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Central Sydney Industrial Estate Subdivision (excluding Lot 6) | SSD 10459

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Prepared for VE Property Pty Ltd | 25 June 2024



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PR122

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Date	28 April 2021	28 April 2021

This plan be prepared and reviewed by environmental scientists with between 10 and 18 years experience in assessment and management of environmental and social impacts associated with construction projects.

This report has been prepared in accordance with the scope of services set out in the contract between Element Environment Pty Ltd and the client. The report is for the use of the client and no responsibility will be taken for its use by other parties.

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Contents

1 INTRODUCTION 3

1.1 Purpose 3
1.2 Document scope 3
1.3 Consultation 3
1.4 Conditions of consent 3
1.5 CEMP structure 15
1.6 Standards and legislation 15
1.6.1 Legislation and regulatory requirements 15
1.6.2 Australian and New Zealand standards 15
1.6.3 Other standards 15
1.6.4 Guidelines 16

2 PROJECT DESCRIPTION 19

2.1 Location and character 19
2.1.1 Location 19
2.1.2 Zoning 19
2.1.3 Access and road network 19
2.1.4 Sensitive receivers 21
2.2 Description 21
2.2.1 Lot preparation 22
2.2.2 Access 22
2.2.3 Stormwater management 22
2.2.4 Landscaping 25
2.2.5 Services 27
2.3 Hours of construction, employment, plant and equipment 28
2.4 Construction contacts 28

3 ENVIRONMENTAL MANAGEMENT 31

3.1 Objectives and targets 31
3.2 Risk management 31
3.3 Change management 41
3.4 Subcontractor management 41

4 TRAINING AND AWARENESS 45

4.1 Overview 45
4.2 Inductions 45
4.2.1 Induction and environmental training 46
4.2.2 Visitor inductions 46
4.3 Training 47

5 COMMUNICATIONS 51

5.1 General 51
5.2 External communication 51
5.2.1 Stakeholders 51
5.2.2 Communications information 51
5.2.3 Information channels 52

5.2.4 Media and government relations 52
5.2.5 Access to information 52

6 MONITORING AND CORRECTIVE ACTION 55

6.1 Audit and inspection 55
6.2 Subcontractor audits 56
6.3 Incident and environmental non-compliance 56
6.3.1 Responsibility 57
6.3.2 Notification requirements 57
6.3.3 Incidents and non-compliance procedure 59
6.3.4 Incident and non-compliance register 60
6.3.5 Minor environmental incidents 60
6.4 Environmental complaints 61
6.4.1 Responsibility 61
6.4.2 Procedure 61
6.4.3 Dispute resolution 62
6.5 Environmental breach 62
6.6 Reporting 62
6.7 Contingency plan 63

7 CEMP REVIEW 67

Tables

Table 1.1 Construction conditions of consent 5
Table 2.1 Construction contacts 28
Table 3.1 Objectives and targets 31
Table 3.2 Environmental management measures 33
Table 6.1 Environmental reviews 55
Table 6.2 Agency contacts 58
Table 6.3 Environmental reporting requirements 63
Table B.1 77

Figures

Figure 2.1 Local context 20

Appendices

APPENDIX A DEVELOPMENT CONSENT SSD 10459 69
APPENDIX B UNEXPECTED CONTAMINATION PROCEDURE 73
APPENDIX C CONSTRUCTION NOISE MANAGEMENT PLAN 79
APPENDIX D FLOOD EMERGENCY REPONSE PLAN 83
APPENDIX E CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT PLAN 87
APPENDIX F LANDSCAPE MANAGEMENT PLAN 91
APPENDIX G CONTINGENCY MANAGEMENT PLAN 95
APPENDIX H CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN 103
APPENDIX I PROJECT ROLES AND RESPONSIBILITIES 107



CHAPTER 1

INTRODUCTION

1 INTRODUCTION

1.1 Purpose

VE Property Pty Ltd (VE Property), will develop the Central Sydney Industrial Estate (CSIE) on land formerly known as the 'Western Area' of the former Shell Oil Refinery at Clyde. Stage 1 (Lot 6 of the subdivision) will be developed as the Downer Sustainable Road Resource Centre, the construction of which is addressed in a separate construction environmental management plan.

This construction environmental management plan (CEMP) defines the environmental management principles, processes, procedures and systems implemented for use throughout the duration of construction of the Central Sydney Industrial Estate subdivision works (the project).

This plan has been prepared by personnel listed on the cover page, who all have over 10 years' experience in the preparation of construction environmental management documentation.

1.2 Document scope

The scope of this management plan applies to all workers during construction of the project.

