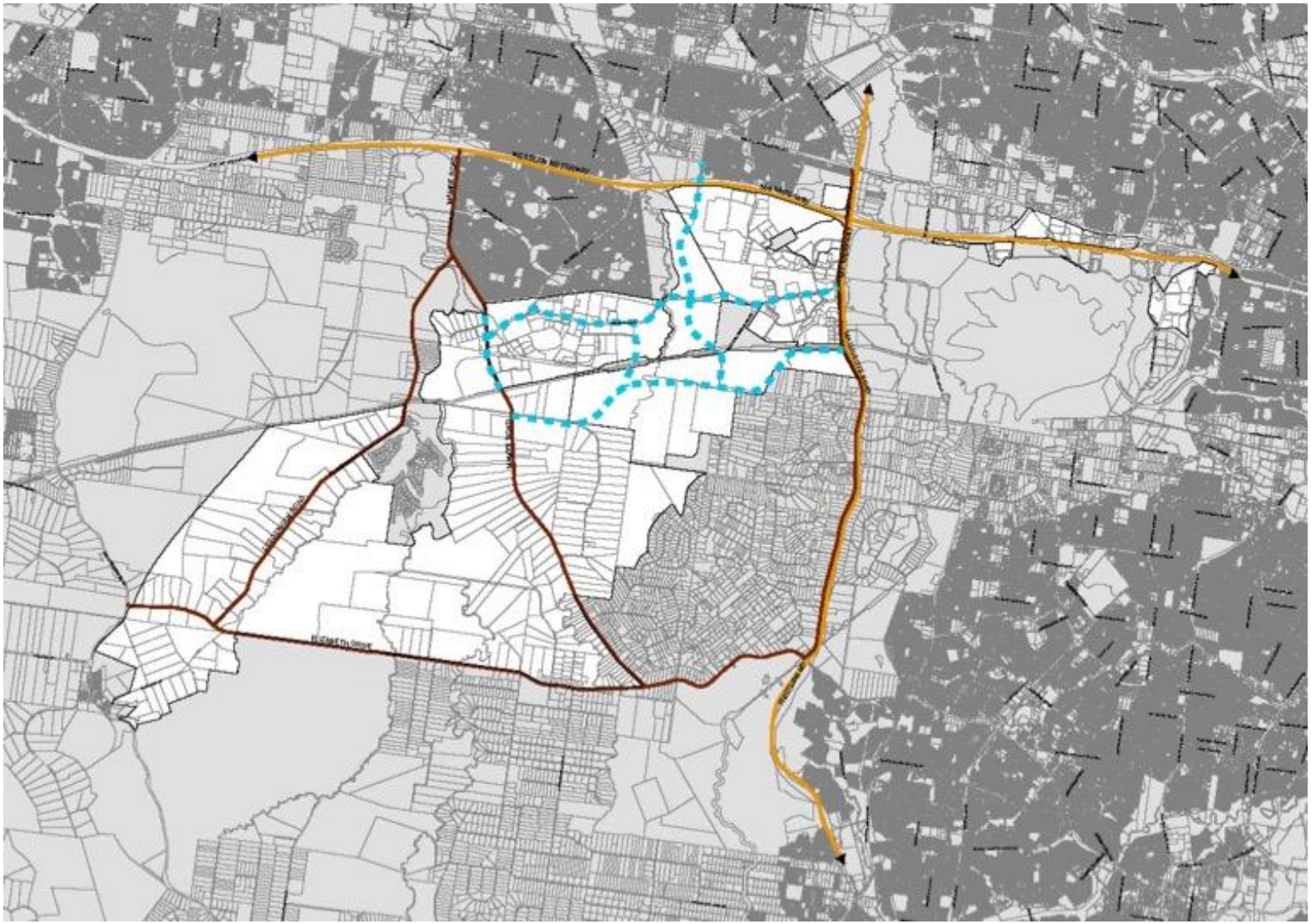
The WNSLR would provide the primary access for the OWE, linking the site to Lenore Drive some 1.3km to the north of the site. The configuration adopted under the OWE proposal generally reflects the alignment adopted by the WSEA SEPP, Figure 11 & Figure 12 highlight the minor departures.

The construction of the WNSLR would require a bridge over the Water NSW pipeline and consultation has been undertaken with SCA in this regard. Further consultation will be conducted during detailed design phase prior to construction.

The OWE proposal would not hinder the delivery of the WNSLR as planned in the SEPP, but rather, would accelerate its delivery, providing improved access to the lands within the WSEA in accordance with the aims and objectives of the SEPP.

Further detail on the design and alignment of the proposed WNSLR is provided in the civil drawings at Appendix E and the civil report at Appendix I. Details of traffic modelling undertaken in relation to the WNSLR and broader WSEA road network are provided in the TIA at Appendix J.

Figure 27 – Regional Road Network – WSEA SEPP



Source: WSEA SEPP

Other relevant provisions of the WSEA SEPP are discussed in **Table 23** below.

Table 23 – Other Provisions of the WSEA SEPP

Clause	Requirement	Response
Clause 3 - Aims	Aims to protect and enhance the land within the WSEA for employment purposes.	The proposal seeks consent to plan and develop the OWE for employment uses, consistent with the overarching aim of the WSEA SEPP.
Clause 10 – Land Use Zoning	The OWE is zoned IN1 – General Industry and E2 – Environmental Conservation pursuant to this clause.	The proposed development of the OWE as described in the SSDA and EIS is permissible with consent as follows: All works proposed under the SSDA are permissible in the IN1 zone, including the construction and use of buildings for warehousing and distribution. Works for the purposes of roads, artificial waterbodies, flood mitigation works and environmental protection works are permissible in the E2 zone. The works proposed in the E2 zone under the OWE Concept Proposal and Stage 1 development are permissible.
Clause 18 – Development Control Plans	Requires that a DCP be in place before consent can be granted for development within the WSEA	Penrith DCP 2014 applies to the subject site, specifically those provisions related to the Erskine Business Park. Clause 18(6) of the SEPP recognises the provisions of this DCP for the purposes of the clause. The requirement for a DCP is therefore satisfied*.
Clause 20 – Ecologically Sustainable Development	The consent authority must not grant consent to development on land to which this Policy applies unless it is satisfied that the development contains measures designed to minimise: the consumption of potable water, and greenhouse gas emissions.	A site water balance has been prepared in respect of the OWE proposal and is discussed in Section 6.7.4 of the EIS. Further details and calculations are included in the civil report at Appendix I. An assessment of energy efficiency of the proposal has also been undertaken and is detailed in Appendix R. An assessment of the emission during construction and operation has been undertaken and is detailed in Appendix U.
Clause 22 – Rainwater Harvesting	The consent authority must not grant consent to development on land to which this Policy applies unless it is satisfied that adequate arrangements will be made to connect the roof areas of buildings to such rainwater	Rainwater tanks would be provided as part of the development of each precinct within the OWE as shown on the plans for Precincts 1 at Appendix F.

Clause	Requirement	Response
	harvesting scheme (if any) as may be approved by the Director-General.	Details of the proposed rainwater tanks are provided in the civil report at Appendix I and these measures have been considered in the site water balance calculations.
Clause 24 – Development involving subdivision	The consent authority must not grant consent to the carrying out of development involving the subdivision of land unless it has considered the following: the implications of the fragmentation of large lots of land, whether the subdivision will affect the supply of land for employment purposes, whether the subdivision will preclude other lots of land to which this Policy applies from having reasonable access to roads and services.	The proposed development of the OWE includes its staged subdivision as described in Section 3.4.5 and shown in Figure 24. Subdivision staging would be aligned with infrastructure and services delivery and would not result in land fragmentation or isolation.
Clause 25 – Public Utility Infrastructure	The consent authority must not grant consent to development on land to which this Policy applies unless it is satisfied that any public utility infrastructure that is essential for the proposed development is available or that adequate arrangements have been made to make that infrastructure available when required.	All necessary public utility infrastructure and services would be provided to the OWE as part of the SSDA, as described in Section 3.3.6.
Clause 29 – Industrial Release Area	Despite any other provision of this Policy, the consent authority must not consent to development on land to which this clause applies unless the Director-General has certified in writing to the consent authority that satisfactory arrangements have been made to contribute to the provision of regional transport infrastructure and services (including the Erskine Park Link Road Network) in relation to the land to which this Policy applies.	The requirement for regional infrastructure contributions for the OWE would be satisfied via a Voluntary Planning Agreement to be negotiated with NSW P&E. Intention is for the western N/S link to be conducted as works in kind in lieu of payment of monetary contributions

Clause	Requirement	Response
Clause 31 – Design Principles	In determining a development application that relates to land to which this Policy applies, the consent authority must take into consideration whether or not: • the development is of a high-quality design, and • a variety of materials and external finishes for the external facades are incorporated, and • high quality landscaping is provided, and • the scale and character of the development is compatible with other employment-generating development in the precinct concerned.	The OWE Concept Proposal and Stage 1 development has been developed based upon a robust and iterative design process, underpinned by carefully considered design principles related to bulk and scale, accessibility and permeability, landscaping and public domain, materials and finishes and integration with the surrounding land use character and context. These principles and design responses are discussed in Section 3 of the EIS and further articulated in the architectural package at Appendix D and Appendix F and the Urban Design Study at Appendix H. A VIA undertaken in respect of the proposal finds that the design responses adopted under the SSDA would result in an acceptable development outcome for the site and its local context.

** It is noted that Clause 11 of the SRD SEPP states that DCPs do not apply to SSD. However the provisions of DCP 2014 would apply to development on the site which is not classified as SSD and would be considered in conjunction with the site specific development controls detailed in Section 1.5.2 of the EIS in relation to future development on the site.*

SEPP 64

State Environmental Planning Policy No 64 – Advertising and Signage (SEPP 64) applies to all signage and advertisements, which can be displayed with or without development consent under an environmental planning instrument and is visible from any public place or public reserve.

SEPP 64 applies to the proposed development as the proposed signage and advertisement will be visible to the surrounding road network. It is noted that the SEPP will apply in the event of any inconsistency with another environmental planning instrument.

As set out under SEPP 64, the consent authority is required to consider and assess any proposed signage and/or advertisements against the Assessment Criteria set out under Schedule 1 of the SEPP.

An assessment of the proposed signage against the objectives of the SEPP and relevant criteria for assessment has been undertaken and is summarised in Table 24.

Table 24 – SEPP 64 Compliance

Control	Proposed	Complies
1 Character of the Area		
• *Is the proposal compatible with the character of the area or locality in which it is proposed to be located?*	The proposed signage is compatible with the industrial land use zoning and desired future character of the area. The proposed signage will not detract from	YES

Control	Proposed	Complies
• *Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?*	the streetscape as the signage will be located within the OWE and will not disrupt vehicular flow. The scale and location of the proposed signage is consistent with the scale of the proposed OWE and adjoining industrial development. The proposed street landscaping will further integrate the signage within the streetscapes.	
2 Special areas		
• *Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?*	The proposal does not detract from the amenity or visual quality of any environmentally sensitive areas, natural or other conservation areas, open space area, waterways or rural landscapes. The proposed signage will not adversely impede the visibility of other signage within the surrounding area.	YES
3 Views and vistas		
• *Does the proposal obscure or compromise important views?* • *Does the proposal contribute to the visual interest of the streetscape, setting or landscape?* • *Does the proposal reduce clutter by rationalising and simplifying existing advertising?* • *Does the proposal screen unsightliness?* • *Does the proposal protrude above buildings, structures or tree canopies in the area or locality?* • *Does the proposal require ongoing vegetation management?*	The signage will not obscure or compromise views, dominate the skyline or impede on the viewing rights of other advertisers.	YES
4 Streetscape, setting or landscape		
• *Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?*	The proposed signage is compatible with the scale of the surrounding streetscape and setting. The proposed signage will incorporate quality materials and finishes and provide a coherent and integrated colour scheme	YES

Control	Proposed	Complies
• *Does the proposal respect important features of the site or building, or both?* • *Does the proposal show innovation and imagination in its relationship to the site or building, or both?*	based on the marketing colours of Goodman and the specific tenants. The proposal will appropriately reflect the future design and character of OWE and does not present visual clutter.	
5 Associated devices and logos with advertised and advertising structures		
• *Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?*	The signage will continue to display the Goodman name and logo as well as future tenants name and logo, in accordance with their brand identity. Illumination devices are integrated into the existing design of the sign.	YES
7 Illumination		
• *Would illumination result in unacceptable glare?* • *Would illumination affect safety for pedestrians, vehicles or aircraft, or detract from the amenity of any residence or other form of accommodation?* • *Can the intensity of the illumination be adjusted, if necessary?* • *Is the illumination subject to a curfew?*	Three 'Goodman Light Boxes' on Building 1A, 1B and 1C are proposed. Illumination will occur at low wattage and will not impact the safety or amenity of pedestrians, vehicles or nearby residential accommodation. The light source for the signage will be static.	YES
8 Safety		
• *Would the proposal reduce the safety for any public road?* • *Would the proposal reduce the safety for pedestrians or bicyclists?* • *Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?*	The proposed signage will not distract motorists. No safety implications for pedestrians or vehicular users are envisaged. The signage will not be illuminated and will be set back from the front boundary.	YES

Infrastructure SEPP

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) aims to facilitate the effective delivery of infrastructure across the State by providing a consistent planning regime for infrastructure and the provision of services.

The SEPP provides an alternative approvals pathway for major infrastructure development and seeks to protect key infrastructure from the potential effects of new development by controlling sensitive development within or adjacent to road and rail corridors.

The SEPP also deals with traffic generating development and requires referral and concurrence of the NSW RMS for certain development which is expected to generated significant traffic. Schedule 3 of the Infrastructure SEPP identifies 'traffic generating development' which must be referred to the RMS for concurrence. The schedule includes development for the purposes of industry incorporating 20,000m^2 or more of gross floor area (GFA).

The proposed development would create some 476,924m^2 of warehousing GFA and would therefore exceed the threshold under Schedule 3 of the Infrastructure SEPP. The RMS has been consulted as part of the preparation of the EIS and the project would be referred to the RMS as part of the SSDA process.

SEPP 55

State Environmental Planning Policy 55 (Remediation of Land) (SEPP 55) SEPP 55 seeks to provide a State-wide planning approach to the remediation of contaminated land. Clause 7(1)(a) of the SEPP requires that the consent authority, when assessing a development application, consider whether the land is contaminated and whether it is suitable for the proposed use. It also requires that the consent authority review a report specifying the findings of a preliminary contamination investigation of the land concerned when considering an application which involves a change of use of the land.

SEPP 55 also establishes a framework to ensure that the remediation of land complies with specified standards, and that local councils are notified prior to remediation work being carried out and once they are finished. The potential contamination of land is a key consideration in any rezoning proposal pursuant to the requirements of SEPP 55. As such, a preliminary investigation of contamination on the site would have been carried out and reviewed as part of the rezoning of the land to IN1.

The proposed development would result in a change of use of the land and would introduce new development to the site. Potential contamination and its management has been considered and documented in the EIS.

The Phase 2 Contamination Assessment was undertaken in 2012 and indicates that the majority of the OWE is considered suitable for commercial/industrial land uses. A subsequent inspection was undertaken in February 2016.by AECOM, who found that there have been no evident significant changes to the contamination condition of the site since the completion of the targets Phase 2 Assessment. The two small areas of surface soils that were identified to be impacted with fragments of ACM have since been removed.

SEPP 33

State Environmental Planning Policy 33 – Hazardous and Offensive Development (SEPP 33) SEPP 33 requires the consent authority to consider whether an industrial proposal is a potentially hazardous or a potentially offensive industry. In doing so, the consent authority must give careful consideration to the specific characteristics and circumstances of the development, its location and the way in which the proposed activity is to be carried out. Any application to carry out potentially hazardous development must be supported by a preliminary hazard analysis (PHA).

The proposal is for a master planned warehousing and distribution complex which is intended to have a freight and logistics focus. The proposal is not potentially hazardous or potentially offensive development. Should an operator seek to occupy premises within the OWE for purposes that would be classified as potentially offensive or potentially hazardous, a PHA would be required to be prepared and submitted with a further application for assessment and approval.

4.2.3. Local Planning Matters

There are no local environmental planning instruments applicable to the OWE. Pursuant to Clause 11 of the SRD SEPP, DCPs do not apply to SSD, however future development on the OWE that is not classified as SSD would be subject to assessment against the provisions of Penrith DCP 2014, along with the site specific development controls proposed in Table 25.

Table 25 – Existing and Proposed OWE Development Controls

Issue/Element	Penrith DCP 2014 Control	Proposed OWE Control	Variation?
Site Coverage	Maximum 50%	Maximum 65%.	Y
Minimum Lot Size	Minimum 10,000m^2	Minimum 5,000m^2	Y

Issue/Element	Penrith DCP 2014 Control	Proposed OWE Control	Variation?
Minimum Frontage	Minimum 60m	Minimum 40m	Y
FSR	Not specified	Not relevant/appropriate given the nature of development and site coverage control.	N
Building Height	Maximum 15m.	Maximum 15m	N
Building Setback – Primary Frontage	Minimum 20m to regional roads	Minimum 20m to regional roads Minimum 15m to link roads Minimum 7.5m to local roads	N
Building Setback – Side	Minimum 5m	Minimum zero setback subject to compliance with fire safety standards.	Y
Building Setback – Rear	Minimum rear setback 5m.	Minimum rear setback 5m.	N
Landscaped Setbacks	Minimum setback 20m to regional roads.	Minimum Landscaped Setbacks: • Southern Link Road: 20m setback/10m landscape • Collector Road: 7.5m, or average of 50% of setback along the frontage. • Local Estate Road: Average of 50% of setback along the frontage. • Side boundary: No minimum requirement (except for western site boundary as described above). • Rear boundary: 2.5m.	
Car Parking	On-site car parking to be provided at the following minimum rates: Industry (factory/factory units) – 1 space/75m^2 or 1	On-site car parking to be provided at the following minimum rates: Warehousing and Distribution – 1 space/300m^2 or in	Y

Issue/Element	Penrith DCP 2014 Control	Proposed OWE Control	Variation?
	space/2 employees, whichever is greater. Warehousing and Distribution – 1 space/100m^2. Office – 1 space/40m^2 Service Stations – 6 spaces per work-bay, plus 1 space/20m^2 retail GFA.	accordance with RMS Guidelines. Office – 1 space/300m^2 for ancillary office up to 20% of total GFA. Other uses – as per DCP 2014.	
Disabled Parking	To be provided in accordance with AS 2890-1993.	For development with more than 50 parking space, 2% are to be provided as accessible parking.	N
Road Infrastructure	20.6m wide reserve for estate roads.	23m wide reserve for estate roads.	N

The development controls proposed for the OWE as part of the SSDA consider the adopted standards in DCP 2014, along with the development standards approved under the Oakdale Central Concept Plan and Oakdale South Concept Proposal. Consistency across the Oakdale estates is an important management issue for Goodman and is therefore a key driver of the design of the Concept Proposal and proposed development controls.

Development controls proposed for the OWE are generally consistent with those in DCP 2014 with the exception of:

- Site Coverage;
- Lot Size;
- Frontage;
- Side setbacks; and
- Car parking.

The proposed varied controls for the OWE remain consistent with the underlying intent and objectives of these development standards and would not result in suboptimal development outcomes or land use conflict. Of most significance is the proposed variation to minimum car parking rates, described in further detail below.

Car Parking

The proposed OWE Concept Proposal proposes to adopt minimum parking rates within the estate as follows:

- Warehousing and Distribution – 1 space per 300m^2
- Ancillary office – To be included as ‘warehousing and distribution’ or ‘industry’ for the purpose of car parking calculations. – 1 space.per 40m^2

Proposed car parking controls for ‘warehousing and distribution’ are inconsistent with those adopted under DCP 2014, that establishes a minimum parking rate for ‘warehousing and distribution’ of 1 space per 100m^2.

In relation to this inconsistency, the following key points are made:

- The OWE is located within the WSEA which is a unique industrial location, attracting a specific type and scale of warehousing operation not typically found in other industrial areas of Penrith.
- The WSEA offers a supply of large (> 10,000m^2), flat sites that are capable of accommodating large floorplate warehousing typically occupied by major retailers for the purposes of primary distribution and/or large freight and logistics operators such as TOLL and DHL. Warehouse floorplates in the WSEA are in general significantly larger than in other Western Sydney locations.
- Significant advances in technology have led to these operations becoming increasingly automated with typical employment densities of less than 20 employees per hectare (*Department of Planning and Infrastructure, 2012*). As a result, many of these developments in the WSEA provide on-site parking well in excess of actual requirements.
- Traditionally, car parking controls within LEPs and DCPs for industry and warehousing uses have not been informed by the actual needs of the user. Instead, non-specific minimum rates have typically been used for all forms of industrial/warehousing use regardless of the nuances of the particular operation.
- In the case of the OWE and adjoining Oakdale lands, a substantial case exists for a site-specific parking rate for warehousing that better matches the needs of the end user.

In support of the above, a parking survey was undertaken as part of the EIS to establish the effective parking rate of operational warehouse developments in the WSEA. The survey considered eight comparable developments (generally warehousing and distribution or freight and logistics operations) within other Goodman estates at Erskine Park, Oakdale Central and the M7 Business Hub. The key findings of the survey were:

- Parking was used at a rate of between 1 space per 153m^2 and 1 space per 817m^2;
- Mean parking rate was 1 space per 403m^2;
- 'Middle range' parking rate (per RMS adopted methodology) was 1 space per 350m^2.

Based upon the results of the survey, it was concluded that a reduction in the rate of car parking for warehousing and distribution within the OWE from 1 space per 100m^2 (per DCP 2014) to 1 space per 300m^2 (per *RMS Guide to Traffic Generating Developments*) was justified. The adoption of a reduced rate of minimum parking requirements allows for greater flexibility in the design of future development within the OWE to accommodate the needs of a range of potential users. Further detail on the parking survey methodology and results is provided in Section 4.1 of the TTIA at Appendix K.