This plan applies to all aspects of environmental management for the project.

The target audiences for this plan are all construction workers and any other relevant stakeholders.

1.3 Consultation

In accordance with SSD 10459, the applicable stakeholders have been consulted. Evidence of consultation related to the sub-plans of this CEMP is included in the relevant sub-plan.

1.4 Conditions of consent

Environmental impacts of the CSIE were assessed in Element (2020) *Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre – State significant development – environmental impact statement* (the EIS), which was submitted with an application for State significant development (SSD) to the Department of Planning, Industry and Environment (DPIE) on 18 September 2020.

Development consent SSD 10459 was granted to VE Property on 31 January 2021 for the project described in Chapter 2. A copy of the development consent is attached as Annex A.

This CEMP has been prepared to satisfy the construction specific environmental conditions in Part B and environmental management conditions in Part C of SSD 10459 and in consideration of the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources 2004). Sub-plans (outlined in Section 3.2 and annexed) have been prepared to support this CEMP.

The specific requirements of these consent conditions, along with where these requirements have been addressed within this CEMP, are listed in Table 1.1.

Table 1.1 Construction conditions of consent

Condition		CEMP reference
Contamination		
B1	Prior to the commencement of earthworks, the Applicant must prepare an unexpected contamination procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with condition C2 and must ensure any material identified as contaminated is disposed off-site, or otherwise treated to the satisfaction of the EPA Accredited Site Auditor, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the site.	Annex B
B2	The Applicant must ensure the development does not result in a change of risk in relation to any pre-existing contamination on the site so as to result in significant contamination.	Annex B
Air quality		
B3	The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 3.2
B4	During construction, the Applicant must ensure that: (a) exposed surfaces and stockpiles are suppressed by regular watering or other alternative suppression method; (b) all trucks entering or leaving the site with loads have their loads covered; (c) trucks associated with the development do not track dirt onto the public road network; (d) public roads used by these trucks are kept clean; and (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.	Section 3.2
Noise		
B12	The Applicant must comply with the hours detailed in Table 1. Earthworks and construction: Monday – Friday: 7 am to 6 pm Saturday: 8 am to 1 pm	2.3 Annex C
B13	Earthworks and construction works outside of the hours identified in condition B12 may be undertaken in the following circumstances: (a) works do not exceed the noise limits detailed in Table 8 of the Noise and Vibration Impact Assessment, prepared by Muller Acoustic Consulting, dated 17 September 2020; or (b) works agreed to in writing by the Planning Secretary; or (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	2.3 Annex C
B14	The Applicant must prepare a Construction Noise Management Plan (CNMP) for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must (a) be prepared by a suitably qualified and experienced acoustic expert;	Annex C

Condition		CEMP reference
	(b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time); (c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers; (d) include a complaints management system that would be implemented for the duration of the development.	
B15	The Applicant must: (a) not commence construction of any relevant stage until the CNMP required by condition B14 is approved by the Planning Secretary; and (b) implement the most recent version of the CNMP approved by the Planning Secretary for the duration of construction.	Annex C
B18	The Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Code is to be incorporated into the CEMP required under condition C2 and the OEMP required under condition C5.	Annex E
Soils, water quality and hydrology		
B19	The Applicant must: (a) ensure that only VENM, ENM, or other material approved in writing by EPA or the Site Auditor is brought onto the site during construction; (b) keep accurate records of the volume and type of fill to be used; and (c) make these records available to the Planning Secretary upon request.	3.2
B20	Prior to the commencement of any construction or other surface disturbance the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by condition C2.	3.2 Annex H
B23	Prior to the commencement of construction, the Applicant must prepare a Flood Emergency Response Plan (FERP). The FERP must form part of the CEMP and OEMP required by conditions C2 and C5 and must: (a) be prepared by a suitably qualified and experienced person(s); (b) address the provisions of the Floodplain Development Manual (2005) and any relevant guidelines; (c) be prepared in consultation with the State Emergency Service; (d) include details of: i. the flood emergency responses for both construction and operation phases of the development; ii. predicted flood levels; iii. flood warning time and flood notification; iv. assembly points and evacuation routes; v. evacuation and refuge protocols; and vi. awareness training for employees and contractors.	Annex D