Other Proposed Variations

The proposed variations with respect to site coverage, lot size, frontage and side setbacks are considered to be justifiable in the case of the OWE as:

- The standards adopted under DCP 2014 were drafted ten years ago with respect to the development of the 'Erskine Business Park'. Some of the controls are therefore outdated and inconsistent with contemporary approaches to greenfield industrial development.
- Minimum lot size provisions generally aim to preserve large industrial sites from erosion and fragmentation. The OWE is a large estate under single ownership and would remain under the management of Goodman into the long term. As an experienced industrial developer and property manager, Goodman is best placed to understand the needs of the industrial market in the WSEA with respect to lot size and development sites. The proposed minimum lot size for the OWE allows for flexibility in the size and configuration of lots delivered to the market without impacting on supply of large sites and/or fragmentation of land in the WSEA and is therefore considered appropriate.
- Minimum lot frontage standards seek to ensure that sites are able to accommodate appropriate vehicular access, setbacks and development footprints. Through its extensive experience in the development of industrial land in the WSEA, Goodman is confident that a minimum frontage of 35m is capable of supporting efficient and functional modern industrial development and is therefore appropriate for the OWE.

The purpose of side setbacks in industrial development is principally to preserve appropriate emergency access and minimise risks in relation to fire safety. It is therefore appropriate to allow flexibility in the application of side setbacks in the OWE to account for circumstances where zero setbacks may be allowable on the basis of fire safety considerations.

Assessment of Precinct 1

The development controls for the OWE Precinct 1 are generally consistent with those in DCP 2014. Table 26 provides an assessment of the proposed built form within Precinct 1against the proposed OWE development controls.

Table 26 – Assessment of Precinct 1 Buildings

Issue/Element	Proposed OWE Control	Precinct 1 Development	Complies
Site Coverage	Maximum 65%	Lot 1A – 50% Lot 1B – 42% Lot 1C – 56%	Y
Minimum Lot Size	Minimum 5,000m^2	Lot 1A – 44,321m^2 Lot 1B – 38,419m^2 Lot 1C – 141,390m^2	Y
Minimum Frontage	Minimum 35m	Lot 1A, 1B & 1C buildings all have a frontage greater than 35m.	Y
FSR	N/A	N/A	N/A
Building Height	Maximum 15m	13.7m ridge height	Y
Building Setback – Primary	Minimum 20m to regional roads Minimum 15m to link roads Minimum 7.5m to local roads	Lot 1A, 1B & 1C buildings all front Estate Road 02 and are setback more than 7.5m from the deemed local road.	Y
Building Setback – Side	Minimum zero setback subject to compliance with fire safety standards	All built form will have a side setback of more than zero metres to satisfy fire safety standards.	Y
Building Setback – Rear	Minimum rear setback 5m	All built form has a rear setback greater than 5m.	
Landscaped Setback	Minimum Landscaped Setbacks: • Southern Link Road: Average of 20m depth along the site frontage. 20m setback/10m landscape • Collector Road: 7.5m, or average of 50% of setback along the frontage.	All built form (excluding hard-stand areas) is setback 20m from the Southern Link Road and Western North South Link.	Y

Issue/Element	Proposed OWE Control	Precinct 1 Development	Complies
	• Local Estate Road: 7.5m setback with 3.75 landscaped. • Side boundary: No minimum requirement (except for western site boundary as described above). Rear boundary: 2.5m		
Car Parking	On-site car parking to be provided at the following minimum rates: Industry – 1 space/75m^2 GFA Warehousing and Distribution – 1 space/300m^2 or in accordance with RMS Guidelines. Office – 1 space/300m^2 for ancillary office up to 20% of total GFA. Other uses – as per DCP 2014.	Lot 1A – 144 spaces Lot 1B – 106 spaces Lot 1C – 386 spaces Total – 636 spaces	Y
Disabled Parking	For development with more than 50 parking space, 2% are to be provided as accessible parking.	Two percent of on-site parking space will be provided as accessible parking spaces.	Y
Road Infrastructure	23 wide reserve for estate roads.	Not applicable to Precinct 1 assessment.	N/A

5. CONSULTATION

5.1. OVERVIEW

A key input to the planning and design of the OWE project is an understanding of the views and requirements of a range of stakeholders, including State and local government agencies, adjoining landowners and the broader resident and business community.

In accordance with the *Secretary's Environmental Assessment Requirements* (SEARs) issued for the OWE proposal, the applicant has consulted with a variety of stakeholders in relation to the development of the OWE and has responded to the issues raised through design and management measures as appropriate. The consultation process undertaken is documented in the following sections of the EIS.

5.2. SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

In accordance with the provisions of the NSW EP&A Act and EP&A Reg, the Secretary for Planning issued SEARs for the OWE proposal as detailed in **Table 27.**

Table 27 – Secretary's Environmental Assessment Requirements

Key Issue	Requirements	EIS reference
General Requirements	The EIS must meet the form and content requirements of clauses 6 and 7 to Schedule 2 of the EP&A Reg. In addition, the EIS must include a: • Detailed description of the development including: – Need and justification for the development; – Likely staging of the development; – Likely interactions between the development and existing, approved and proposed operations in the vicinity of the site; – Layout and design, including plans of any proposed building works; – Identification of the preferred alignment of the Southern Link Road (as identified and exhibited as part of the WSEA SEPP amendment late 2014), and the bridge connection required for the development in all relevant plans; – Written and graphical description of proposed infrastructure and service provision (including any required off site upgrades). • Consideration of all relevant environmental planning instruments, including identification and justification of	• Section 3 – Proposal Description • Section 4 – Planning Framework • Appendix Z – Risk Assessment • Appendix F – Architectural Plans • Appendix E – Civil Plans • Section 6 – Assessment • Section 7 – Summary of Mitigation Measures

Key Issue	Requirements	EIS reference
	any inconsistencies with those instruments; • Risk assessment of the potential environmental impacts of the development, identifying the key issues for further assessment; • Detailed assessment of the key issues specified and any other significant issues identified in this risk assessment including: – A description of the existing environment, using sufficient baseline data; – An assessment of the potential impacts of all stages of the development including any cumulative impacts, taking into consideration relevant guidelines, policies, plans and statutes; – A description of the measures that would be implemented to avoid, minimise, mitigate and if necessary, offset the potential impacts of the development, including proposals for adaptive management and/or contingency plans to manage significant risks to the environment; • A summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS.	
CIV	The EIS must be accompanied by a report from a qualified quantity surveyor providing: • A detailed calculation of the capital investment value of the proposal as defined at clause 3 of the EP&A Reg, including details of all components of the CIV; • An estimate of jobs that will be created by the development during its construction and operational phases; • Certification that the information provided is accurate at the date of preparation.	• Appendix C – QS Report

Key Issue	Requirements	EIS reference
Strategic and Statutory Context	Address the relevant statutory provisions applying to the site contained in the relevant EPIs, including: • State Environmental Planning Policy (State and Regional Development) 2011; • State Environmental Planning Policy No. 33 - Hazardous and Offensive Development; • State Environmental Planning Policy No. 55 - Remediation of Land; • State Environmental Planning Policy (Infrastructure) 2007; and • State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP). Address the relevant provisions, goals and strategic objectives in the following: • The NSW State Plan – NSW 2021; • A Plan for Growing Sydney 2031; • Draft West Central and South West Subregional Strategies; and • Relevant Development Control Plans (DCPs) and justification for any inconsistencies; and • Justification for the proposed site layout, considering the environmental constraints and suitability of the site.	• Section 4 – Planning Framework • Section 8.2– Justification for Proposal
Planning Agreement/Developer Contributions	• Demonstration that satisfactory arrangements have been or would be made to provide or contribute to the provision of the necessary local and regional infrastructure required to support the development.	• Section 4 – Planning Framework
Transport	• Details of all traffic and transport types and volumes likely to be generated during construction and operation, including a description of haul routes; • An assessment of predicted impacts of this traffic on the safety and the capacity of the surrounding road network and	• Section 6.6 • Appendix J – Traffic and Transport Impact Assessment

Key Issue	Requirements	EIS reference
	access points, current traffic counts and modelling of key intersections including Milner Drive and Old Wallgrove Road; • Details of proposed site access, including detailed consideration of various access options, justification for the proposed location of the main access points and compliance with Australian Standards; • Plans of any road upgrades or new roads required for the development; • A discussion of any interactions between the proposed local internal roads and the preferred alignment for the Southern Link Road Network (as identified in the plan exhibited as part of the WSEA SEPP amendment late 2014) having regard to clause 26 of the WSEA SEPP; and • Detailed plans of the proposed layout of the internal road network and parking on site in accordance with the relevant Australian Standards.	
Urban Design and Visual	• Layout of the development including staging, site coverage, lot sizes, setbacks, proposed open space and landscaped areas; • Suitable landscaping incorporating endemic species; • Details of controls for building heights and design setbacks, floor space ratio, stormwater management and drainage, flooding, access and parking, landscaping, waste removal and storage and energy and water efficiency/conservation requirements; • Outline and justify any inconsistencies with existing precinct plans or other DCPs applicable to the locality; and • Provide a visual impact assessment (including photomontages and perspectives) of the development layout and design (buildings and storage areas) including height, colour, scale, building materials and finishes, signage and	• Section 6.2 • Appendix H – Urban Design Report • Appendix Y– Visual Impact Assessment

Key Issue	Requirements	EIS reference
	lighting, having regard to surrounding residential receivers and clause 23 of the WSEA SEPP particularly in terms of potential impacts on: – nearby public and private receivers; and – significant vantage points of the broader public domain including Greenaway Place in Horsley Park.	
Soils and Water	• A detailed description of all potential impacts on the watercourses/riparian land (including watercourse realignments), existing riparian vegetation and the rehabilitation of riparian land, including a draft vegetation management plan; • A detailed and consolidated site water balance; • Assessment of potential impacts on surface and groundwater sources (quality and quantity), soil (including contamination, salinity and acid sulphate soil), • Related infrastructure, watercourses, riparian land and measures proposed to reduce and mitigate those impacts; • Describe surface and stormwater management measures designed in accordance with Water Sensitive Urban Design principles, including on-site detention, measures to treat or reuse water, and proposed and uses of potable and non-potable waters; • Full technical details and data of all surface and groundwater modelling; • Proposed surface and groundwater monitoring activities and methodologies; • Assessment of any potential cumulative impacts on water resources, and any proposed options to manage those impacts; • Description of proposed erosion and sediment controls during construction and operation; and	• Section 3 – Proposal Description • Section 6.7– Other Issues Assessment • Appendix I – Civil Engineering Report • Appendix S – Geotechnical and Soils Assessments • Appendix L – Riparian Lands Report • Appendix E – Civil Plans

Key Issue	Requirements	EIS reference
	• Proposed cut and fill works associated with the development, and measures to minimise the extent of cut and fill.	
Flooding	• A detailed hydrological and hydraulic assessment, which includes the following: a comprehensive assessment of the impact of flooding on the development for the full range of flood events up to the probable maximum flood. This assessment should address any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effects of climate change, sea level rise and an increase in rainfall intensity; • Assessment of the impact of the development on flood behaviour (i.e., levels, velocities and duration of flooding) and on adjacent, downstream and upstream areas; • Detail proposed floor levels for all proposed habitable structures on the site having considered the full range of flood events up to the probable maximum flood; and • Detail an emergency response plan for the site, which includes consideration of a flood-free access to or from the development site in extreme flood events.	• Section 6.7 – Other Issues Assessment • Appendix O – Flood Impact Assessment • Appendix I – Civil Engineering Report
Infrastructure Requirements	• A detailed written and/or geographical description of infrastructure required on the site; - • Identification of any infrastructure upgrades required off-site to facilitate the development, and describe any arrangements to ensure that the upgrades will be implemented in a timely manner and maintained; • An infrastructure delivery and staging plan, including a description of how infrastructure on and off-site will be co-ordinated and funded to ensure it is in place prior to the commencement of construction; and	• Section 3 – Proposal Description • Appendix E– Civil Plans • Appendix I – Civil Engineering Report • Appendix J – Traffic and Transport Impact Assessment • Section 6 - Assessment

Key Issue	Requirements	EIS reference
	• An assessment of the impacts of the development (construction and operation) on existing infrastructure surrounding the site.	
Noise	• Description of all potential noise sources, including construction, operational, and on and off-site traffic noise; • A noise impact assessment, including cumulative noise in accordance with relevant Environment Protection Authority guidelines; and • Details of noise mitigation, management and monitoring measures.	• Section 6.4 • Appendix T – Noise Impact Assessment
Air Quality and Odour	• An assessment of the potential air quality impacts (particularly dust) of the development on surrounding receivers, including from construction, operation and transport; • An assessment of the potential odour impacts; and • Details of the proposed mitigation, management and monitoring measures.	• Section 6.7 • Appendix U – Air Quality Impact Assessment
Biodiversity	• Assessment and documentation of biodiversity impacts, including on groundwater dependent ecosystems, related to the development in accordance with the NSW Biodiversity Offsets Policy for Major Projects (2014) and the Framework for Biodiversity Assessment, in accordance with section 1a2B(1)(c) of the Threatened Species Conservation Act 1995. • Assessment and documentation on matters of national significance (MNES) identified Department of Environment and Energy (DoEE) referral and determination dated 31 August 2017 that the proposed development constituted a 'controlled action' under the *Environmental Protection and Biodiversity Conservation Act 1999* (*EPBC Act)*	• Section 6.3 • Section 6.4 • Appendix K & Appendix N – Biodiversity Impact Assessment and Biodiversity Offset Strategy • Appendix AA – Supplementary EPBC Assessment.

Key Issue	Requirements	EIS reference
Aboriginal Cultural Heritage	• Aboriginal cultural heritage in accordance with the relevant OEH guidelines. Any impacts on Aboriginal cultural heritage as a result of the development must be adequately mitigated; • Where it is likely that the development will impact upon Aboriginal cultural heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts, and management and mitigation measures; and • Describe any actions that will be taken in order to avoid or mitigate impacts the development may have on Aboriginal cultural heritage.	• Section 6.7 • Appendix M – Heritage Impact Assessment
Bushfire	• Including consideration of bush fire measures as outlined in Planning for Bushfire Protection 2006, particularly asset protection zones, access and water/utilities.	• Section 2 • Appendix P– Bushfire Assessment
Greenhouse Gas and Energy Efficiency	• Including an assessment of the energy use on-site, and demonstrate the measures to be implemented to ensure the proposal is energy efficient.	• Section 6.7 • Appendix R – Energy Efficiency Report
Waste Management	• During construction and operation.	• Section 6.7 • Appendix V – Waste Management Plan
Plans and Documents	• The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents.	• Appendix F– Architectural Plans • Appendix E – Civil Plans • Appendix G – Landscape Plans
Consultation	• During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community	• Section 5.3 – Consultation • Appendix B – Detailed Consultation Table

Key Issue	Requirements	EIS reference
	groups and affected landowners. In particular, you must consult with: – Penrith City Council; – Fairfield City Council; – Blacktown City Council; – Roads and Maritime Services; – Department of Primary Industries; – Environment Protection Authority; – NSW Office of Environment and Heritage; – Rural Fire Service – Water NSW; – Sydney Water; – Transgrid; – Endeavour Energy; – AGL; and – Surrounding landowners/occupiers that may be affected by the proposal. • The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	

5.3. STAKEHOLDER CONSULTATION

An extensive and ongoing dialogue has been established between Goodman and key relevant State and local agencies and authorities with regard to the development of its lands in the WSEA. This program of consultation, undertaken over a number of years, has provided a comprehensive understanding of the key issues and requirements of these stakeholders with regard to the broader Oakdale lands. To ensure that key issues specific to the OWE are captured and addressed in the design and assessment of the proposal, Goodman has identified a number of key stakeholders and carried out consultation with these stakeholders to inform the design and development of the proposal.

Key stakeholders identified include:

- NSW Department of Planning and Environment;
- NSW Roads and Maritime Services;
- NSW Office of Water;

- WaterNSW; NSW Heritage Council;
- Endeavour Energy;
- Rural Fire Service;
- Fairfield, Blacktown & Penrith City Council;
- DPI Industries – Land;
- DPI Agricultural;
- EPA;
- OEH;
- Sydney Water;
- TransGrid; and
- Surrounding local residential and stakeholders

Table 28 summarises the issues raised by the stakeholders consulted with a more detailed account of consultation undertaken provided at Appendix B.

Table 28 – Summary of Consultation

Agency/Authority	Issues/Outcomes
Sydney Water	• Sydney Water will support the SSDA as it relates to water services subject it being aligned with the relevant Local Area Servicing Plan. • Lead in reticulation works to be provided by Goodman through Sydney Water's E-Developer Asset Creation Development process.
Water NSW	• WaterNSW owns and manages the Warragamba Pipelines located along the northern boundary of the OWE. • The proposed WNSLR will cross the pipeline and is therefore of interest to WaterNSW. • A review of the preliminary design identified that while adequate from an engineering perspective, the design was unacceptable from a continuing asset maintenance and operations perspective. • Ongoing safe and efficient access to the pipelines corridor must be maintained at all times for WaterNSW staff and contractors. It is therefore imperative that WaterNSW is closely consulted on an ongoing basis, including all stages of detailed design and construction. • Owners consent will be required for all road, bridge and associated works on WaterNSW land. • The development must not cause the stormwater flows into the pipelines corridor to increase above their current levels. • WaterNSW would prefer that the proposed retaining wall on the boundary of Precinct 2 be set back from the site boundary to

Agency/Authority	Issues/Outcomes
	allow for access to the pipelines at all times for maintenance and operation purposes. • The proposed development, including Basins 2 and 5 is located above the underground Austral gas pipeline. • Security fencing must be installed along the boundary of the OWE and fencing of the WNSLR bridge must incorporate throw screens. • The pipelines have been assessed a having state heritage significance, but are not currently listed on the State Heritage Register. The design, construction and operation of structures should prevent, or at least minimise, impacts on the heritage significance of the pipelines. • An easement or licence agreement with WaterNSW will need to be established for the road bridge across the pipelines.
Endeavour Energy	• Confirmed location of proposed future substation within the OWE.
Transgrid	• Since there are no amendments proposed since our original submission our advice remains the same .Where there are any proposed encroachments of our easements we require full detailed plans in order for our asset manager and our engineers to determine whether what is proposed is acceptable. Plans are required to be provided in 3D DXF format with an accompanying set in PDF format. Site plans and elevations will also be required that clearly identify any development proposed within immediate proximity of TransGrid's easements.
RMS	• Agreed with RMS that there would be no need to undertake a recalibration of the Aimsun BWSEA traffic model for the study area which was previously approved by DP&E. • Details of the intersection layouts for the proposed WNSLR and development site access arrangements to be updated in the traffic models based on the latest information provided by Fitzpatrick and Goodman.
NSW Department of Primary Industries	• EIS should address the boundary between the activities on the site and adjoining agricultural businesses through providing adequate setbacks and landscaping to reduce potential land use conflict. • No issues raised by Department of Industry – Lands.
NSW Office of Environment and Heritage	• OEH was unable to provide comment due to other priorities.

Agency/Authority	Issues/Outcomes
AGL	• Guy Smith had a discussions with Thomas Piovesan whereby he confirmed he's unsure why AGL was included and that Goodman confirmed it tried to consult with AGL without luck.
Penrith City Council	• Didn't have availability at the time of contact for a meeting to discuss OWE and would prefer we email draft plans and summary of the proposal • Council confirmed it may be best to meet once internal officers have had the chance to review the documentation and prior to Council making a submission on the proposal as part of the public exhibition process. • From the above, council has confirmed that no comments will be provided prior to lodgement of the SSD proposal with DoP.
Emmaus Catholic Primary and High School/Anglican High School/Retirement Village	• Key issue was construction traffic and the impact this would have on the school peak pickup and drop off times. Applicant suggested preparation of construction traffic management plan to ensure construction traffic avoids peak pick up and drop off times to avoid any conflict. • Discussed mitigation measures which would be imposed to limit acoustic impact, such as implementation of acoustic walls to limit impact on the schools and retirement village. • Visual impact would be mitigated by landscape setback and planting which would screen or reduce the appearance of bulk and scale. • Air quality impact as well as other environmental impact assessment would be undertaken as part of the assessment to ensure the proposal has acceptable impact on surrounds as far as ecology etc. • Requested potential inspection of the development in progress for students to get insight into large scale industrial / warehouse development. Further consultation was undertaken on 1 June 2017. The following was discussed at the meeting: • The updated layout and changes which have been made to OWE particularly the orientation of loading locks away from the western boundary, facing the school and village. • Staging including development timeframes and construction access. • Resolution of any conflict with school drop off/pick up with construction vehicles. • Confirmation of western boundary treatment including 40m setback and landscaping. The Landscape Package in Appendix

Agency/Authority	Issues/Outcomes
	G illustrates boundary sections to demonstrate how the visual impacts of the building have been mitigated. • Discussion in relation to services, including electricity, telecommunications, sewerage and NBN and how the connection to the site may benefit the school and village. • Discussion in relation to flooding and retention basins, particularly how the retention basins would operate to reduce any flooding to the west. • Acoustic impacts and noise wall locations as a result of the noise assessment conclusions, particularly how the noise impact has been shown to be acceptable. • Discussion relating to the installation of snake proof fencing. • Explanation of the SSD application process including potential next steps and further meetings.
Fairfield Council	• Council stated that given the significance of the function of the Southern Link Road it would still be informative (for both Council's and DPE) if the traffic study is able to provide some insights into what stage of development proposed on the OWE & OSE the SLR will need to be constructed to service future industrial development in the area. • The Traffic Assessment responds to the above query by confirming that the Western North South Link road will be able to accommodate all vehicles of OWE, without any operations reliance on the SLR. Traffic assessment undertaken on Oakdale South also confirms that there is no reliance on the SLR for operation of the fully developed facility.
Blacktown City Council	• Council confirmed at the meeting that they had no initial comments to make, but that would review the submission package and provide any comments if deemed necessary.
NSW EPA	• The proposal does not constitute a Scheduled Activity under Schedule1 of the Protection of the Environment Operations Act 1997 (POEO Act). The EPA does not consider that the proposal will require an EPL under the POEO Act. • The EPA has no comments regarding the proposal.
NSW Heritage Office	• The EIS should further scrutinise whether there are any listed or potential heritage items within the proposed project area. If any listed or potential heritage items are likely to be affected, a Heritage Impact Assessment (HIA) must be prepared by a suitably qualified and experienced heritage consultant as part of the EIS. The HIA should assess how the development would

Agency/Authority	Issues/Outcomes
	impact on any places of heritage significance in or surrounding the SSD site. • A historical archaeological assessment should be prepared by a suitably qualified historical archaeologist in accordance with the Heritage Division, Office of Environment and Heritage Guidelines 'Assessing Significance for Historical Archaeological Sites and 'Relics' 2009. This assessment should identify what relics, if any, are likely to be present, assess their significance and consider the impacts from the proposal on this potential resource. • The EIS should identify any impacts on places, items or relics of significance to Aboriginal people. • Key Issues should include an assessment of any aboriginal and non-aboriginal archaeological impacts, including any impacts on the overall archaeology of the site. It should outline any proposed management and conservation measures to protect and preserve archaeology.
NSW Rural Fire Service	• RFS stated: A number of the proposed buildings are noted as being located in the Flame Zone on eastern and western edges of the site. These also do not appear to incorporate perimeter access roads / internal driveways between the building and the hazard. At a planning stage, the NSW RFS seeks to avoid development located within the Flame Zone and the provision of roads (such as internal driveways in instances such as these) around the perimeter of the development. Given the nature of the existing bush fire hazard, this may not be a significant issue for the sites at the western edge of the site, however should be considered with regard to development abutting the future riparian corridor at the eastern end of the site. • The above comments have been considered and the bushfire consultant has confirmed: "…all buildings are to be setback from the boundary to provide perimeter access for fire appliances. The plans indicate this. The eastern aspect has a managed Easement and the buildings will NOT be exposed to flame contact – except for Precinct 5 which clearly shows a defendable space and therefore perimeter access."
Edmond David 20 Aldington Road, Kemps Creek NSW 2178	**29 November 2016 meeting** • The two primary issues of noise and visual impacts were raised. • While the noise assessment of the proposal was incomplete by the time of the meeting, the visual impacts of the proposal on 20 Aldington Road was discussed.

Agency/Authority	Issues/Outcomes

	• Mr Davis stated that he was concerned about a warehouse being immediately adjacent to his property but acknowledged that the warehouses were set down and at a oriented in such a way as to reduce unacceptable visual impact. He felt the outcome was generally acceptable from a visual perspective.
	• Mr Davis asked about future rezoning opportunity of his property.
	
	2 February meeting
	• Since the last meeting, the noise assessment for the proposal had been completed.
	• Explained the methodology of the noise assessment including the acoustic contours and the impacts on surrounding properties.
	• Confirmed that while the assessment showed acceptable noise impact on 20 Aldington Road during neutral weather conditions, with noise barriers, there was exceedance during adverse weather conditions by around 5dBA.
	• While the acoustic walls would mitigate the acoustic impact to the site, the topography of the site reduced the effectiveness of the walls where located below 20 Aldington Road, which is located on a ridge.
	• Two options to mitigate noise exceedance was discussed including:
	  ○ Landscape bund and noise wall at the boundary between 20 Aldington Road and the site, however this would have visual implications in that distance views of the Blue Mountains would be compromised.
	  ○ Introduction of double glazing at the 20 Aldington Road dwelling
	• Mr David suggested he would prefer the views to not be compromised with the construction of the bund / wall at the property boundary, but agrees that double glazing would be good option.
	• It was agreed that double glazing could be included at 20 Aldington Road from the, but an option to be conditioned for Goodman to construct the bund and noise wall on the property boundary at a later stage if so required by Mr Davis (or owner / resident of 20 Aldington Road).

Agency/Authority	Issues/Outcomes
Jack Perica 23 Aldington Road, Kemps Creek NSW 2178	• Meeting held with Mr Perica at his 23 Aldington Road property. The following was discussed: • Layout of the OWE proposal and identified Mr Perica's property relative to the site. • Identified access to OWE during construction and operation, particularly that initial access for earthwork construction prior to the Western North South Link Road (WNSLR) being operational, would be via Bakers Lane. Following completion of the WNSLR, all access to the site would be via this road. • The site would have passive uses resembling that of Oakdale Central and South. It would be warehouse and distribution / logistics uses. Mr Perica queries whether office or residential uses had been considered. Advised that area had been earmarked for warehouse and distribution uses. • Timing wise construction of OWE development would likely commence in 2018 and take around 10 years to complete. • As far as visual impact was concerned, the OWE site was fairly well screened from 23 Aldington Road by existing trees. No view corridors would be obstructed by the proposal, due in part to the existing screening and topography. • Mr Perica was provided with the noise OWE noise assessment and shown how 23 Aldington Road was well outside of the permissible 39dBA noise contour for neutral conditions, and shown to be on the boundary of acceptable contour during adverse weather conditions. The noise impacts on 23 Aldington Road property was therefore considered acceptable.
Klaus Brokic 25 Aldington Road, Kemps Creek NSW 2178	• Telephone call made to Klaus Brokic, owner of 25 Aldington Road, Kemps Creek, to discuss the Oakdale West application. • Klaus advised that "not in a million years would you hear from me about whatever you want to do on the site". He advised that he didn't care what we planned to do on the site and wished us luck with the development. • It was noted that his property was relatively setback from the OWE site and separated by trees etc. He said that even if we were on his boundary he wouldn't have any objection provided we didn't come onto his land. • He did query whether Goodman were likely to be expanding over Aldington Road. He was advised that the Department of Planning were currently undertaken studies for a potential future rezoning of the surrounding land but wasn't sure if / when this would occur.

Agency/Authority	Issues/Outcomes
Bill Jacobs 54 Aldington Road, Kemps Creek NSW 2178	• He advised that he reviewed the material sent to him by email of 1 November 2016 and doesn't have any issues with the application. • He did advise that there is an easement running across the Oakdale West site, one of which he has recently had extinguished. This he believed would offer Goodman the opportunity to increase its developable area. • Offered to discuss our environmental impacts of the proposal including acoustic and visual impacts on the surrounds. Bill said that a meeting would not be necessary in that he was not concerned with the proposal, particularly as his property was setback a distance from the site.

5.4. LANDOWNDER CONSENT

Landowners consent has been received for the proposal, Fitzpatrick Investment and Water NSW have been consulted with and provided land owners consent in respect to their respective land.

Legal Description	Landowner
Lot 3031 DP 1168407	Fitzpatrick Investments
Lot 6 DP 229784	WaterNSW
Lot 2 DP 84578	WaterNSW
Lot 3 DP 85393	WaterNSW
Lot 11 DP1178389	Goodman

6. ASSESSMENT

6.1. APPROACH

Preliminary risk assessment considered a range of issues in relation to the proposed development with a view to identifying:

- The degree of constraint or influence (or significance) the issue in relation to the formulation of the proposed Concept Proposal, development design, layout, operation and management.
- The effectiveness of design responses applied in the project in managing potential impacts.
- The ability to effectively manage potential impacts through mitigation measures.

The Risk Assessment process aims to guide and inform both the development design and assessment stages of the SSDA by providing an objective method and structure for the prioritisation of issues and assessment of impacts.

Early identification of issues through a risk assessment process maximises opportunities to mitigate potential impacts of development through design responses applied in the planning of the project and may avoid the need for mitigation measures to be applied in response to impact assessment. The risk assessment for the OWE proposal has been used as a tool to identify the key issues of relevance to the design and assessment stages and is based on consideration of the outcomes of site analysis, consultation and design specifications.

The risk analysis model used for the OWE SSDA is shown in **Figure 28.**

Figure 28 – Risk Assessment Process

Source: Click here to enter text.

The risk assessment undertaken with respect to the OWE proposal is detailed in Appendix Z to the EIS.

Based upon the risk assessment, the key issues with regard to the OWE proposal are considered to be:

- Visual impact
- Noise;
- Ecology; and
- Traffic and access.

These issues are considered in detail in the following sections and the likely residual impacts of the proposal are evaluated in relation to:

- The potential for the proposed development to result in impacts following the application of mitigation measures.
- The confidence and reliability with which these potential impacts can be managed or mitigated.

Other issues of relevance to the proposal are considered in Section 6 of the EIS.

6.2. VISUAL IMPACTS

A Visual Impact Assessment (VIA) has been prepared by e8urban and is included in Appendix Y (1). Clouston Associates has also undertaken a technical review of e8urban's VIA, provided in Appendix Y (2). Clouston provides a third-party impact assessment independent of the design process of the key views identified in the e8urban report.

The purpose of the VIA is to assess the potential visual impacts of the proposed Oakdale West Estate on surrounding private and public receivers, and outline appropriate strategies for mitigation. Clouston's peer review validated the conclusions made by e8urban; Clouston utilised the same view point establish by e8urban and concluded that three of the selected viewpoints will have a moderate to higher visual impact.

The VIA identifies seven potential sensitive receivers, including Emmaus Aged Care, Emmaus Catholic College and four separate residences in Bakers Lane. Based on the topographical and landscape desktop analysis of the proposed masterplan and an understanding of the surrounding land uses, a site visit was undertaken to finalise the surveyed views. Seven view locations were selected to be surveyed, predominately located west, south and east of the site. Viewpoints to the north of the site were discounted due to the presences of similar industrial and commercial land uses.

6.2.1. Key Considerations

The OWE is located within a rural context where land use is characterised by low intensity agricultural and rural residential uses.

The proposed development consists of 21 industrial buildings with varying floor plate sizes and up to approximately 14 metres in height with associated service areas, public domain and landscape. A new service road, the Southern Link Road, will dissect the site running north east to south west where it connects to Mamre Road.

6.2.2. Existing Features and Conditions

The site is bound to the north by the existing industrial development, Oakdale Central, currently accessed via Milner Ave. It is bounded to the south by existing large lot residential properties accessed form Baker Lane. The eastern boundary is shared with the approved Oakdale South employment development and Ropes Creek. A 30 metre wide transmission line easement runs along the western edge of the site. the western site boundary is formed by Emmaus Catholic College and an associated Seniors Living facility.

An analysis of terrain and existing landscape features indicates that the general visibility of the OWE development from surrounding properties would be influenced by the following:

- A ridgeline that runs north to south close to Greenway Place and associated spurs will obscure some of the site.
- A ridgeline extending through the Pazit lands to the south-east obscures views to the site from Capitol Hill Drive and the southern portions of the Pazit land.
- Avenue tree planting along the western edge of Capitol Hill Drive filters view to the site.
- Significant mature trees within the Ropes Creek riparian corridor block views to the site from the south, and south east.
- A ridgeline running north south blocks views to the site from the southern portion of Adlington Road.
- Mature trees block some views to the site from the southern residential area of Adlington Road.
- Mature trees on the western site boundary block some views to the site from Emmaus Catholic College and adjacent Emmaus Residential Aged Care facility.

6.2.3. Potential Impacts

A VIA was prepared in respect of the OWE proposal to identify and assess the potential impact of the development on the landscape character of the area and specific views to and across the site from surrounding lands. The full VIA is included at Appendix Y to the EIS and was prepared in accordance with recognised methodology.

The VIA applied a rigorous approach to the selection of viewpoints for analysis, informed by ground truthing on site. Views were selected on the basis of a series of criteria including:

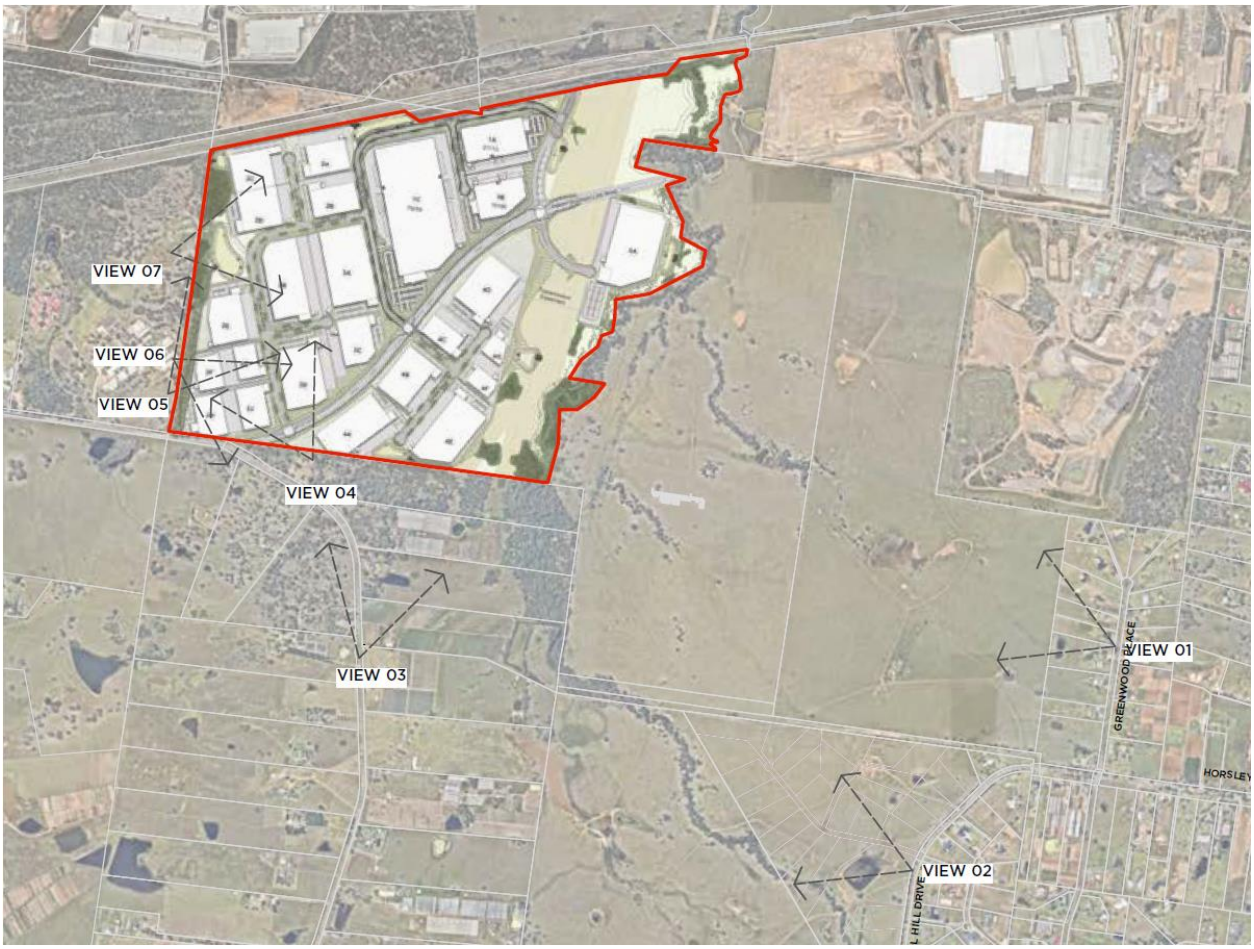
- Views where the development would be most prominent such as high points, places where the proposed development addresses public roads or zones with clear lines of sight to the proposed development.
- Views from important public domain elements such as open space or landscape corridors.
- Consideration of the location of existing approvals such as Oakdale South, Jacfin Estate and Pazit Lands along Capitol Hill Drive.

The assessment categorized the value of views and ultimately, the extent of visual impact in consideration of the presence and prominence of the following features in the fore-ground, middle-ground and far distance:

- Expanse and openness;
- The nature and extent of the horizon;
- The natural landform;
- The presence of natural environmental features such as trees, water features;
- The degree to which the landscape has been modified by human interactions such as land clearance and construction;
- The presence of buildings and structures and their relative architectural quality; and
- The relative uniqueness.

The viewpoints identified for analysis are shown in **Figure 29** and the assessed value and potential impacts on these views is summarised in **Table 29.**

Figure 29 – View Analysis



Source: e8urban

Table 29 – Potential Visual Impacts of OWE Proposal

View	Features/Value	Impacts
01 – Greenway Place (RL 99)	The view from Greenway Place is panoramic and expansive. The following elements contribute the view: • The dominant feature of the view looking west from Greenway Place being the Blue Mountains which form a consistent band on the horizon. • The land that falls away from the rear gardens of the properties on Greenwood Place is generally open agricultural and grazing land with small clusters of trees and dams. • Ropes Creek runs parallel to Greenwood Place in the middle distance and the wooded areas that define the riparian corridor on	<u>Moderate-Low Impact:</u> The location of the proposed development will potentially be visible for many of the properties along Greenway Drive, but its siting on land that is below the elevated position of the properties and private open spaces means that the development will not impact on the panoramic western outlook. Furthermore, the location of the approved Oakdale South and Jacfin developments will have the impact of screening large portions of the Oakdale West site, particularly the northern areas.

View	Features/Value	Impacts
	each side of the creek form a strong horizontal element.	
02 – Capitol Hill Drive (RL 74.5)	The view to the west from Capitol Hill Drive is panoramic and expansive, however the landscape features, in particular the undulating landscape often limits the depth of the view to the middle distance. Key elements of the view include: • Horizontal landscape elements to the east consisting of the Ropes Creek Riparian Corridor in the middle distance and the ridge of the Blue Mountains in the fast distance • Open farm land with small water bodies, dams and clusters of trees	Negligible: View analysis shows that the visibility of the OWE proposal would be minimal for much of the land between Capitol Hill Drive and the site. There would be no impact on the view from this location and the majority vantage points along Capitol Hill Drive.
03 – Aldington Road (RL 81.1)	Due to the orientation of Aldington Road the properties do not have the same potential outlook to the Blue Mountains as View 01 and View 02. Without this dominant feature framing the far distance, the middle ground of the view becomes the main visual feature. Key elements of the view include: • Horizontal landscape elements to the east consisting of the Ropes Creek riparian corridor framing the eastern portion of the view; • Open farm land with small dams and • clusters of trees; • Electricity pylons and associated transmission lines that follow the riparian corridor.	Negligible: While the eaves and roofline of the proposed OWE development would visible from this location, the layering of the middle distance landscape means that much of the development would be screened behind trees and existing buildings. Based on this analysis the visual impact from this location is minimal.
04 – Private Residence Bakers Lane (RL 89.5)	The view from the garden of this property and associated granny flat is open and expansive due to the elevated position of the property. The Blue Mountains form a consistent band along the horizon. Key elements of the view include:	High-Moderate: Due to the elevated position of the property, the outlook from the garden is above the rooflines of the proposed OWE development. Generally, the visibility of the proposed development will increase closer to the shared property boundary, however the

View	Features/Value	Impacts
	• The Blue Mountains on the horizon; • An elevated outlook across open farm land with small dams and clusters of trees; and • Clusters of mature vegetation that form an enclosure on the boundary of the property.	proposed development will not impact the key feature of the view - the expansive nature and Blue Mountains on the horizon. On this basis the visual impact is considered to be acceptable.
05 – Emmaus Catholic College (RL 76.9)	The view from the open space area at the college extends to the middle distance, with the natural topography, landscape features and existing buildings forming visual enclosures. Key elements of the view include: • A varied and rolling topography; • Clusters of mature vegetation; • Existing buildings and structures.	Moderate: Proposed buildings 2E, 2F and 2G would be visible from the open space areas in the western grounds of the school. These building are set back 40metres from the shared boundary and the proposed landscape buffer and planting would provide screening to mitigate potential visual impacts. Based on this visual assessment and production of surveyed views, in this instance while the magnitude of the change to the view can be considered high, the mitigation will reduce the visual impacts to produce an outcome that is acceptable.
06 – Emmaus Catholic College (RL 65.3)	The view is from the external access-ways to two classrooms on the College's western boundary. The view is framed by the existing classroom. Key elements of the view include: • A varied and rolling topography; and • Clusters of mature vegetation.	High-Moderate: The view point is close to the shared boundary and the framing of the view from existing buildings provides a degree of visual enclosure. The photo-montages show that unless mitigated the new development would be highly visible and be a dominant visual feature. The photomontages show different stages of plant growth at 1, 5, 10 and 15 years. Therefore, key to mitigating this visual impact is the formation of the bunding which runs parallel to the shared boundary and almost completely obscures the new development through a mixture of planting and landforms. While the magnitude of the visual impacts can be considered to be high, the screening will mitigate a significant change in character provided that the planting and landforms achieve a naturalistic outcome.

View	Features/Value	Impacts
07 – Seniors Living Development	The view from the open space area at the retirement village extends to the middle distance, with the existing mature vegetation creating a visual enclosure. The landscape is generally flat in this location. Key elements of the view include clusters of mature vegetation.	Moderate-Low: Buildings 2C and 2D within the OWE Concept Proposal would be visible from the view location point, with the building set back a minimum of 60 metres from the shared boundary. Analysis shows that the existing vegetation on the site boundary would provide significant screening to the proposed OWE development, and the proposed landscape treatment would further mitigate potential visual impacts. The outcome from this viewpoint is considered to be acceptable from a visual perspective.

6.2.4. Mitigation and Management

e8urban conclude that based on this visual assessment of the Surveyed Views and character analysis of the local context, the proposed development is not considered to be incompatible with the height, scale, siting and character of the immediate rural context. Further, the proposed would not detract from the character of the locality or unduly impact the quality of views from the existing private and public receivers that have been considered in this study.

In order to further soften any potential visual impacts it is recommended that a site-specific colour pallet be prepared for the elevations of buildings that are visible from neighbouring land holding, in particular those with non-employment related land use.

The Colour Pallet in Appendices B of the e8urban's assessment demonstrates how sampling of colours from the existing context and landscape could be incorporated into the design of the new development on the Oakdale West Estate to integrate new development within the surrounding landscape character.

Clouston outlines the following mitigation measures, which are in proposed:

- The existing vegetation on the eastern, southern and western boundary assists filtering views to the proposed buildings.
- Due to the proposed reduced ground level of much of the ridge topography of the development and the elevated position of the dwelling near the southern boundary, the visual impact of the development will inherently be reduced.
- The proposed building heights and the orientation has been taken into account.
- Buildings have been oriented to minimise visual impacts.
- A 40-metre planted buffer zone permits mitigation through extensive tree planting.

Consultation was undertaken with Emmaus Catholic Primary & High School /Retirement Village; who advised visual impact was a concern. Goodman have committed to providing a landscaped setback and planting along the western boundary of the OWE site to screen and reduce the appearance of bulk and scale. This landscaping will be provided in stage 1.

6.2.5. Conclusions and Recommendations

The areas with greatest potential or visual impact as a result of the Oakdale West development are to the south and west of the site. The analysis of Views 04, 05, 06 and 07 address these potential impacts.

However, the mitigation measures proposed will reduce these impacts to a moderate to lower range, by filtering views to the proposed building.

The following key measures are proposed for the western interface treatment:

- Early commencement of 40m landscape buffer works as part of the initial stage of works
- Extensive planting with a mix of low, medium and high level plant
- Retention of existing vegetation where possible
- Construction of an 1:4 earthen bund for the southern portion of the western boundary for the areas which are more likely to be visually exposed until the landscaping becomes more established
- Implementation of a landscape maintenance and management regime to ensure the planting successfully establishes and thrives
- Orientation of active faces of warehouses away from the western façade
- Selection of colours for the western façade of the buildings fronting the western boundary which are of a complementary palette to the existing landscape colours

This provides a comprehensive suite of measures to effectively mitigate the impact of the proposed development on the adjacent occupiers

Based on this visual assessment of the Surveyed Views and character analysis of the local context, the proposed development is not considered to be incompatible with the height, scale, siting and character of the immediate rural context.

The proposal will not detract from the character of the locality or unduly impact the quality of views from the existing private and public receivers that have been considered in this study.

6.3. ECOLOGY

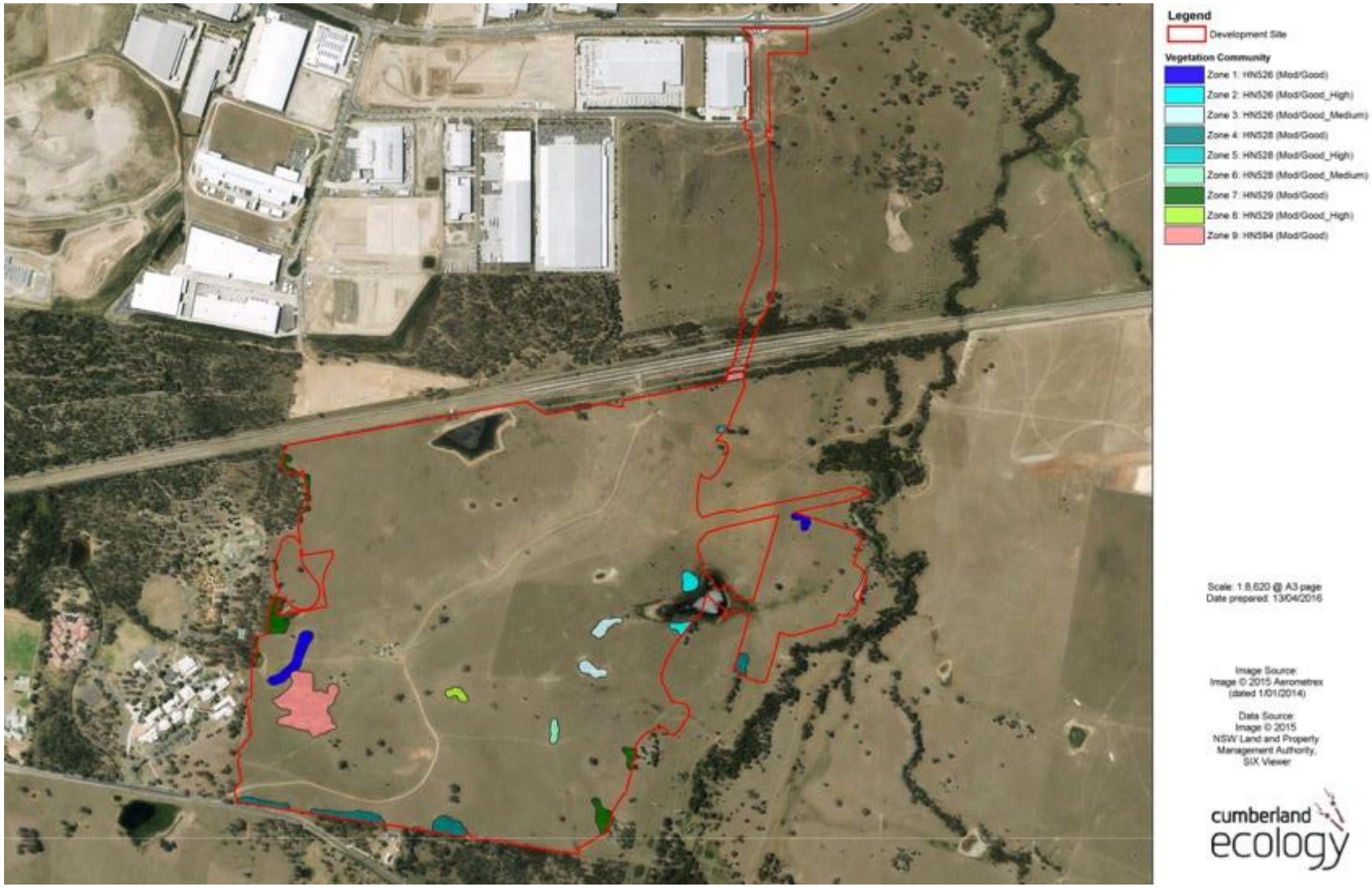
6.3.1. Overview of Potential Impacts

The OWE is largely cleared of native vegetation with approximately 96% of the vegetated cover on the site cleared. The remaining 4% vegetated cover on the site is limited to small remnant patches and sparsely scattered trees through the paddocks. There are also areas of regenerating woodland connecting to larger patches of woodland to the west and south of the site.

The condition of vegetation across the OWE is degraded due to persistent impacts from grazing even within areas of native vegetation; the ground layer is frequently dominated by exotic species, and the shrub layer is almost absent.

Some of the remnant native vegetation on the site has been assessed as being associated with three Threatened Ecological Communities (TECs) listed under the TSC Act and one Critically Endangered Ecological Community (CEEC) listed under the EPBC Act. These are considered in **Table 30** The extent of the TSC Act and EPBC Act listed communities is shown in **Figure 30.**

Figure 30 – Vegetation Communities



Source: Cumberland Ecology

Table 30 – Threatened and Endangered Ecological Communities at OWE

PCT	Corresponding TEC (TSC Act)	Corresponding CEEC (EPBC Act)
HN526 Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered) (1.03 ha).	N/A
HN528 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered) (0.97 ha).	Cumberland Plain Shale Woodland and Shale-Gravel Transition Forest (zone 4 - 0.8 ha).
HN529 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered) (0.95 ha).	Cumberland Plain Shale Woodland and Shale-Gravel Transition Forest (zone 7 – 0.83 ha).
HN594 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered) (zone 9 – 1.6 ha).	N/A

One groundwater dependent ecosystem (GDE) was identified within the development site as Cumberland River Flat Forest, which corresponds to two PCTs: HN526 Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin; and HN594 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion.

The proposed development would result in the clearing of a total of 5.07ha of native vegetation.

6.3.2. Potential Impacts

The potential impacts of the proposed OWE development on flora and fauna are considered in the table below.

Issue	Considerations	Potential Impact
OWE Concept Proposal		
Native Vegetation	• Only 4% of the vegetation existing on the OWE is native vegetation. • Native vegetation is primarily limited to intact woodland on the eastern edge of the development site.	• The OWE development would have a direct impact upon 5.58ha of native vegetation.
Threatened Ecological	• Vegetation on the site corresponds to three TECs identified under the TSC Act.	Impacted native vegetation includes three TECs, as mapped in Figure 30, being:

Issue	Considerations	Potential Impact
Communities (TECs)	• Vegetation condition was assessed for the three TECs as Moderate to Good. • One PCT corresponds to a CEEC under the EPBC Act.	• 1.18 ha of River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions; • 2.09 ha of Cumberland Plain Woodland in the Sydney Basin Bioregion; and • 1.80 ha of Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions. Of the 5.58 ha of impacted native vegetation, 1.69 ha corresponds to the CEEC, Cumberland Plain Shale Woodland and Shale-Gravel Transition Forest, listed under the EPBC Act. A referral has been sent to the Federal Department of Environment with respect to this issue.
Threatened Flora	• Specimens of Juniper-leaved Grevillea found on the site.	• Removal of 24 individuals of the species Juniper-leaved Grevillea.
Threatened Fauna	• The condition and nature of potential fauna habitat on the site has been significantly altered by existing and historic land use. • Some habitat value remains on the site for resident and visiting fauna. • Much of the fauna habitat impact would occur in the area of vegetation clearing described above.	• No species credit fauna species or populations would be directly impacted. • The OWE development would have a direct impact upon 7.84 ha of terrestrial fauna habitat comprising remnant forest and woodland, and 2.77 ha of farm dams. • The proposal would result in the removal of some fauna habitat features from the site including understorey vegetation, fallen logs, hollow bearing trees and ephemeral drainage lines.
Groundwater Dependent Ecosystems (GDEs)	• One GDE was identified on the site – Cumberland River Flat Forest (comprised of PCTs HN526 and HN594).	• The proposal would result in the removal of this GDE.

Issue	Considerations	Potential Impact
Stage 1 Development		
Native Vegetation	• Native vegetation outside of identified BOA on the site would be cleared as part of the proposed Stage 1 development.	• A total of 5.07 ha of native vegetation would be cleared in stages.
Threatened EECs	• As noted above.	• Threatened EECs would be cleared in stages as described above.
Threatened Flora	• As noted above.	• No impact.
Threatened Fauna	• As noted above.	• Clearing of vegetation would remove potential fauna habitat described above.
Western North-South Link Road		
Native Vegetation	• One small patch of planted native vegetation exists within parts of the proposed North South Link Road contained within the development site and continues northwards into Fitzpatrick lands.	• This vegetation has been planted as tubestock and comprises immature vegetation dominated by juvenile trees and will be removed.
Threatened EECs	• Nil	• Nil
Threatened Flora	• Nil	• Nil
Threatened Fauna	• Nil	• Nil

6.3.3. Mitigation and Management

The approach to mitigation and management of flora and fauna impacts for the OWE development comprises two key elements including:

- Avoidance;
- Offsets – Areas of native vegetation to be retained on the site in perpetuity in accordance with the NSW Biodiversity Offsets Policy for Major Projects (BOP); and
- Rehabilitation and Maintenance – Measures to restore and improve the condition of retained areas of vegetation; and manage the biodiversity values of the site into the future.

Avoidance

In accordance with the requirements of the FBA, measures to avoid impact on significant vegetation and ecological communities should be incorporated into development proposals as far as practicable to minimise impacts. Avoidance measures adopted in the OWE proposal to minimise the ecological impacts of the development include:

- The site is largely cleared of vegetation due to previous farming activities therefore development will not require extensive clearing.

- Some 95% of the remaining vegetation on the site comprises revegetation areas or exotic low diversity grassland. Remaining small patches of woodland are unlikely to provide habitat for endangered species due to their fragmentation, isolation and considerable edge effect.
- While the remaining 4% of vegetation includes EECs or CEECs, these are mostly remnant patches of fragmented, degraded and/or isolated vegetation. It is unlikely that the impacted areas of EECs or CEECs would be viable in the future if left in their current state.
- Whilst there were some threatened flora species identified within the proposed WNSLR corridor, no threatened flora or fauna species were found within the OWE during surveys.
- There are no areas of critical habitat within the OWE or WNSLR corridor.
- There is no record available of any state significant biodiversity links within or adjacent to the site, therefore the proposal would not impact on these.
- There are no 4th order or higher streams within the site, nor are there wetlands or estuaries that would be impacted by the development.
- Potential impacts of the proposed development on waterways and riparian areas are minimized by the construction of a series of bio-retention basins, swales and stormwater management measures to control water quality during construction and operation. Adverse impacts on streams, rivers, wetlands or estuaries are therefore avoided through the incorporation of these measures.

Biodiversity Offsets

The requirement for offsets as a part of the OWE development was assessed and determined in accordance with the NSW BOP. The policy requires that offsets be provided for unavoidable impacts on certain significant vegetation, including the following in relation to the OWE development:

- Removal of 0.8 ha of HU526 River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions EEC.
- Removal of 1.60 ha of HU594 Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions EEC.

The offset requirements for the above impacts were calculated using the BBCC as shown in Table 31.

Table 31 – Calculation of Biodiversity Offsets

Zone	PCT	Tecs/Ecosystem Credit Species	Loss in Landscape Value	Loss in Site Value	Required Credits
1	HN526: Forest Red Gum - Rough-barked Apple grass woodland on alluvial flats of Cumberland Plain, Sydney Basin	River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast Sydney Basin and South East Corner Bioregions Masked Owl	12.80	28.65	13
2	HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland	River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions	12.80	28.65	7

Zone	PCT	Tecs/Ecosystem Credit Species	Loss in Landscape Value	Loss in Site Value	Required Credits
	Plain, Sydney Basin.	Yellow-bellied Sheath tail Bat.			
3	HN526: Forest Red Gum-Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions Yellow-bellied Sheath-tail Bat.	12.80	28.65	9
4	Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion Barking Owl	12.80	53.86	41
5	Grey Box – Forest Red Gum grassing woodland flat of the Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion Yellow-bellied Sheath-tail Bat.	12.80	53.86	2
6	Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion Yellow-bellied Sheath-tail Bat.	12.80	53.86	5
7	Grey Box 0 Forest Red Gum grassy woodland on shale of the southern Cumberland Plan, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion Barking Owl	12.80	39.86	56
8	Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain,	Cumberland Plain Woodland in the Sydney Basin Bioregion	12.80	39.86	4

Zone	PCT Sydney Basin Bioregion	Tecs/Ecosystem Credit Species Yellow-bellied Sheathtail-bat	Loss in Landscape Value	Loss in Site Value	Required Credits
9	HN594: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion.	Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions Masked Owl	12.80	65.22	94
				TOTAL	231

To address the credits required to offset the proposed OWE development, a 'Biodiversity Offset Area' (BOA) is proposed to be established in relation to the impacts on the HU526 and HU594 EECs. The OWE BOA is 21.02 ha in size, and is located immediately adjacent to the development site.

Credit balance of the project shown in Table 32 below. There are remaining deficits in credits for HN526, HN529 and HN594 impacted by the Oakdale West Estate project. It is likely that a surplus of credits at the Oakdale South Offset Site as described in the Oakdale South BOS (Cumberland Ecology, 2016b) and shown in Table 32 will be utilised. Table 33 shows the total combined credit balance remaining.

Table 32 Credit Balance for Ecosystem Credits at Oakdale West Offset Site

PCT	Area of Impact	Ecosystem Credits Required	Area within Offset Site	Ecosystem Credits Created	Credit Balance
Oakdale West					
HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	1.27	31	1.89	16	-15
HN528: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	1.09	48	5.09	51	+3
HN529: Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion	1.41	50	3.69	42	-8
HN594: Swamp Oak swamp forest fringing estuaries,	1.68	88	5.37	63	-25

PCT	Area of Impact	Ecosystem Credits Required	Area within Offset Site	Ecosystem Credits Created	Credit Balance
Sydney Basin Bioregion and South East Corner Bioregion					
Oakdale South					
HN526: Forest Red Gum – Roughbarked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	2.11	104	11.65	115	+11
HN528: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	0.29	12	-	n/a – credits purchased	+1#
HN594: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	1.15	42	7.27	77	+35

Table 33 – Total Combined Credit Balance Remaining

PCT Name	Oakdale South Offset Credit Balance	Oakdale West Offset Credit Balance	Total Credit Balance
HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	+11	-15	-4
HN528: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	+1#	+3	+4
HN529: Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion	0	-8	-8
HN594: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	+35	-25	+10

As the OWE is a staged development, BioBanking credits would be retired as required by the stage of earthworks; however, revegetation and management of the biobank site would commence from approval of the BioBanking Agreement. The proposed OWE BOA would be managed for biodiversity outcomes under a BioBanking Agreement which would provide security of funding and mandatory, auditable management requirements for the site in perpetuity. A BioBanking Agreement Application for the site would be sought following approval of the SSDA.

Further details on the proposed offsets for the OWE are provided in the BOS at Appendix N.

With regard to rehabilitation and management, a Biodiversity Management Plan would be prepared for the OWE as part of the broader CEMP and OEMP for the site. This plan would include measures to be implemented during the construction and operational phase of the development, including:

- Guidelines and protocols for the method of clearing;
- Relevant timing considerations;
- Fencing for delineation of vegetation to be retained;
- Measures to control sedimentation and run-off;
- Measures to control noise, dust and light spill;
- Measures to control feral pest and weed invasion;
- Establishment of nest boxes for each hollow-bearing tree removed; and
- Management of illegal dumping on the site through fencing and security measures.

6.3.4. Conclusions and Recommendations

The proposed OWE development would result in unavoidable impacts to native vegetation on the site. A BOS has been drafted to establish a commitment to offset these impacts (refer Appendix N). The BOS has been prepared in accordance with the BOP and the requirements to offset as specified in the FBA (OEH 2014b).

Alongside the BOS, the OWE proposal includes the development of a BMP to minimise impacts to biodiversity during the construction and operation of the development.

Subject to the implementation of the mitigation and management measures described, the impacts of the proposal on flora and fauna would be maintained at acceptable levels.

6.4. ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATON ACT 1999

The OWE SSD was referred to the Commonwealth Department of the Environment and Energy (DoEE) by the NSW Department of Planning and Environment as part of the pre-exhibition “Test of Adequacy” process. Having reviewed the submitted EIS and accompanying appendices, the DoEE determined on 31 August 2017 that the OWE – Commercial Development was a ‘controlled action’ as it will impact on upon the following matters of national environmental significance (MNES) that are protected under the *EPBC Act*.

- *Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest – Critically Endangered*
- *Regent Honeyeater (Anthochaera phrygia) – Critically Endangered*
- *Swift Parrot (Lathamus discolor) – Critically Endangered*
- *Green and Golden Bell Frog (Litoria aurea) – Vulnerable*
- *Prickly Bush-pea (Pultenaea parviflora) – Vulnerable*

Following this determination by the DoEE, the DP&E issued revised SEARs which included *Guidelines for preparing Assessment Documentation relevant to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).*

Cumberland Ecology has identified that the previous ecological documents were undertaken in accordance with the NSW Framework for Biodiversity Assessment, and includes a Biodiversity Assessment Report (BAR) and the Biodiversity Offset Strategy (BOS), this assessment is discussed in Section 6.3 of the EIS.

In response to the revised SEARs further assessment of the OWE under the EPBC has been undertaken in accordance with the NSW Assessment Bilateral Agreement 2015. Whilst the requirements of the EPBC have been addressed within the BAR and BOS Cumberland Ecology has provided additional assessment for the five MNES species/communities to ensure that the assessment requirements under the EPBC Act are met.

The EPBC has been addressed in the following supplementary assessments prepared by Cumberland Ecology and included at **Appendix AA.**

- *Consistency of Ecological Documents prepared under FBA (BAR and BOS) with Ecological documentation required under EPBC Act for MNES;*
- *Addendum Ecological Assessment of Controlled Action Species and Communities and MNES including a 'Likelihood of listed Threatened Flora and Fauna Species under the EPBC Act;*
- *Updated Figures showing the locations of native vegetation and MNES;*
- *Information in relation to the environmental record of the person proposing to take action as prescribed in Schedule 4 Clause 6 of the EPBC Regulations 2000.*

In terms of the impact assessment on the identified MNES, Cumberland Ecology has discussed the potential impacts of the proposed development as well undertaken assessments of significance according to the EPBC Act Criteria and Significant Impact Guidelines (DOE, 2013). Reference should be made to the above documents for a detailed assessment of the likely impacts of the OWE SSD on the MNES identified by the DoEE as protected under the EPBC Act. A summary of the findings in relation to each MNES identified by the DoEE is provided in **Table 34**.

Table 34 – MNES Impact Summary

Matter of National Environmental Significance	Impact Assessment
Cumberland Plain Shale Woodland and Shale-Gravel Transition Forest (CPW) – Critically Endangered	As assessed within the Framework Biodiversity Assessment (FBA) in Section 6.4 and **Appendix K.** Direct impacts on CPW are known and irreversible. As all CPW within the development site is to be removed (namely HN528 and HN529) no indirect impacts will occur. The residual impacts are to be compensated by the establishment of an offset site adjacent to the development site. The FBA assessments have determined that the 'like-for-like' credits generated at the offset site fully meet the credit requirement for the removal of HN528 and HN529.
Regent Honeyeater (Anthochaera phrygia) – Critically Endangered;	No significant impact
Swift Parrot (Lathamus discolor) – Critically Endangered;	No significant impact
Green and Golden Bell Frog (Litoria aurea) – Vulnerable;	No significant impact
Prickly Bush-pea (Pultenaea parviflora) – Vulnerable.	No Significant impact.

Having regard to the above and assessment in **Appendix AA** it is considered that the proposal has adequately assessed the identified MNES identified by the DoEE in accordance with the matters specified in Schedule 1 to the NSW Assessment Bilateral Agreement 2015 (the Agreement) and the matters outlined in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). Overall the assessments determined that significant impacts are limited to the Critically Endangered Ecological Community (CEEC) Cumberland Plain Shale Woodlands and Shale- Gravel Transition Forest (CPW). No other significant impacts have been identified to the other MNES.

The assessment sufficiently demonstrates that the proposed 'controlled action' under the EPBC should be approved by the relevant Commonwealth decision maker.

6.5. NOISE AND VIBRATION

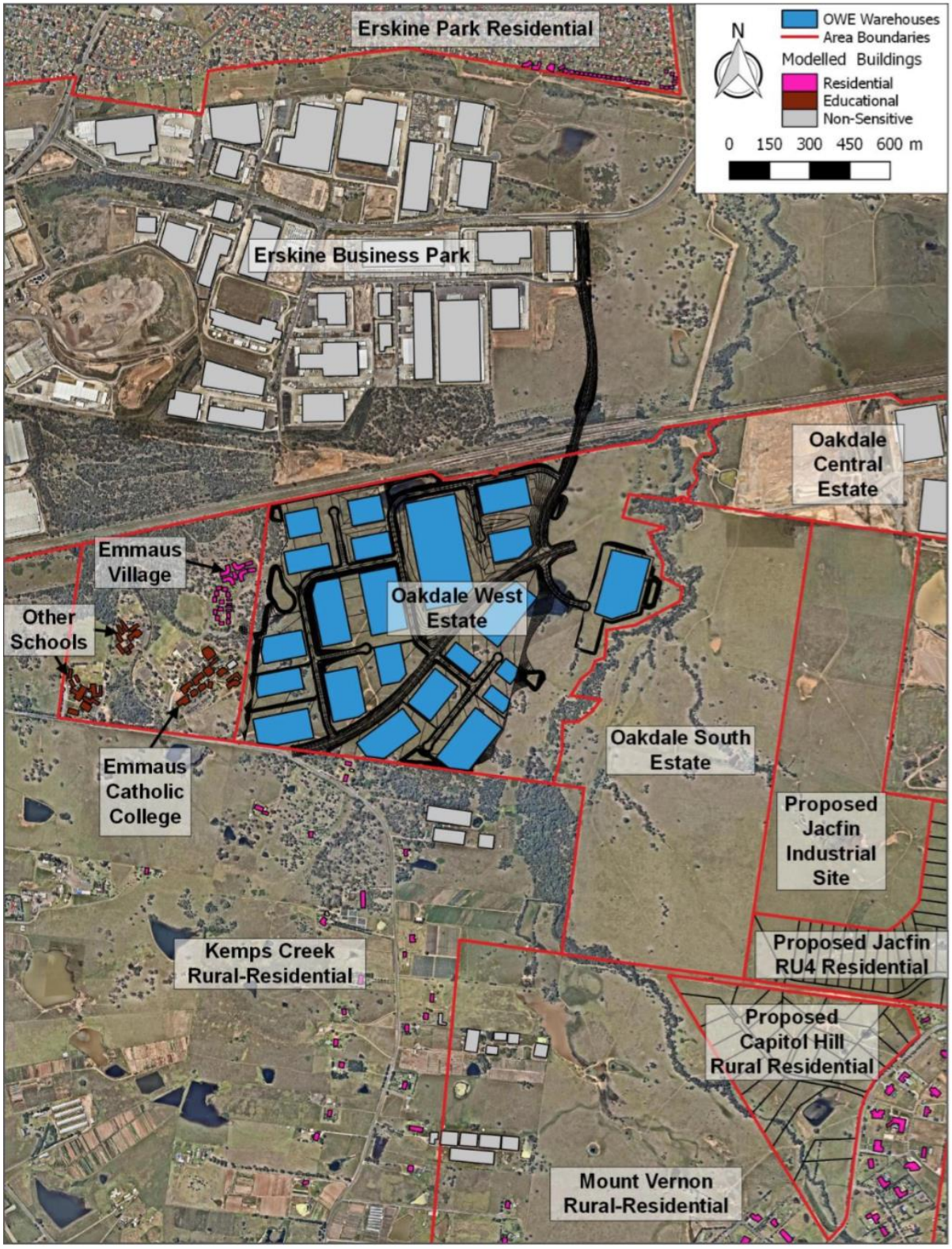
A Noise and Vibration Assessment has been prepared by SLR Consulting and is included in Appendix T. Wilkinson Murray (WM) has also undertaken a technical review of the SLR Consulting's OWE noise and vibration impact assessment and is included in Appendix T (2).

The existing ambient noise environment surrounding the development site is typical of a rural environment, with the natural environment dominating the background noise. The nearest noise and vibration sensitive receivers are:

- Residential premises that lie to the west, south, southeast and north of the OWE.
- Emmaus Village approximately 20m to the west of the OWE site boundary.
- Kemps Creek rural-residential area. The closest dwelling is approximately 20m to the south of the OWE site boundary.
- Mount Vernon and residential properties in Horsley Park, as well as the proposed Jacfin RU4 residential subdivisions and the proposed Capitol Hill residential subdivision. The closest point of these residential lands is approximately 840m to the southwest of the OWE site boundary.
- Erskine Park residential suburban areas approximately 1,500 to the north of the OWE site boundary.
- Three schools and a childcare centre situation west of the OWE site boundary.

Figure 31 illustrates sensitives and non-sensitive receivers in close proximity to OWE.

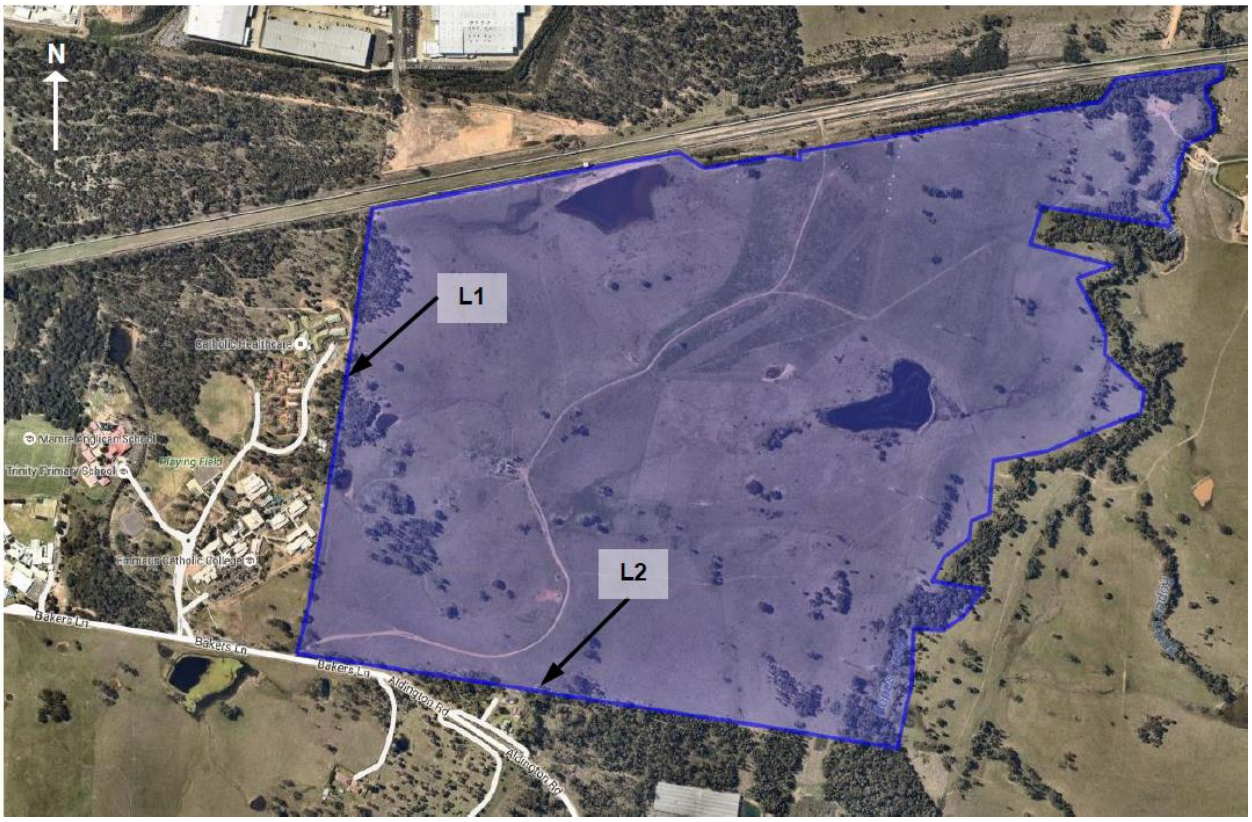
Figure 31 – Sensitive and non-sensitive noise receivers



Source: SLR

Figure 32 highlights the locations of noise monitoring locations, these were used to quantify and characteristic the existing ambient noise environment around the project site a baseline noise survey was undertake at location of the site boundaries.

Figure 32 – Noise Monitoring Locations



Source: SLR

The results of the unattended ambient noise surveys are presented in **Table 35** as the Rating Background Level (RBL) and LAeq (energy averaged) noise levels for the daytime, evening and night-time periods.

Table 35 – Summary of Unattended Noise Logging Results

Noise Monitoring Locations	Noise Level (dBA)					
	Daytime		Evening		Night-time	
	RBL	LAeq	RBL	LAeq	RBL	LAeq
L1	39	47	38	46	36	45
L2	34	45	35	42	32	41

6.5.1. Overview of Impacts

Operational Noise Impacts

During the operational stage of the development it is predicted that noise emissions from onsite vehicle movements will be below the intrusive LAeq(15minute) noise criteria at residential receivers in Mount Vernon, Horsley Park, Erskine Park and the proposed Jacfin and Capitol Hill subdivisions under neutral weather conditions. However, noise levels are predicted to be up to 4 dB and 1 dB above the intrusive noise criteria during the evening and night-time periods at the most-affected receivers in Emmaus Village and Kemps Creek residential areas respectively. Noise levels are predicted to be below the exterior intrusive criteria at the Emmaus Catholic College (and other schools) and surrounding commercial and industrial buildings.

Under adverse weather conditions noise emissions are predicted to exceed the nominated noise criteria during the daytime and evening periods by up to 3 dB at eight residential receivers in Emmaus Village, and by up to 7 dB at four residential receivers in Kemps Creek. During the night-time period noise emissions are predicted to exceed the criteria by up to 3 dB at three residential receivers in Kemps Creek

It is predicted that the noise emissions from onsite vehicle movements with the inclusion of the indicative noise barriers will be below the intrusive LAeq(15minute) noise criteria for all residential, educational and commercial receivers under neutral weather conditions. Minor exceedances are predicted at the most-affected receivers in Emmaus Village and Kemps Creek residential area under adverse weather conditions.

While the worst-case peak-hour vehicle movements may occur across the development when the OWE is fully operational, it is unlikely that maximum peak 15-minute vehicle movements would occur simultaneously in every precinct of the OWE as it is the worst case proportionate 15 minute component of the hourly peak. Additionally, for these exceedances to occur, this peak incidence of traffic volumes would need to take place simultaneously with adverse weather conditions.

Construction Noise

During standard construction hours, exceedance of the NMLs of up to 16 dB and 32 dB are predicted at the most affected residential receivers in Emmaus Village and immediately to the south of the OWE in Kemps Creek respectively. Exceedance of the NMLs of up to 19 dB are predicted at the most affected classrooms of Emmaus Catholic College to the west of the OWE.

Noise levels are predicted to exceed 75 dBA at one residence in Kemps Creek immediately to the south of the OWE during site clearing and earthworks. This receiver is considered to be Highly Noise Affected during this construction activity.

During Out-of-Hours Works, exceedance of the NMLs of up to 24 dB and 39 dB are predicted at the most affected residential receivers in Emmaus Village and immediately to the south of the OWE in Kemps Creek respectively.

Vibration Impacts

Vibratory rollers and plate compactors have the potential to be operated within 20 m and within the recommended safe working distances of structures in Emmaus Village, Emmaus Catholic School and immediately adjacent to the south boundary in Kemps Creek.

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

There is potential for ground vibration levels to exceed the cosmetic damage criteria and human comfort criteria depending on the duration and nature of the construction activity.

6.5.2. Management and Mitigation

Operational

Noise barriers are the most suitable mitigation measures for operational noise emissions from OWE. The indicative design that produces the largest reduction in noise at the most-affected receivers consists of a mixture of 1.8m to 5m high noise barriers. Figure 33 indicates the indicative noise barrier locations and mitigated noise contours.

After the implementation of mitigation measures the noise emissions from onsite vehicle movements with the inclusion of the indicative noise barriers are predicted to be below the intrusive LAeq(15minute) noise criteria during all periods at all residential, educational and commercial receivers under neutral weather conditions. The predicted operational noise levels for the OWE with the inclusion of the indicative noise barriers are summarised in Figure 33, the minimal exceedances are illustrated at specific locations.

Figure 33 – Predicted Operational Noise Levels – with Indicative Noise Barriers

Sensitive Receiver Area	Intrusive LAeq(15minute) Noise Criteria (dB)			Amenity LAeq(period) Noise Criteria (dB)	LAmax Noise Goals (dB)	Predicted Worst-case LAeq(15minute) Noise Levels (dB) [Number of Exceedances]						Predicted Worst-case LAeq(period) Noise Levels (dB) [Number of Exceedances]		Predicted Worst-case LAmax Noise Levels (dB) [Number of Exceedances]	
	Day	Eve	Night	Night	Sleep Disturbance	Day		Eve		Night		Night		Night	
						Neutral Weather	Adverse Weather	Neutral Weather	Adverse Weather	Neutral Weather	Adverse Weather	Neutral Weather	Adverse Weather	Neutral Weather	Adverse Weather
Emmaus Village Residential	44	43	41	36	51	Up to 37	Up to 43	Up to 37	Up to 43	Up to 32	Up to 37	< 30	Up to 32	Up to 43	Up to 47
Kemps Creek Residential	39	39	37	36	47	Up to 37	**Up to 42 [3]**	Up to 37	**Up to 42 [3]**	Up to 32	Up to 37	< 30	Up to 34	Up to 45	**Up to 49 [2]**
Mount Vernon & Horsley Park Residential	39	39	37	36	47	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Proposed Jacfin & Capitol Hill Residential	39	39	37	36	47	< 30	Up to 33	< 30	Up to 33	< 30	< 30	< 30	< 30	< 30	Up to 34
Erskine Park Residential	39	39	37	36	47	< 30	Up to 36	< 30	Up to 36	< 30	Up to 31	< 30	< 30	Up to 33	Up to 37
School classrooms	45	-	-	-	-	Up to 40	Up to 45	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Surrounding Commercial / Industrial	70	-	-	-	-	Up to 41	Up to 46	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: SLR

Noise levels are predicted to be up to 5 dB above the intrusive noise criteria during the evening and night-time periods at the most-affected receivers in Emmaus Village and Kemps Creek residential under adverse weather conditions. However, these noise impacts are based upon worst-case peak hour movements of 150 vehicles with the worst-case adverse weather during the more sensitive night-time period.

Predictions have been conservatively undertaken with consideration to neutral and adverse meteorological conditions. The assessment applies the default adverse meteorological conditions outlined by the INP, these being:

- 3 m/s source to receiver wind during the daytime and evening periods; and
- F-class temperature inversion with a 2 m/s source to receiver drainage flow during the night-time period.

The adverse wind conditions have been considered for the daytime and evening periods, however, these conditions are not known to be a feature of the site and as such the extent of the reported exceedances may be overstated. For a moderate strength temperature inversion to be considered a characteristic feature of an area, the INP nominates that such a condition should occur for approximately 30% of the total night-time during winter. This equates to approximately two nights per week.

Analysis of the 2016 data indicates that winds of up to 3 m/s did exceed the 30% threshold stipulated by the INP during the night-time period in autumn. It is noted, however, that the prevailing wind in this season is indicated to be from the SW to WSW direction and that local residents would not be downwind of the site under these conditions. Nevertheless, the inclusion of these conditions is seen as best practice. With the recommended indicative noise barriers, residual noise goal exceedances of up to 3 dB are predicted at three residential receivers in Kemps Creek, under adverse weather conditions only.

Fixed plant could have local mitigation incorporated into is design and installation.

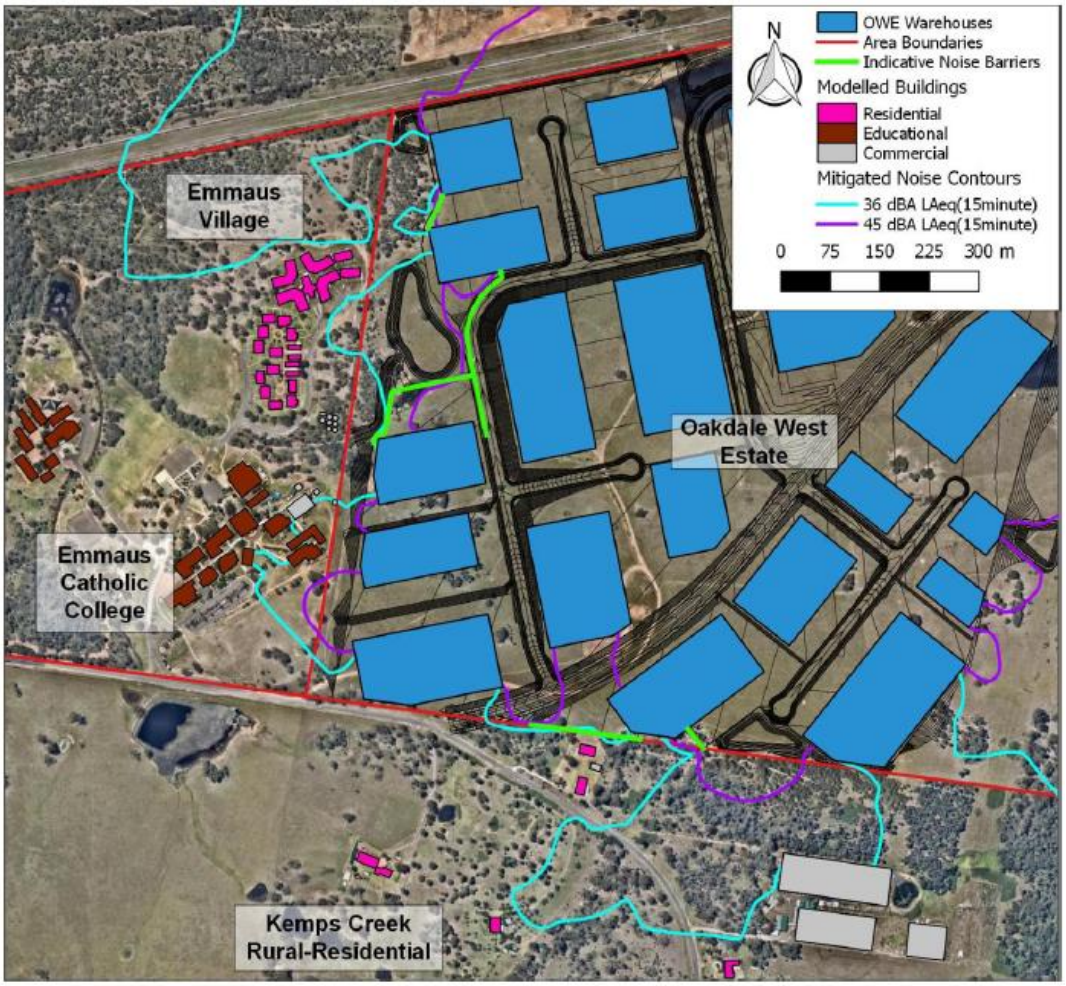
Goodman has also undertaken consultation with the owner of 20 Aldington Road, who was concerned about visual impact and noise. Two options to mitigate noise exceedance was discussed including:

1) Landscape bund and noise wall at the boundary between 20 Aldington Road and the site, however this would have visual implications in that distance views of the Blue Mountains would be compromised.
2) Introduction of double glazing at the 20 Aldington Road dwelling.

The owner advised he would prefer the views to not be compromised with the construction of the bund / wall at the property boundary, but agrees that double glazing would be good option. It was agreed that double glazing could be included at 20 Aldington Road.

The predicted exceedances are primarily due to the orientation and exposure to vehicular noise from the proposed internal road network. A number of alternative road configurations were considered however it was not possible to mitigate this as there are fixed intersection locations (both location and height) to the proposed future SLR which prevent flexibility. Given the dominant noise sources within the development are heavy vehicle movements, it is generally not considered feasible to implement source controls on the trucks as these vehicles are general privately owned and operated and would travel on proposed public roads.

Figure 34 – Indicative Noise Barrier Locations and Mitigated Operational Noise Contours.



Note 1: Noise contours are calculated at 1.5 m above local ground with neutral weather conditions.
Note 2: 36 dBA LAeq(15minute) mitigated noise contour (light blue) corresponds to residential operational noise criteria.
Note 3: 45 dBA LAeq(15minute) mitigated noise contour (purple) corresponds to educational operational noise criteria.

Source: SLR

Construction

Construction noise mitigation and management measures are discussed in Section 5.6 of the SLR Report and construction vibration mitigation and management measures are discussed in Section 5.8.6 SLR Report. These include the following measures which would be implemented where exceedances of the NMLs are predicted to ensure the noise exceedances are minimised to the fullest extent practicable:

Where reasonable and feasible, preference should be given to scheduling construction works within the standard construction hours of:

- Monday to Friday 7:00am to 6:00pm
- Saturday 8:00am to 1:00pm

Typically any OOHWs would be subject to a separate approval on a case-by-case basis.

Where construction noise levels are predicted to exceed to NMLs it is recommended that construction noise mitigation measures should be considered, where reasonable and feasible. Typical construction noise mitigation measures include the following:

- Avoiding the coincidence of noisy plant working simultaneously and in close proximity, would result in reduced noise emissions.
- Equipment which is used intermittently should be shut down when not in use.

- Where possible, equipment with directional noise emissions should be oriented away from sensitive receivers.
- Regular compliance checks on the noise emissions of all plant and machinery used for the proposal would indicate whether noise emissions from plant items were higher than predicted. This also enables early identification of defective silencing equipment on items of plant.
- Where possible, heavy vehicle movements should be limited to standard construction hours.
- Non-tonal reversing alarms should be used on all items of plants and heavy vehicles used for construction.
- Permanent noise walls should be constructed as early as practicable during the construction phase of the OWE to assist in reducing construction noise impacts.
- Where practicable, temporary acoustic hoarding should be installed as close to the noise source as feasible aiming to block direct line of sight between the receivers position and the noise source. The measure typically suits dominant single items of plant such a rock breakers, concrete saws and jackhammers where the source of noise is typically near the ground.

In terms of the predicted effectiveness of the various mitigation and management measures, this can vary widely depending on the specific situation that they are implemented. This can be affected by the distance between the source and receiver, the intervening terrain/buildings/features, the number of plant items operating in one area and their relative sound power levels, how long a plant item is operated continuously, etc. Typically, shielding the plant from the receiver may result in a reduction of 10-15 dB, halving the number of plant items (where the plant have similar SWLs) may result in a reduction of approximately 3 dB. Reduction in noise levels due to management measures are much more difficult to quantify, as discussed above. Accordingly a construction noise management plan will be prepared to the satisfaction of the Secretary prior to construction.

Vibration

Typical vibration mitigation measures include the following:

- Relocate vibration generating plant and equipment to other areas within the site in order to lower the vibration impacts.
- Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment.
- Use lower vibration generating items of plant and equipment where possible e.g. smaller capacity vibratory rollers.
- If vibration intensive works are required within the safe working distances, vibration monitoring or attended vibration trials would be undertaken to ensure that levels remain below the cosmetic damage criterion.
- Where buildings are located within the safe working distances for cosmetic damage, building condition surveys would be completed both before and after the works to identify existing damage and any damage due to the works.

6.6. TRAFFIC AND ACCESS

6.6.1. Key Considerations

A TTIA has been prepared in respect of the OWE proposal providing a review of:

- Existing and proposed future road network providing access to the regional road network.
- Historic traffic assessments relating to the regional road network, and to the key roads providing access to the wider estate and specifically OWE.
- Traffic generation characteristics of the proposed development and the results obtained from additional traffic modelling undertaken by GHD for the proposed WNSLR.

- Internal access and parking provisions.

Extensive strategic traffic and transport analysis has been undertaken over many years to inform the planning of the WSEA and these strategic studies have been considered in the assessment of the OWE. The existence of these studies do not abrogate the need for a detailed traffic and transport assessment of the OWE SSDA. Rather, it is essential to confirm that OWE will not generate traffic demands above the levels assumed in the past assessments and to ensure that the proposed WNSLR will satisfactorily accommodate projected traffic volumes. As such, the TTIA assesses the traffic generated by OWE and the design of the proposed WNSLR on the operation of existing and future intersections in the immediate vicinity of the site.

GHD has also undertaken an assessment of the Proposed Western North South Link Road for Fitzpatrick and Goodman. The report is appended to the TTIA, and examines the existing and proposed road network in the vicinity of the development site and the future operation of intersection on the proposed WNSLR. The Fitzpatrick and Oakdale West developments are forecast to be fully developed by 2026. The preliminary layouts of all intersections on WNSLR would operate well (LoS A-C) by 2026 and would have sufficient capacity to accommodate the traffic generated from the completed development of both estates.

6.6.2. Existing Features and Conditions

Road Network

The existing/proposed road network surrounding the OWE includes the following key elements:

- M7 Motorway – a major arterial road and a key part of Sydney's 'orbital' network. It provides a key north-south link, to the east of OWE, between the M2 motorway in the north and the M5 motorway to the south. A major interchange between the M7 motorway and M4 Western motorway is located 2.5 km north of OWE, which connects the Sydney CBD and western Sydney suburbs. The motorway carries four trafficable lanes within a divided carriageway and is generally subject to a 100 km/h speed limit (within proximity of OWE). It carries approximately 70,000 vehicles per day(vpd).

- Wallgrove Road – a classified road (MR 515) that runs in a north-south direction to the east of the site, parallel with the M7 Motorway. Wallgrove Road is an arterial road that runs in a north-south direction to the east of OWE and parallel to the M7 motorway. The two-lane, two-way road provides a link between Elizabeth Drive in the south and the Great Western Highway in the north. Similar to the M7 motorway, Wallgrove Road connects to the M4 motorway approximately 2.5 kilometres to the north of OWE. The posted speed limit on the road within proximity of the site is 70 km/h and the road carries approximately 30,000 vpd.

- Lenore Drive is a recently upgraded sub-arterial route providing an east-west connection linking OWR to the east and Mamre Road to the west. It provides for four lanes along a divided carriageway with a shared path along the northern side of the road.

- Old Wallgrove Road (OWR) – OWR generally runs north-south in the vicinity of the site before turning to provide an east-west connection to Wallgrove Road. It forms part of a RMS Main Road (MR 629) route between Lenore Drive and Wallgrove Road. To the south of Lenore Drive, it functions as a local collector road. The section of OWR to the east of Lenore Drive is currently being upgraded to provide a sub-arterial link to an interchange with the M7, through the M7 Business Hub and the intersection of Roberts Road. Details of the upgrade works are provided in the TTIA at Appendix J.

A number of planned roads are also located in the vicinity of the OWE, forming part of the WSEA road network. Key planned roads relevant to the OWE include:

- Southern Link Road - The Southern Link Road (SLR) network will provide the additional road infrastructure to accommodate travel demand generated by employment areas within the South of Warragamba Pipeline area. The indicative route alignment for the proposed road network was initially identified in the SEPP (WSEA) 2009 and has since been refined to the current alignment as shown in Figure 9. The SLR is not proposed as part of this application. We have yet to receive any formal advice regarding the estimated timing of delivery of the SLR however we do note that the broader traffic modelling commissioned by the DP&E indicated an assumption that the SLR would be operational by 2036. For clarity, the AECOM concept alignment for the proposed SLR corridor includes a new road which is located on the southern side of Bakers land and would require a new intersection to Mamre Road in order to be relocated away from the school.

- Western North South Link Road - The WNSLR is a proposed north-south link between Lenore Drive to the north and connecting to the SLR to the south. Until such time that the SLR is completed, the road will

provide sole access route for OWE to the wider road network. An assessment of this road link is provided in Section 5 of the Traffic and Transport Impact assessment attached at Appendix J.

Further details of planned new roads and intersections of relevance to the OWE are outlined in **Table 36.**

Table 36 – Proposed New Roads and Upgrades

Road	Description/Purpose	Status
SLR	• Proposed east-west link from Wallgrove Road and Mamre Road (potentially via Bakers Lane). • Potential for extension of OWR south to an intersection with the SLR route between Bakers Lane and Wallgrove Road or the M7 Interchange. • A connection with OWR and an Eastern North-South Link Road to join an extension of Archbold Road. • The proposed Archbold Road extension is to extend from Lenore Drive to the M4 Motorway, with the interchange between Archbold Road and the M4 Motorway	• The final alignment of the SLR and associated infrastructure are not yet finalised. • The Archbold Road extension is currently being progressed by the RMS and is expected to be delivered in 5-10 years. This extension will provide access to the M4 Motorway without the need to access either Wallgrove Road or the M7 Motorway, thereby reducing future travel times across the network.
Western North South Link Road	• A proposed north-south link between Lenore Drive to the north and connecting to the SLR to the south. Until such time that the SLR is completed, the road will provide sole access route for OWE to the wider road network.	• This road would be delivered as part of the OWE Stage 1 proposal.

Public Transport

The OWE is not currently serviced by public transport services. Improvements to public transport connectivity within the WSEA are expected to occur as development progresses and new infrastructure is delivered into the future. Future public transport services to the OWE are likely to be provided along Lenore Drive.

The recent completion of Lenore Drive provides the opportunity to extend existing bus routes which currently only extend partially into OWR from the east and Lenore Drive from the west, to be extended to OWE and the broader Oakdale Industrial Estate.

Cycling

Lenore Drive has been designed to provide appropriate cycle infrastructure, linking to the east (to the M7 cycleway) and the west (from the existing Mamre Road cycle path) with the potential for future augmentation via existing and proposed sub-regional links.

The upgrade of OWR, the delivery of the WNSLR and the construction of the OWE estate road network will include a 2.5-metre shared path for both pedestrians and cyclists. This would provide an essential link to encourage the uptake of alternative transport modes such as cycling.

End of trip facilities such as bicycle storage, lockers and shower facilities are also included in the OWE development to encourage the use of existing cycle network, reducing the reliance of employees on private vehicle travel for the journey to work.

6.6.3. Potential Impacts

OWE Estate Development

To assess the acceptability of the traffic impacts of the OWE proposal, traffic volumes projected under strategic traffic studies prepared for the WSEA were compared with specific traffic modelling undertaken based on the OWE proposal. Strategic traffic analysis prepared to inform road network planning for the WSEA assumed traffic volumes of 942 vehicles per hour for the OWE at 2036.

Traffic modelling undertaken on the basis of the proposed OWE development produced projected peak and daily traffic volumes as detailed in **Table 37.**

Table 37 – OWE Traffic Generation

Precinct	Gross Floor Area	Peak Traffic (VEH/HR)	Daily Traffic (VEH/HR)
1	118,025m^2	192	2,232
2	111,987 m^2	181	2,118
3	102,465 m^2	167	1,939
4	109,807 m^2	179	2,078
5	35,640 m^2	58	674
Total	477,924 m^2	777	9,041

Traffic modelling for the OWE proposal demonstrates that forecast peak traffic would be less than that adopted by strategic traffic studies for the area and that the planned road network is capable of adequately servicing the OWE development without adverse impacts.

Table 38 demonstrates that the performance of all intersections would operate at LOS 'C' or better during both peak periods on 2026, with satisfactory delays experienced by passing vehicles.

Table 38 – 2026 Intersection Performance

Intersection	Period	Degree of Saturation	Average Vehicle Delay (AVD)	Level of Service (LOS)
WNSLR/Lenore Drive	AM	0.83	38.1	C
	PM	0.80	27.7	B
WNSLR/Lockwood Road	AM	0.72	14.0	A
	PM	0.77	16.0	B
WNSLR/ Estate Road 1	AM	0.74	13.9	A
	PM	0.19	17.3	B
WNSLR/SLR	AM	0.80	27.5	B
	PM	0.81	34.0	C

Table 39 – 2036 Intersection Performance

Intersection	Period	Degree of Saturation	Average Vehicle Delay (AVD)	Level of Service (LOS)
WNSLR/Lenore Drive	AM	1.18	159.6	F
	PM	0.78	23.6	B
WNSLR/Lockwood Road	AM	0.87	19.1	A
	PM	0.81	17.3	B
WNSLR/ Estate Road 1	AM	0.79	15.3	B
	PM	0.87	21.0	B
WNSLR/SLR	AM	0.89	38.1	C
	PM	0.86	39.6	C

The OWE will represent approximately 35% of traffic through the WNSLR/Lenore Drive Intersection by 2036. These numbers are theoretical, however, as the numbers are adopted based on information currently available and not actual volumes as the SLR is not constructed yet.

The results of the 2036 modelled scenario (**Table 39**) demonstrate that the delays are acceptable for all intersections, with the exception of the WNSLR / Lenore Drive intersection during the morning peak. By 2036 the modelling assumes that the SLR would be operational and therefore additional through traffic outside of that generated from OWE and Fitzpatrick lands would use this intersection. The OWE contribution represents approximately 35% of traffic through this intersection. It must be noted however noted that the analysis for 2036 is theoretical at this stage particularly since design and assessment of the SLR has not been advanced by Government. As such the volumes adopted for through and regional traffic at the intersection are based on best information currently available however are not “actual” volumes.

However, the following potential upgrades to this intersection have been assessed by GHD:

- Additional right-turn storage lane (approximately 220 metres) on the west approach of Lenore Drive for eastbound traffic turning south onto WNSLR.
- Additional left-turn storage lane (approximately 110 metres) on the east approach of Lenore Drive for westbound traffic turning south onto WNSLR. This amendment will require signalisation of the dual left-turn lane, which was previously a single high-angled left-turn slip lane under priority control.

The future upgraded WNSLR/Lenore Drive will reduce the average delays by approximately 120 seconds and subsequently improving the intersection performance from a LOS ‘F’ to a ‘C’, which is acceptable. Further detail is provided in the GHD report.

Other potential traffic impacts of the OWE proposal are discussed in **Table 40.**

Table 40 – Potential Traffic and Transport Impacts

Issue	Considerations	Potential Impact/Response
Concept Proposal		
Site Access	• Alignment/integration with existing and planned external road network.	• Access to the OWE would be via connection to the proposed WNSLR which would be delivered as part of the project.

Issue	Considerations	Potential Impact/Response
	• Appropriate and timely access available to service the development.	• Future access to the planned SLR would also be facilitated through the internal estate road network. • Alignment of the WNSLR and connections to the SLR are generally consistent with current adopted alignments. • Proposed access driveways to individual warehouse buildings have been designed in accordance with the relevant requirements of AS 2890.1 and AS 2890.2. • Once the WNSLR is complete the proposal will not result in any vehicles passing the school as operational access will not be from Bakers Lane. Bakers Lane will only be utilised until the WNSLR is complete.
Sub-Regional Traffic	• Alignment with assumptions of strategic traffic and transport studies for the WSEA. • Strategic WSEA traffic assessments assumed traffic generation from the OWE of 942 vehicles/hour at 100% development.	• Traffic modelling of proposed OWE Concept Proposal indicates trip generation of 769 vehicles/hour at 100% development. • Traffic generation is therefore less than the assumed base case traffic generation assessments underpinning the planned WSEA road network. • The development of the OWE as defined by the Concept Proposal would not therefore have a detrimental impact on the future operation of key intersections and traffic flows on the surrounding road network.
Intersection Performance – Millner Avenue/OWR	• SIDRA intersection analysis used to measure future intersection performance. • Full details of SIDRA analysis provided in the TTIA at Appendix K.	• SIDRA analysis confirms that intersections would operate at a good level of service (A/B) through to 2026.
Stage 1 - Estate Works		

Issue	Considerations	Potential Impact/Response
Estate Road Design	• The OWE Estate Roads must comply with relevant Australian Standards and accommodate access by the maximum-sized vehicles, being B-doubles.	• All roadways and associated intersections have been designed to accommodate the maximum sized vehicles (B-double trucks) requiring access. • The internal road and car park design of all buildings comply with the requirements of AS2890.1 (2004) and AS 2890.2.
Construction Traffic	• Expected peak construction	• Earthworks and local infrastructure – 50 employee vehicles per day and approximately 20 construction vehicles in the initial month accessing OWE via Bakers Lane until WNSLR is constructed. • Construction of WNSLR – 30 employee vehicles per day and up to 100 construction vehicles per day (including truck and dog and 3 tonne rigid trucks), accessed from Lenore Drive • Stage 1 building works – equivalent the anticipated traffic volumes generated by the operation of the Stage 1 development, accessing OWE via the completed WNSLR.
Stage 1 – Precinct Development		
Access and Intersections	• All traffic generated within the OWE must access the intersection of Lenore Land & WNSLR Road. • Earlier WSEA traffic modelling estimated design capacity of the road network surrounding the OWE at 2021 at 356 vehicles per hour, based upon 50% completion of the estate.	• Traffic modelling demonstrates that the intersection to Lenore Lane & WNSLR will operate at a satisfactory level of service based on the proposed intersection design in 2026. • Construction access for stage 1 of the earthworks operations would be via Bakers Lane with the remainder of construction access to occur via the WNSLR once constructed. Since the earthworks operation is balanced cut to fill there would be no heavy vehicles importing or exporting material from the site. Construction traffic during stage 1 only which would

Issue	Considerations	Potential Impact/Response
		utilise Bakers land for access would therefore be limited to only the floating in of equipment (approx. 20 – 40 vehicles) and the daily arrival and departure of construction staff via light vehicles.
Traffic Generation	• Traffic generated by the proposed development of Stage 1 development was assessed with regard to the RMS Guide Update which adopts trip rates of 0.163 vehicles per 100m2 industrial GFA.	• Forecast traffic generation for the proposed Stage 1 Precinct Development is 192 vehicles/hour. • Forecast traffic generation equates to approximately 25% of the total projected traffic generation from the overall OWE.
Parking	• On-site parking provided at a minimum rate of 1 space per 300m^2 of GFA in accordance with the RMS 'Guide to Traffic Generating Development'. • Development with more than 50 car parking spaces are to provide a minimum of 2% of this parking for disabled parking, designed in accordance with AS 2890 Part 6: Off-street parking for people with disabilities.	• Stage 1 DA warehouse buildings will require a total of 394 parking spaces. In response, 636 spaces are proposed which readily satisfies this minimum requirement (based on RMS Guide rates) and forms a suitable balance between the minimum requirement and Council's nominal requirement (1,180 spaces). • Application of the proposed parking rate to the floor space proposed under the Masterplan (453,369m2 of warehouse space and 23,555m2 of ancillary office space) would result in the minimum provision of approximately 2,100 parking spaces. Nevertheless, the specific car parking provisions for each building will be considered in more detail at the relevant DA stages. • The design of all car parking areas will be provided in accordance with the relevant Australian Standards including AS2890.1 and AS2890.6
Circulation, Access and Loading	• Site requires unrestricted B-double access. • Relevant Australian Standards to be applied to design of all access, circulation, servicing and loading areas.	• Internal configuration of car parking and loading areas within Precincts 1, 4 and 5 comply with the relevant requirements of AS 2890.1 and AS2890.2.

Issue	Considerations	Potential Impact/Response
		• Driveway widths for servicing/loading for all proposed buildings within Precincts 1, 4 and 5 are suitable for B-double access.

Western North South Link Road

The WSEA SEPP identifies a north-south connection, known as the WNSLR, between Lenore Drive and the SLR as part of the overall SLR network. The OWE proposal seeks to construct the WNSLR to provide for the following:

- Vehicular access for OWE and future industrial developments at the Fitzpatrick site to the regional road network.
- Infrastructure contributions to the planned WSEA road network, providing a key north-south connection from the SLR, once constructed.
- Sufficient mid-block and intersection capacity to accommodate future development within the BWSEA, including staged development for 2026 and 2036 scenarios.

6.6.4. Mitigation and Management

Assessment of key issues with regard to access and road infrastructure indicates that there would be no need for external road upgrades as a result of the proposed OWE development outside of those already planned and committed. Further, the access arrangements proposed under the OWE Concept Proposal integrate with the external road network, with the exception of a minor realignment of the existing, indicative SLR corridor which can be readily accommodated within the proposed OWE alignment without significant adverse impact for feasibility or constructability. No further mitigation measures are required with respect to access and infrastructure.

Traffic modelling shows that likely future traffic volumes generated by the OWE at full development would be less than those assumed under strategic traffic modelling undertaken with respect to the WSEA. Therefore, the potential impacts in terms of operational traffic do not require mitigation beyond the design responses of the Concept Proposal.

Construction traffic analysis shows that heavy and light vehicle movements during the construction period would be less than those under the operational scenario and would therefore be accommodated by the surrounding road network without significant impact. Mitigation and management of construction traffic would be documented in a Construction Traffic Management Plan (CTMP) that would form part of the CEMP for the OWE addressing issues such as:

- Truck haul routes, delivery schedules and curfews; and
- Protocols for the management of construction traffic moving onto and off the site.

6.6.5. Conclusions and Recommendations

Strategic and detailed traffic analysis undertaken in respect of the OWE proposal have considered the broader traffic environment in the vicinity of estate, the road infrastructure upgrades planned required within the wider WSEA network, the traffic likely to be generated by the OWE development and the access, design and parking rates adopted under the OWE proposal.

The analysis has shown that the proposed OWE Concept Proposal and Stage 1 development are supportable with respect to access, transport and traffic.

6.7. OTHER ISSUES

6.7.1. Geology and Soils

The underlying geology and soils on the site are described in Section 3.0 of the EIS and in more detail in the technical reports at Appendix S Based on the geotechnical investigations undertaken, the underlying geology on the site is described as follows:

- Topsoil – Clay with rootlets and grass surface, depth 0.0m;
- Natural Soil – Clay, depth 0.04-0.5m; and
- Bedrock – Sandstone and Shale, depth 0.7m-4.0m.

Site investigations indicate that, in general, the potential for acid sulfate soils on the site is low. Some borehole samples taken on the estate showed potential for acid generation however these were located in areas of proposed fill and would therefore not be disturbed by the proposed development.

The site shows no visible indications of salinity, erosion or other forms of land degradation. Potential salinity issues would be managed in accordance with a Salinity Management Plan which would form part of the CEMP for the proposal.

6.7.2. Contamination

A targeted Phase 2 contamination assessment found a low general potential for contamination across the site, however two areas of surface soil were found to be impacted with fragments of asbestos containing material. This material would be removed as part of the proposed development and the site validated prior to operations. Subject to this remediation the site has been found to be suitable for commercial/industrial use. An Unexpected Finds Protocol (UFP) would also be documented within the CEMP to manage any unidentified contamination encountered during construction. Detailed documentation of the contamination investigations undertaken on the site is provided at Appendix S.

Standard sediment and erosion control measures would be implemented during construction works, as described in Section 4 of the EIS and detailed in the civil drawings at Appendix E.

6.7.3. Waterways and Riparian Areas

Ropes Creek runs along the eastern boundary of the site. The creek is classified as a third order watercourse, requiring the maintenance of an average 30m, vegetated riparian zone in accordance with NOW guidelines. The proposal includes the retention, restoration and maintenance of the Ropes Creek riparian corridor which will be the subject of an in-perpetuity management protocol in accordance with the OWE Biodiversity Offset Strategy.

6.7.4. Stormwater and Drainage

Existing Hydrology

Existing overland flows on the OWE run either side of a central north-south ridgeline. Flows generated on the eastern side flow into farm dams and Ropes Creek, whilst flows generated on the western side flow first to farm dams on the western and north-western boundaries of the site and ultimately into creeks to the north of Emmaus Catholic College and the Catholic Healthcare facility west of the site.

Design Considerations

The design of the stormwater system for the OWE aims to match post-development flows as close as possible to pre-development flows across the site to ensure that downstream catchments will not be adversely affected in terms of flooding.

The stormwater management system for the estate has been designed in consideration of the specifications of the approved stormwater infrastructure. All estate level stormwater drainage for the OWE development is designed to comply with the following:

- Penrith City Council Design Guidelines for Engineering Works;
- Penrith City Council Water Sensitive Urban Design (WSUD) Policy December 2013; and
- C3 Water Management DCP.

Key standards and requirements of the OWE stormwater management system include:

- Precinct based basins will serve the development as detention and bioretention basins;
- All stormwater drainage within the access road and bio-retention basins will be dedicated to Penrith City Council. Maintenance and repair works of the stormwater drainage network outside of the lots will be the responsibility of Penrith City Council. All stormwater drainage within the lots will be the responsibility of the individual property owners.
- OSD to be sized to ensure that for all rainwater events up to and including the 1:100 ARI event, new developments do not increase stormwater peak flow in any downstream areas.
- OSD is to mitigate post development flows to pre-developed flows for peak Average Reoccurrence Interval (ARI) events.
- All OSD basins have been designed with a 3.0m wide sprayed seal access road along the berm to ensure maintenance vehicles can access the entire exterior of the basin.
- Finished Floor Levels (FFL) to have minimum 500mm freeboard to 100 year overland flows.
- A gross pollutant trap (GPT) will be installed within each development site on the final downstream stormwater pit prior to discharging. As these GPT's will be located on-lot as they will be owned and maintained by the individual property owner.

Water Quality

Water quality would be preserved during construction and operations on the site through the implementation of standard erosion and sediment control measures as shown in the plans at Appendix E and water quality measures within each development site to achieve the following WSUD target reductions:

- 85% Total Suspended Solids;
- 60% Total Phosphorus;
- 45% Total Nitrogen; and
- 90% Gross Pollutants.

With the implementation of these management measures, the potential impacts of the development on Ropes Creek would generally be limited to the initial works period with regard to inflow from the construction areas via stormwater management basins. Once the development reaches 80% completion the bio-retention basins would be brought online to further enhance water quality. As rehabilitated vegetation areas mature, the ecological integrity of the Ropes Creek riparian corridor will continue to improve with subsequent benefits for water quality.

6.7.5. Flooding

A Flood Impact Assessment has been prepared by Cardno and is included in Appendix P.

The extent of the 1:100 year ARI on the site under existing conditions is shown in **Figure 35** and effectively extends to all sections of the floodplain adjoining the proposed development. A flood assessment was undertaken in relation to the OWE proposal to establish the likely impacts of the development on flooding both on and off the site. The flood modelling undertaken concluded that:

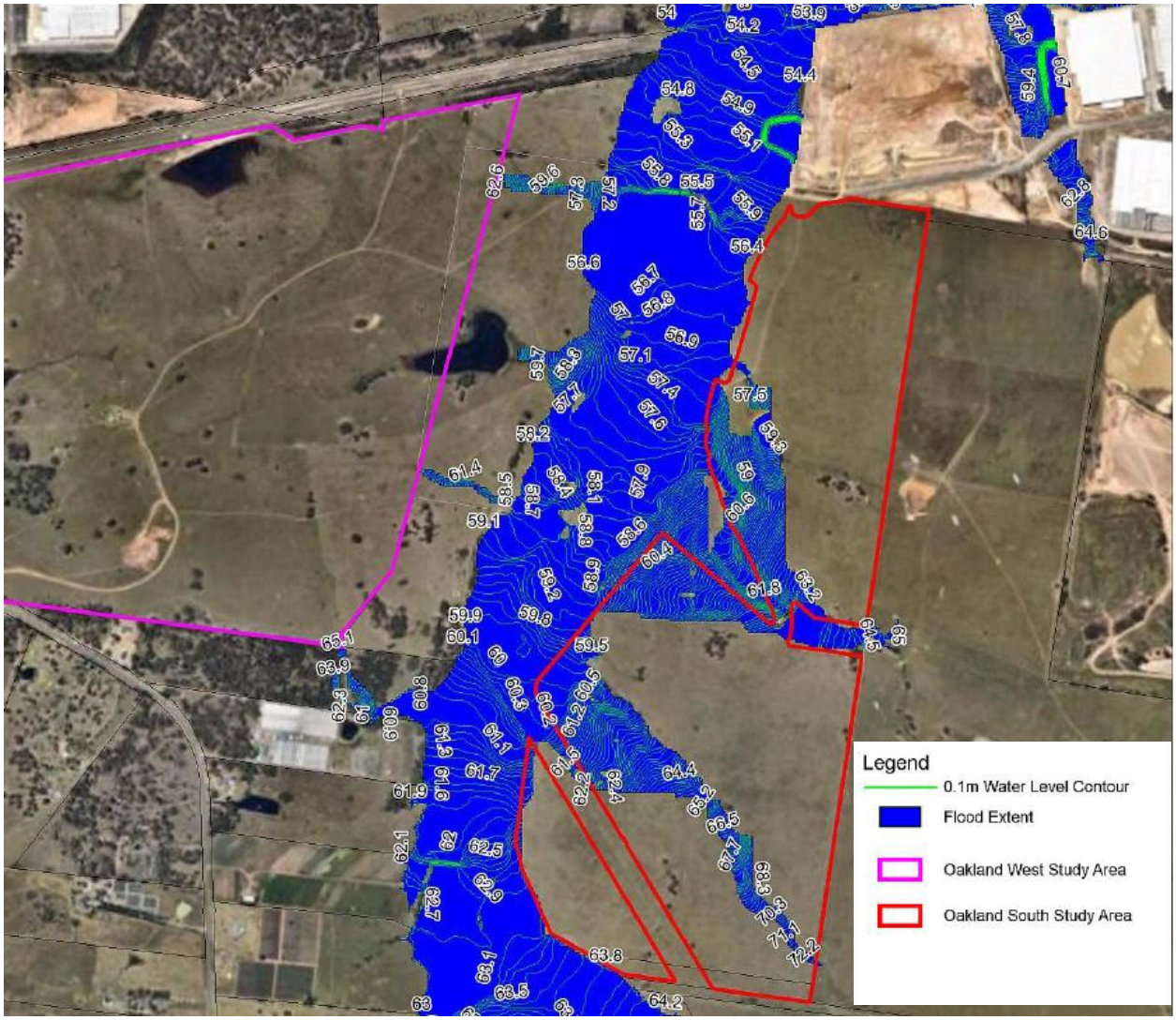
- The proposal would result in zones of both minor reductions and minor increases in the 100 year ARI flood level within the Ropes Creek floodplain;
- The minor changes in flood levels predicted do not change the flood extents on any adjoining properties; and
- There is a zone of significant local increase in the 100 year ARI flood levels within the power line easement adjacent to the eastern boundary of the OWE as a result of the proposed development.

The local flooding impacts within the power easement to the east of the site are attributable to the partial filling of an existing flood runner to create a development platform within development lot 5A in the absence of compensating earthworks to convey diverted flows. The flood impacts are however, primarily associated with the adjacent Oakdale South Estate development which is the subject of a separate SSDA under

assessment with DPE. The additional impact of the OWE proposal is minor and would be confined within the broader Oakdale precinct.

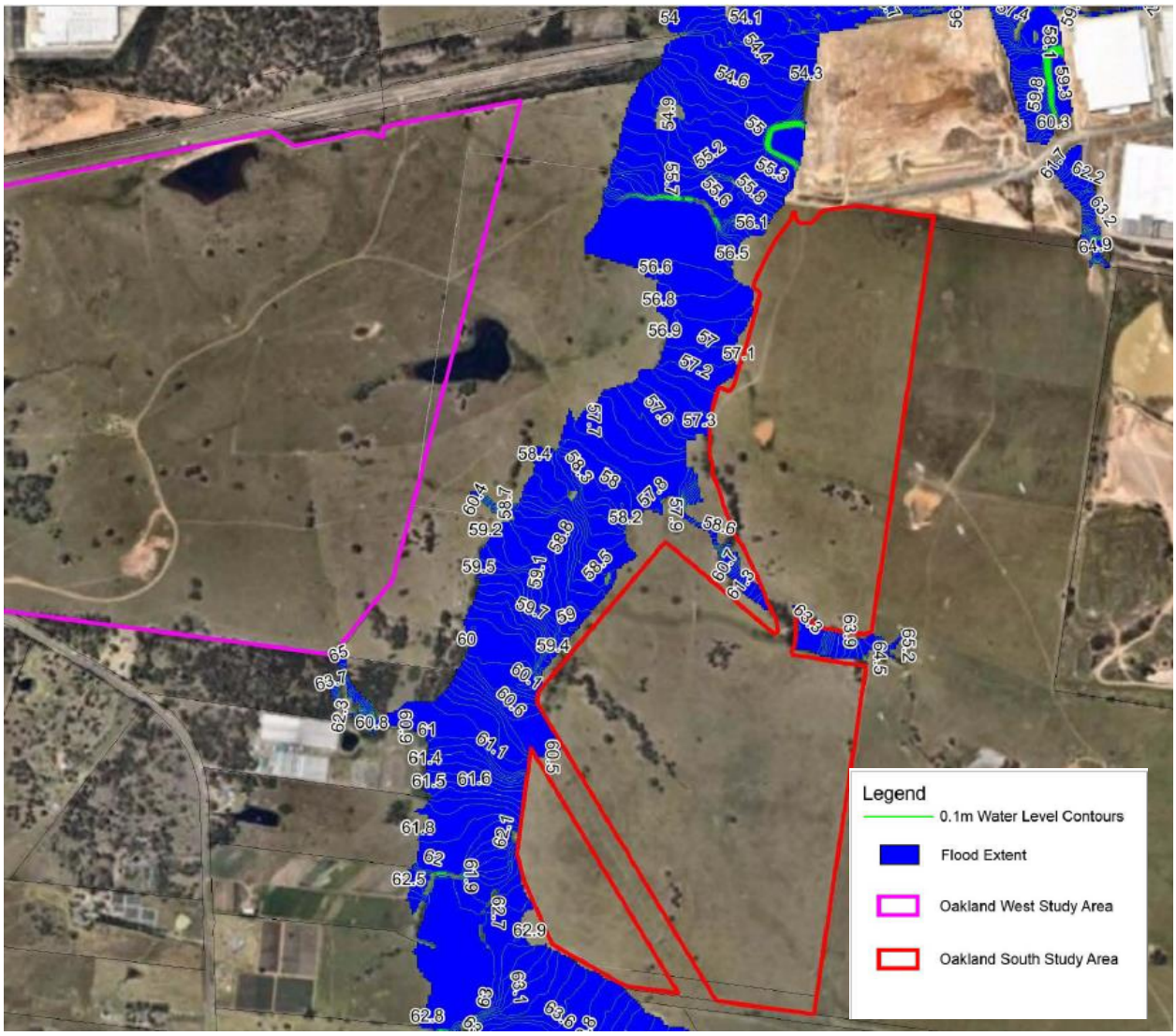
Consultation was undertaken with Transgrid – the owners of the easement – in relation to the flooding impacts created by the OSE proposal. Sections have been provided to Transgrid to demonstrate the extent of the impact and Transgrid has confirmed that the impacts are acceptable.

Figure 35 – Extent of Flooding on OWE (Pre-Development)



Source: Cardno

Figure 36 – Extent of Flooding on OWE (Post-Development)



Source: Cardno

6.7.6. Heritage

Indigenous Heritage

A Heritage Impact Assessment (HIA) has been undertaken in respect of the OWE proposal and is included at Appendix M.

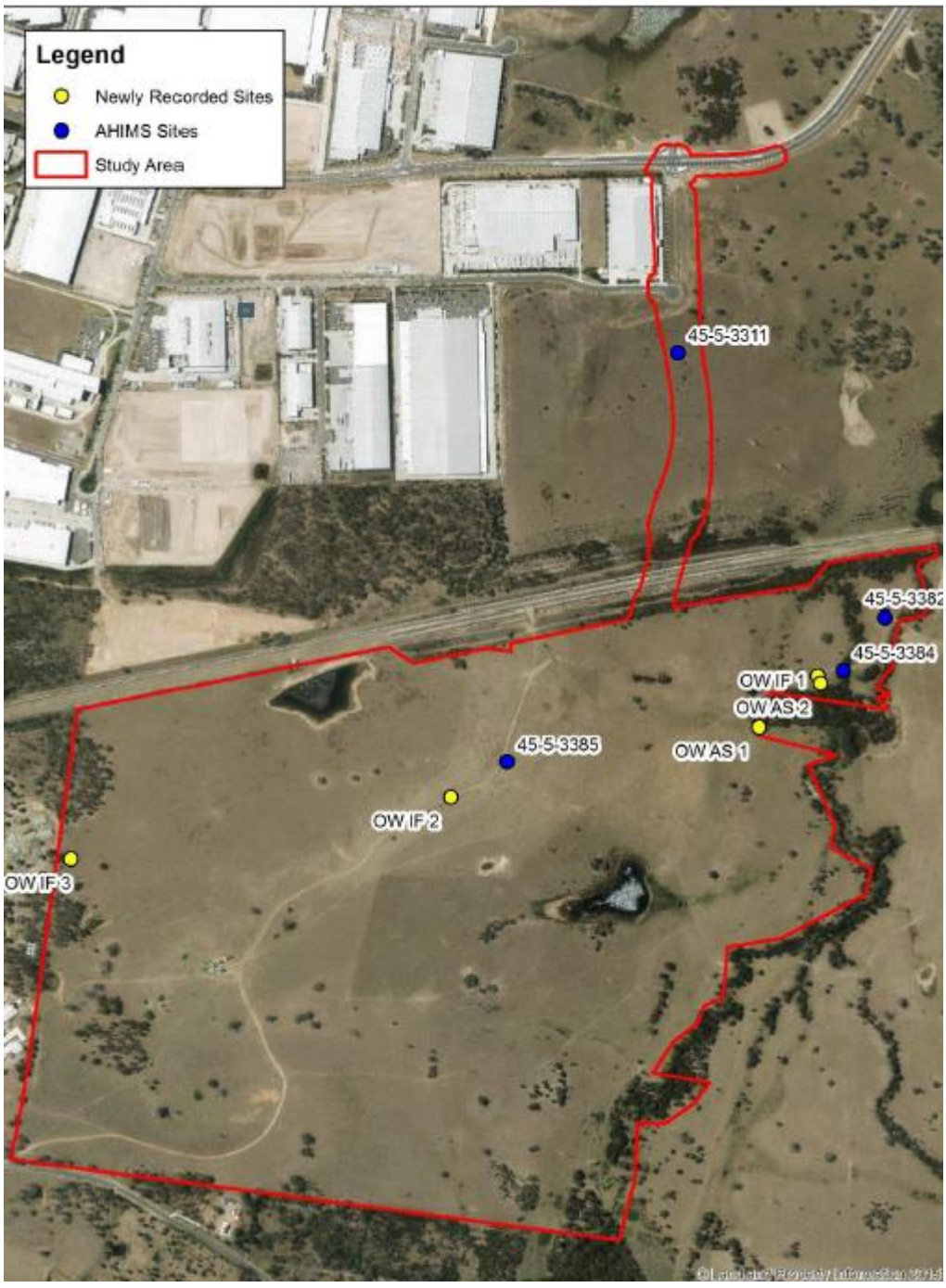
The assessment identified areas of archaeological sensitivity along Ropes Creek and on prominent ridgelines to the west of the watercourse. These areas have the potential to contain high density subsurface artefacts.

The assessment noted three previously identified Indigenous heritage sites within the OWE boundary which were assessed as being of Moderate Significance. Five new Indigenous heritage sites were also identified with two assessed as being of Moderate Significance and three assessed as being of Low Significance. Of the eight Indigenous heritage sites identified, six are within the areas of archaeological sensitivity.

The development of the OWE as proposed would disturb/destroy three of the Indigenous heritage sites identified on the site, including (refer to Figure 37):

- Oakdale Campsite 4 (#45-5-3385 - Moderate Significance);
- OW IF 2 (#45-5-4675 - Moderate Significance); and
- OW IF 3 (#45-5-4676 - Low Significance).

Figure 37 – Survey of Results: Newly Recorded Sites ad AHIMS Sites



Source: Artefact

The remaining five sites would be undisturbed by the proposed development and would remain in-situ.

Whilst the OWE Concept Proposal has avoided a large portion of the identified areas of archaeological sensitivity on the site some of these areas would be impacted. Test excavation would be conducted in accordance with the OEH Code of Practice within the areas of archaeological sensitivity that would be impacted to determine the extent and archaeological significance of any cultural material and inform recommendations for further management or mitigation measures.

Non-Indigenous Heritage

The HIA also considered the potential impacts of the proposal on non-indigenous heritage. The assessment found that:

- There are no listed or unlisted heritage items located on the site.
- The majority of the site has nil to low potential for archaeological remains.

The assessment did identify a potential archaeological site in the south-west of the OWE, known as the 'Collapsed Cottage Site'. This site has moderate potential to contain locally significant archaeological relics associated with the cottage and outbuildings potentially dating from the early-mid 19th century. The proposed development would result in the complete removal of the Collapsed Cottage Site.

Prior to ground disturbance at the OWE, archaeological investigation and recording of the Collapsed Cottage Site, including monitoring of the removal of the structure, test excavation and salvage would be undertaken to ensure that the heritage value is preserved as appropriate. Implementation of an unexpected finds policy would also form part of standard procedure during construction works across the estate, to be documented in the CEMP for the proposal.

6.7.7. Air Quality

The air quality impacts of the proposal have been considered in the context of proposed construction and operational activities at the estate as documented in the Air Quality Impact Assessment at Appendix U.

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. Combustion emissions from vehicles and equipment can also generate pollutants such as oxides of nitrogen (NO_X), carbon monoxide (CO), particulate matter (as TSP and PM_{10}), sulphur dioxide (SO_2), volatile organic compounds (VOCs) and lead (Pb).

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.

Air quality impacts from the operation were determined using the ES EPA'S CALPUFF modelling system. Wheel-generated dust from the on-site traffic movements and combustion emissions from road traffic exhaust emissions on-site have been identified as the main sources of potential emissions for the proposed operational phase. The predicted results indicate that the proposed operational activities would comply with all relevant OEH ambient air quality criteria at all representative surrounding sensitive receptors. The predicted PM2.5 concentrations could not be assessed against the relevant cumulative criterion as no background PM2.5 concentrations are recorded by the St Marys AQMS.

As the future operators at the OWE are not yet known, air quality modelling for the operational phase of the development was undertaken on the basis of assumptions describing a typical warehouse and distribution facility. For future operations at the site which have an atypical emissions profile that departs from the assumptions of the EIS would be subject to further air quality assessment as required.

6.7.8. Mineral Resources

The closest extractive activities to the OWE are some 1.1km to the east at the CSR site. The proposed OWE development would not impact on the CSR operations, including the method of extraction.

The OWE is considered to be unlikely to hold unidentified mineral resources. The clay/shale underlying the site is of a nature and quality that is commonly occurring in the local area and as such is not in short supply. The development of the OWE would sterilise the recovery of any clay/shale resources underlying the site. However, as extractive industries are prohibited on the site and surrounding lands under the WSEA SEPP, the potential for recovery of this material has already been effectively removed. Further, the potential for development of the clay/shale development resources on the site would be low as:

- The quality of the clay/shale resource is average;

- Geology on the site includes significant sandstone beds; and
- Existing operators Austral are well positioned to receive clay/shale resources from the evacuation of waste cells associated with the construction of major infrastructure projects such as the North West Rail Link.

6.7.9. Sustainability

Energy Efficiency

Resource efficiency is a consideration at every stage of the industrial development process. The principles of sustainable design have been incorporated into the development of the OWE Concept Proposal and detailed development within Precinct 1 has been informed by consideration of passive building design measures and building material selection as described in the architectural plans at Appendix F and the *Energy Efficiency Report* prepared for the proposed Stage 1 development, including at Appendix R.

In addition, an *Energy Management Plan* (EMP) has been prepared in respect of the proposed Stage 1 Precinct Development (Appendix R), with the principal objective being:

> *"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."*

Section J of the Building Code of Australia (BCA) establishes the minimum requirements for energy efficiency in buildings and the EMP prepared in respect of the OWE Stage 1 development and concludes that the proposal achieves an approximate 20% reduction in greenhouse gas (GHG) emissions in by:

- Use of 10% translucent polycarbonate sheeting to warehouse roof area to improve natural light;
- Use of daylight controlled fluorescent lighting for warehouses rather than metals halide, resulting in a considerable reduction in energy consumption and reduced maintenance;
- Use of a programmable lighting system incorporating a timeclock, photo-electric (PE) daylight sensors and motion sensors in warehouses;
- Increase cross ventilation in warehouses by introducing natural ventilation strategies such as louvre grills in building facades where appropriate;
- Use of high efficiency glazing and shading of office areas; and
- Use of solar hot water systems with gas boosters.

Water Usage

Water usage across the estate is detailed in the site water balance at Appendix R. The proposed development of the OWE would result in changes to the existing water balance of the site by changing it from a largely undeveloped, low intensity rural/agricultural use, to a developed, higher intensity warehousing use.

Opportunities for water reuse have been considered in the design of the proposal and volumes available for capture and reuse have been estimated for the proposed Stage 1 Development. It is estimated that up to 50% of predicted water demand for the OWE could be met by the reuse of rainwater. In order to maximise water reuse on the site, rainwater harvest tanks would be provided for each development site with size determined in accordance with the requirements of Penrith Council's DCP.

Rainwater tank size is determined in accordance with the Penrith City Council C3 Water Management DCP to meet 80% of non-potable demand for irrigation and toilet flushing. Rainwater captured from the development would be used for irrigation and toilet flushing and developments would be plumbed to rainwater tanks to facilitate reuse. Consideration would also be given to other possible rainwater reuse opportunities such as truck washing as part of specific on site operations.

The remaining 50% of estimated water demand for the OWE would require a potable water source to be provided as part of the servicing of the site as described in Section 4 of the EIS.

6.7.10. Waste Management

Construction

The construction works proposed at the OWE would generate the following broad waste streams:

- Excavation material;
- Construction wastes;
- Plant maintenance waste;
- Packaging waste;
- Green waste from site clearing;
- Work compound (on-site employee) waste; and
- Waste water.

Total construction waste generated for the Stage 1 Development is estimated at 16,984m^3 based on conversion factors and estimated splits between different waste types. It is estimated that more than 70% of the predicted construction waste could be re-used (on-site or at another development) or recycled off-site.

Detailed construction waste avoidance, minimisation and management measures would be included in the CEMP for the OWE works.

Operation

Proposed operations at the OWE would generate the following broad waste streams:

- General waste (non-recyclable and recyclable wastes);
- Packaging wastes (e.g. cardboard, paper, plastic/shrink wrap, pallets);
- Office wastes;
- Amenity wastes; and
- Maintenance wastes.

Total operational waste for the Stage 1 Development is estimated to be 342m^3 of waste per week, of which approximately 50% is estimated to be recyclable waste. Detailed operational waste minimisation and management measures would be included in the OEMP including strategies to avoid and minimise waste in the operation of the estate.

6.8. RESIDUAL IMPACTS

The assessment of residual impacts of the OWE as part of the broader risk and impact assessment process described in Appendix Z is described in **Table 41.**

Table 41 – Residual Impact Assessment

Level of Impact	Definition and Criteria	Conclusion
Unacceptable	• Impact assessment demonstrates that the impacts of the proposal cannot be effectively managed through design or mitigation measures. • Residual impacts would be significant and may not meet regulatory requirements and/or adopted guidelines and standards.	**The development could not proceed as currently designed and proposed**.
Acceptable	• Impact assessment demonstrates that the impacts of the proposal can be effectively	**The development could proceed subject to the implementation of**

Level of Impact	Definition and Criteria	Conclusion
	managed through design and/or mitigation measures. • Residual impacts would not be significant and meet relevant regulatory requirements and/or adopted guidelines and standards. • Ongoing management and monitoring would likely be required through construction or operational management plans.	**recommended mitigation measures.**
Minimal	• Impact assessment demonstrates that the impacts of the proposal would be minimal and manageable through design or mitigation measures. • There would be no residual impact once recommended mitigation measures are implemented. • Ongoing management and monitoring unlikely to be required.	**The development could proceed as currently designed and proposed.**
Negligible	• Assessment shows that the residual impacts of the proposal would be negligible.	**Development could proceed without further consideration of this issue.**

Table 42 summarises the likely residual impacts of the proposed OWE development once design responses and mitigation measures are applied.

Table 42 – Summary of Residual Impacts

Issue/Constraint	Residual Impact			Key Management Document
	Concept Proposal	Stage 1 Estate Works	Stage 1 – Precinct Development	
Transport				
Regional and Local Transport Infrastructure				SSD Approval
Site access				SSD Approval
Traffic				CEMP/OEMP
Urban Design and Visual				
Site Layout and Design				OWE Concept Proposal/DCP

Issue/Constraint	Residual Impact			Key Management Document
	Concept Proposal	Stage 1 Estate Works	Stage 1 – Precinct Development	
Development Controls				OWE Concept Proposal/DCP
Visual Impact				OWE Concept Proposal/DCP
Soils and Water				
Water Usage				OEMP
Soils				CEMP
Surface Water				CEMP
Groundwater				CEMP
Riparian Land				OEMP
Flooding				SSD Approval
Stormwater/WSUD				SSD Approval
Water Quality				OEMP
Earthworks				CEMP
Mineral Resources				NA
Infrastructure				
Capacity				SSD Approval
Delivery and Staging				SSD Approval
Other Environmental Issues				
Noise				CEMP/OEMP
Air Quality and Odour				CEMP/OEMP
Flora and Fauna				BOS/BMP
Indigenous Heritage				CEMP
European Heritage				CEMP
GHG and Energy				OEMP
Waste Management				CEMP/OEMP

7. SUMMARY OF MITIGATION MEASURES

7.1. SUMMARY OF MITIGATION MEASURES

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 43** below. These measures have been derived from the impact assessment in Section 6 and those detailed in the specialist reports.

Table 43 – Summary of Mitigation Measures

Issue	SSDA Component	Mitigation and Management
Construction Management		
General Construction Management	Stage 1 Development	• 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	• 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	• Preparation of a CTMP to form part of the CEMP addressing issues such as: – 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	• Future development of the OWE to proceed in accordance with the approved Development Concept Proposal and DCP.
Development Controls	Concept Proposal	• 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	• 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.

Issue	SSDA Component	Mitigation and Management
Soils and Water		
Water Usage	Stage 1 Development	• 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.
Soils	Stage 1 Development	• Mitigation measures inherent to the civil design of the proposal. • Sedimentation and erosion control measures are proposed as detailed in Appendix E and J.
Salinity	Stage 1 Development	• A Salinity Management Plan has been prepared for the proposed development and is included in Appendix T. • Management measures described in the Salinity Management Plan to be adopted in the CEMP and OEMP as relevant.
Contamination	Stage 1 Development	• Identified areas of potential contamination to be subject to further investigation prior to the development of affected land.
Earthworks	Stage 1 Development	• 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 SSDA package (Appendix E).
Mineral Resources	Concept Proposal	• 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	• Stormwater issues addressed through design measures incorporated into proposed development.

Issue	SSDA Component	Mitigation and Management
		• 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	• Methods and management of any required dewatering required during construction works to be detailed in the CEMP.
Flooding	Stage 1 Development	• 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 at Appendix E.
Water Quality	Stage 1 Development	• Erosion and sediment controls as detailed in Appendix E and Appendix J 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. • WSUD measures adopted to achieve target reductions for the OWE: – 85% Total Suspended Solids – 60% Total Phosphorus – 45% Total Nitrogen – 90% Gross Pollutants
Infrastructure		

Issue	SSDA Component	Mitigation and Management
Capacity and Upgrades	Concept Proposal	• 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.
Delivery and Staging	Concept Proposal/Stage 1 Development	• 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	• 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	• Implementation of the Biodiversity Offset Strategy for the site. • Preparation of a Biodiversity Management Plan for the site to inform the CEMP and OEMP as relevant to manage potential impacts to biodiversity during construction and operation. • Restoration of retained areas of vegetation on the site including riparian corridors and the Biodiversity Offset Area; • Native grassland restoration to other areas of the site including road batters and outside batters of bio-retention basins; and • Ongoing maintenance and management of these areas in accordance with the provisions of the Biodiversity Offset Strategy.
Waterways and Riparian Lands		• Realignment of Drainage Line to occur in accordance with design and management measures described in Appendix M including: – Retention of bank and bench vegetation where possible. – Provenance plant material to be used for planting where practicable. – Reinstatement of the realigned drainage line to a plant community type characteristic of the EEC Forest Red Gum – Rough-barked Apple grassy woodland. – Ongoing management of riparian lands on the site to be in accordance with the Biodiversity Offset Strategy as described above.

Issue	SSDA Component	Mitigation and Management
Construction Noise	Stage 1 Development	• Construction hours to be limited to 7.00am-6.00pm Monday to Friday and 8.00am-1.00pm Saturdays. • Where construction noise levels are predicted to be above the NMLs, all feasible and reasonable work practices are investigated to minimise noise emissions. • If construction noise levels are still predicted to exceed the NMLs, potential noise impacts would be managed via site specific construction noise management plans, to be prepared in the detailed design phase. • Construction works should be conducted during standard construction hours, with OOHW minimised as far as reasonable and feasible. • Vibratory rollers and plate compactors have the potential to be operated within 20 m and within the recommended safe working distances of structures in Emmaus Village, Emmaus Catholic School and immediately adjacent to the south boundary in Kemps Creek. • Locations for vibration intensive equipment should be reviewed during the preparation of the site specific Construction Noise and Vibration Management Plans (CNVMPs) for construction works adjacent to the most affected receivers. • Further noise management measures to be incorporated into the CEMP as appropriate.
Operational Noise	Stage 1 Development	• Cumulative sound power levels of fixed plant for each building within the OWE to be limited to 95dBA. • Construction of acoustic barriers on the western boundary of the estate as shown in SSDA plans and NIA. • Further assessment of potential operational noise impacts to be undertaken in respect of any specific operations proposed within the OWE with an atypical noise profile.
Air Quality and Odour - Construction	Stage 1 Development	CEMP to include standard air quality control measures, contingency plans and response

Issue	SSDA Component	Mitigation and Management
		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.
Air Quality and Odour – Operational	Stage 1 Development	• Further assessment of potential air quality impacts to be undertaken in respect of any specific operations proposed within the OWE with an atypical air emissions profile. • Specific operations proposed within the OWE with the potential for generation of odour would be subject to further assessment.
Indigenous heritage	Stage 1 Development	• Archaeological salvage excavation and monitoring to be undertaken in the presence of relevant Aboriginal stakeholders prior to ground disturbance and excavation work in identified areas. • Results of detailed archaeological excavation and any suitable salvaged materials to be managed in accordance with the NPW Act and direction from relevant Aboriginal stakeholders.
Non-indigenous heritage	Stage 1 Development	• Construction works to cease should artefacts be uncovered during ground disturbance and Heritage Office notified.
Greenhouse Gas and Energy Efficiency	Stage 1 Development	• Future stages of development within the OWE would be subject to assessment in relation to energy efficiency and greenhouse gas emissions.
Waste Management - Construction	Stage 1 Development	• Detailed construction waste minimisation and management measures to be included in the CEMP as described in Appendix W.
Waste Management - Operations	Stage 1 Development	• Detailed operational waste minimisation and management measures to be included in the OEMP as described in Appendix W.

7.2. CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

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.
- 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 (C 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 CEMP would be prepared prior to the commencement of construction works on the site.

7.3. OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

An overarching OEMP would be prepared for the OWE to guide the ongoing operations of the site once development is completed. This document would capture standard and specific operational management measures addressing issues such as:

- Control of noise and air emissions;
- Biodiversity and vegetation management;
- Management of water and waste;
- Emergency procedures and protocols;
- Engagement with adjoining landowners;
- Sustainability and energy efficiency;
- Compliance and approvals; and
- Environmental management and reporting.

The OEMP would be prepared prior to the commencement of operations on the site.

Figure 38 – Vision for OWE

Source: e8urban

8. CONCLUSIONS

8.1. SUMMARY OF FINDINGS

This SSDA seeks consent for the staged development of the OWE for a warehousing and distribution hub as part of the broader Oakdale Estate lands and the surrounding WSEA. The SSDA includes a Concept Proposal to guide the future development of the estate and a Stage 1 development proposal that includes the delivery of essential infrastructure and services and the construction, fit out and use of buildings in certain precincts.

The development of the OWE would generate:

- 395,880m^2 of warehouse and distribution floorspace to meet latent and projected market demand;
- 1,065 new construction jobs and 1,854 new operational jobs;
- Over $200 million of direct investment in core infrastructure and services; and
- Contribution to $20 million of funding to critical upgrades to the external road network (Western NS Link Road).

An assessment of the potential impacts of the proposal found that the key issues for further consideration were access to the external regional road network, visual impacts, management of flora and fauna and noise impacts. These issues were key considerations in the development of the Concept Proposal for the site and design responses were incorporated to manage potential impacts to acceptable levels.

Other issues of relevance to the proposal including the management of surface and groundwater, soils and geotechnical issues, air quality and waste management were also assessed and mitigation measures established to manage potential impacts during construction and operation. These measures would be incorporated into a detailed CEMP and OEMP for the site to guide its future development and ongoing operation.

The proposal aligns with the strategic direction and objectives established for the site and surrounding lands under the WSEA SEPP. The development responds to and aligns with its strategic context and presents a design solution that respects the important role of the site in providing a secure and reliable supply of employment land in the WSEA to meet projected future demand over the next decade.

8.2. JUSTIFICATION FOR PROPOSAL

The WSEA has long been recognised as the sole focus for Sydney's long term future supply of industrial land. Sydney's underlying topography, combined with demographic and economic trends mean that this part of Sydney offers the only remaining supply of greenfield land for employment uses therefore its timely and efficient development for an appropriate mix of uses is paramount to Sydney's economy.

Monitoring undertaken as part of NSW P&E's Employment Lands Development Program (ELDP) indicate that Sydney has a significant supply of *'strategy identified'* employment land (24-91 years dependent upon take-up rates) and of 'zoned, unserviced' employment land (13-47 years). However, the ELDP shows that Sydney has **only three to five years** supply of *'zoned and serviced'* employment land. Further, data indicates that in relation to the types of employment land available, the supply of large industrial sites is most limited.

The servicing and development of land in the WSEA is therefore critical in ensuring a reliable pipeline of employment land to meet expected demand over the next decade.

Oakdale Estate provides over 400ha of land to support the Sydney industrial market over the short to medium term. The ultimate vision for the Oakdale Estate is for its progressive development into regional centre of warehouses, distribution centres and freight/logistics facilities.

The broader Oakdale Lands have the potential to provide some 1,000,000m^2 of warehousing/industrial floor space to the WSEA, representing a 10-15 year supply of serviced industrial land to the Sydney market. In this regard, the proposed development of the OWE responds to a clear and direct need for zoned and serviced industrial land in Sydney explicitly articulated in government policy and strategic planning. This

supply is critical to meeting the needs of the Sydney market for industrial land over the next decade as rapid growth and change occurs within the broader Western Sydney region.

The proposed staged development of the OWE as described in the EIS and SSDA is justified on strategic, economic and environmental grounds. Key justification for the proposed development includes:

- Outcomes that support the strategic role and objectives of the OWE as part of the WSEA and Broader WSEA.
- Outcomes that align with the future context and role of the WSEA and Broader WSEA as an economic hub for Greater Sydney.
- The delivery of critical infrastructure and services to the WSEA for the benefit of the broader area.
- Significant private sector investment in the area with direct and indirect benefits for productivity and the local economy.
- Generation of employment for the Western Sydney Region.

8.2.1. Evaluation of Alternatives

The alternatives to undertaking the project include:

- Do nothing; and
- Development of the OWE under an alternative Concept Proposal design/layout.

Do Nothing

The 'Do Nothing' alternative would result in the land comprising the OWE remaining unplanned, unserviced and undeveloped. The risks and results of this alternative include the following:

- Outcomes for the site that are contradictory or inconsistent with the strategic objectives, goals and directions of the Sydney Metropolitan Plan – *'A Plan for Growing Sydney'* (NSW P&E, December 2014) and the Draft West District Plan, for the WSEA and Broader WSEA.
- Failure to achieve the underlying objectives of the rezoning of the land as part of the WSEA, in particular the provision of a long term supply of industrial land to serve the needs of the Sydney market.
- Land use outcomes that are inconsistent with the aims of the WSEA SEPP and the objectives of the IN1 zoning of the site.
- Potential unplanned, ad-hoc development of the OWE without a guiding Concept Proposal and without due consideration for the various constraints and opportunities of the site and its context.
- Suboptimal development outcomes for the OWE in terms of efficiency, sustainability, design and feasibility.
- Failure to develop the OWE in a timely manner to align with market demand, potentially contributing to a shortfall in the supply of serviced industrial sites in the short to medium term with subsequent impacts on economic productivity and employment in the region.
- Impacts upon planned local and regional road infrastructure, including risks to the delivery of important road links and connections, leading to potential deficiencies in the WSEA road network and/or additional costs for the delivery of the required infrastructure.
- Loss of potential local and regional contributions to critical infrastructure through the development contributions system.
- Failure to capitalise on the opportunity to bring forward the delivery of a key regional road linking to the EPLR, to benefit development throughout the WSEA.
- Lost opportunity for the rehabilitation and protection of ecologically significant vegetation and habitat on the OWE that would form part of planned development of the estate. In the absence of the restoration works and statutory protection that could be offered through a planning approval process, these lands would likely remain vulnerable to degradation over time.

- Loss of significant, direct private investment in new and upgraded public road infrastructure for the area (estimated at $20 million across combined Oakdale lands) and substantial indirect investment in the local economy to the benefit of residents and businesses in Western Sydney.
- Loss of direct employment generating potential of the OWE, providing in the order of 1,500-2,000 jobs and the wider potential of the broader Oakdale lands, which would deliver between 5,000 and 7,000 additional jobs for Western Sydney.

Due to the significance of the risks noted above, the 'Do Nothing' alternative was discounted in favour of a staged development option for the site.

Civil Design Alternatives

The OWE has inherent topographic characteristics which require bulk and detail earthworks to be carried out to achieve appropriate site levels. A number of options were considered with regard to the approach to earthworks on the site including:

- Maximising cut to fill and minimising import of material;
- Multiple smaller earthworks pads and minimisation of cut/fill and retaining walls; and
- Maximising import and minimising cut and retaining walls.

Multi-criteria analysis was undertaken on each of the options to inform a preferred civil design for the estate. The preferred option, adopted for the purposes of the SSDA, was based on consideration of the following key criteria:

- Compliance with design requirements and standards with respect to roads, pathways and hardstand for industrial use;
- Batter slopes will be provided to accommodate level changes. Where this is not possible retaining walls will be constructed along the estate road, lots and basins based on the current civil and earthworks design.
- Ability to respond to the potential needs of the ultimate development of the site in terms of functional efficiency, grade and size of building pads and flexibility to accommodate a range of end user requirements;
- Nature and extent of potential environmental impacts; and
- The costs associated with implementation under each option.

The analysis undertaken concluded that the preferred approach to the civil design was maximising fill and minimising cut, for the following key reasons:

- Market availability (surplus) of fill material;
- Maximum efficiency and utilisation of the site;
- Maximum efficiency in the creation of large, flat building pads;
- Minimisation of retaining wall height, with maximum of 10-12m for cut walls and 6m for fill walls; and
- Overall cost of construction works.

Further details of earthworks proposed as part of the OWE development are provided in 3.4.3 of the EIS and the plans at Appendix I.

Alternatives Design and Layout

The Urban Design Study in Appendix H outlines the three options for the master plan that were investigated in preparation of the final proposal. Figure 39 illustrates the main 3 options that were considered:

Figure 39 – Alternative Layout

Source: e8urban

A summary of challenges and opportunities associated with each of the design options are described in **Table 44.**

Table 44 – Summary of Opportunities and Challenges of each Design Option

Options	Opportunities	Challenges
Option 1	• Direct efficient access with possible large lot designs • Efficient road design	• Build-up of traffic at intersections due to single point of entry and access • Buildings proximity to western boundary means there is less space for landscape interface.
Option 2	• Direct efficient access with only 2 main intersections with Proposed Southern Link Road	• Residual parcels not easily developed with potential for more difficult shapes and smaller lots • Inefficient, single sided road layout on the east of the site • Buildings proximity to western boundary means there is less space for landscape interface
Option 3	• Direct efficient access with large lot designs easily developed, Coordinated with Chandos Parkway • Ability to control western interface with landscape	• Minor re-alignment of water-way to provide flexible lot parcels

8.3. RECOMMENDATIONS

The proposed Concept Proposal and Stage 1 Development of the OWE has been considered and assessed in accordance with the requirements of the NSW EP&A Act as they apply to SSD. The EIS assesses matters prescribed under this Act and its Regulation, and those matters identified in the SEARs for the proposal.

Based upon a balanced review of key issues and in consideration of the benefits and residual impacts of the proposal, the staged development of the OWE as proposed under the SSDA is considered justified and warrants approval subject to the implementation of the management and mitigation measures described in EIS and nominated supporting documents.

DISCLAIMER

This report is dated 1 November 2017 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Goodman Limited (**Instructing Party**) for the purpose of (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

In preparing this report, Urbis may rely on or refer to documents in a language other than English, which Urbis may arrange to be translated. Urbis is not responsible for the accuracy or completeness of such translations and disclaims any liability for any statement or opinion made in this report being inaccurate or incomplete arising from such translations.

Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A SEARS AND RESPONSE TO SEARS

APPENDIX B DETAILED TABLE OF CONSULTATION

APPENDIX C QS REPORT

APPENDIX D CONCEPT PROPOSAL DRAWINGS

APPENDIX E STAGE 1 DEVELOPMENT – CIVIL DESIGN DRAWINGS

APPENDIX F STAGE 1 DEVELOPMENT – ARCHITECTURAL DRAWINGS

APPENDIX G LANDSCAPE ARCHITECTURAL DRAWINGS

APPENDIX H URBAN DESIGN STUDY

APPENDIX I CIVIL, STORMWATER, INFRASTRUCTURE AND SERVICES STRATEGY

APPENDIX J TRAFFIC AND TRANSPORT IMPACT ASSESSMENT

APPENDIX K BIODIVERSITY ASSESSMENT REPORT

APPENDIX L WATERWAYS AND RIPARIAN LANDS REPORT

APPENDIX M INDIGENOUS AND NON-INDIGENOUS HERITAGE ASSESSMENT

APPENDIX N BIODIVERSITY OFFSET STRATEGY

APPENDIX O FLOOD IMPACT ASSESSMENT

APPENDIX P BUSHFIRE ASSESSMENT REPORT

APPENDIX Q PLANNING COMPLIANCE ASSESSMENT

APPENDIX R ENERGY EFFICIENCY REPORT

APPENDIX S GEOTECHNICAL AND SOILS ASSESSMENTS

APPENDIX T NOISE IMPACT ASSESSMENT

APPENDIX U AIR QUALITY ASSESSMENT

APPENDIX V WASTE MANAGEMENT PLAN

APPENDIX W BUILDING CODE AUSTRALIA

APPENDIX X FIRE SAFETY STRATEGY

APPENDIX Y VISUAL IMPACT ASSESSMENT

APPENDIX Z RISK ASSESSMENT

APPENDIX AA SUPPLEMENTARY EPBC ASSESSMENT

BRISBANE
Level 7, 123 Albert Street
Brisbane QLD 4000
Australia
T +61 7 3007 3800

GOLD COAST
45 Nerang Street,
Southport QLD 4215
Australia
T +61 7 5600 4900

MELBOURNE
Level 12, 120 Collins Street
Melbourne VIC 3000
Australia
T +61 3 8663 4888

PERTH
Level 14, The Quadrant
1 William Street
Perth WA 6000
Australia
T +61 8 9346 0500

SYDNEY
Tower 2, Level 23, Darling Park
201 Sussex Street
Sydney NSW 2000
Australia
T +61 2 8233 9900

CISTRI – SINGAPORE
An Urbis Australia company
#12 Marina View
21 Asia Square, Tower 2
Singapore 018961
T +65 6653 3424
W cistri.com

URBIS.COM.AU