Condition		CEMP reference
B24	The Applicant must: (a) not commence construction until the Flood Emergency Response Plan required by condition B23 is submitted to the Planning Secretary for information purposes; and (b) implement the most recent version of the Flood Emergency Response Plan for the duration of the development.	Annex D
Traffic		
B30	Prior to the commencement of construction, the Applicant must prepare a Construction Traffic and Pedestrian Management Plan (CTPMP) for the development to the satisfaction of the Planning Secretary. The CTPMP must form part of the CEMP required by condition C2 and must: (a) be prepared by a suitably qualified and experienced person(s), (b) be prepared in consultation with TfNSW; (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction; (d) detail heavy vehicle routes, access and parking arrangements; (e) include a Driver Code of Conduct to: i. minimise the impacts of earthworks and construction on the local and regional road network; ii. minimise conflicts with other road users; iii. minimise road traffic noise; and iv. ensure truck drivers use specified routes; (f) include a program to monitor the effectiveness of these measures; and (g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.	Annex E
B31	The Applicant must: (a) not commence construction until the CTPMP required by condition B30 is approved by the Planning Secretary; and (b) implement the most recent version of the CTPMP approved by the Planning Secretary for the duration of construction.	Annex E
Road works and access		
B32	Prior to the issue of a Subdivision Works Certificate for Stage 3, detailed engineering plans of the new access road, proposed as part of Stage 3 are to be submitted to Council's Traffic and Transport Manager for consideration by the Parramatta Traffic Committee and approval by Council. The construction of the proposed road is to be carried out by the Applicant with all associated costs to be paid for by the Applicant.	3.2
B33	Prior to the release of the Subdivision Certificate for Stage 3, the Applicant must complete the construction of the access road described in condition B32 to the satisfaction of the relevant roads authority. The Applicant must obtain approval for the works under section 138 of the *Roads Act 1993*.	3.2
B34	Prior to any dedication, the Applicant must ensure that the construction of the road has been completed to the satisfaction of the relevant roads authority.	3.2

Condition		CEMP reference
Aboriginal heritage		
B39	If any item or object of Aboriginal heritage significance is identified on site: (a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately; (b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and (c) Heritage NSW must be contacted immediately.	3.2
B40	Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974*.	3.2
Historic heritage		
B41	If any archaeological relics are uncovered during the course of the work, then all works must cease immediately in that area. Unexpected finds must be evaluated and recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.	3.2
Waste		
B47	All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.	3.2
B48	The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) and dispose of all wastes to a facility that may lawfully accept the waste.	3.2
B49	The Applicant must retain all sampling and waste classification data for the life of the development in accordance with the requirements of the EPA.	3.2
Pests, vermin and priority weed management		
B50	The Applicant must: (a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and (b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.	3.2 6.1
Visual		
B51	Prior to the commencement of construction, the Applicant must prepare a Landscape Management Plan (LMP) to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The LMP must form part of the OEMP required under condition C5. The LMP must: (a) detail the species to be planted on-site, using only locally native species; (b) describe the monitoring and maintenance measures to manage revegetation and landscaping works; and (c) be consistent with the Applicant's Management and Mitigation Measures at Appendix 2.	Annex F

Condition		CEMP reference
B52	The Applicant must: (a) not commence construction until the LMP is approved by the Planning Secretary. (b) must implement the most recent version of the LMP approved by the Planning Secretary; and (c) maintain the landscaping and vegetation on the site in accordance with the approved LMP required by condition B51 for the life of the development.	Annex F
B53	Prior to services installation works commencing within Devon Street, the Applicant is to engage an AQF Level 5 Arborist to prepare a: (a) Tree Protection Plan and Tree Management Specification to incorporate specific tree protection measures to the street trees located along Devon Street in accordance with AS4970-2009 (Protection of Trees on Development Sites); and (b) Tree Removal Plan for any trees proposed to be removed. In the event that street trees are required to be removed on Devon Street, replacement street trees are to be provided in consultation with Council.	3.2
B54	The Applicant must ensure the lighting associated with the development: (a) complies with the latest version of AS 4282-2019 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 2019); and (b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties, the public road network or the riparian corridor / Duck River.	3.2
Environmental management		
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
C1	be prepared by a suitably qualified and experienced person/s;	1 Section 1.2.1 of the CNMP (Annex C) Section 1 and document control page of the CTPMP (Annex E) Section 1.2 of the LMP (Annex F)
C1(a)	details of: i. the relevant statutory requirements (including any relevant approval, licence or lease conditions);	1.6.1 Section 3.2 of the CNMP (Annex C) Section 4 of the CTPMP (Annex E) Section 8.3 of the LMP (Annex F)
C1(a)	ii. any relevant limits or performance measures and criteria; and	3.2

Condition		CEMP reference
		Section 3.2 of the CNMP (Annex C)
C1(a)	iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	3.2 Annex G Section 3.2 of the CNMP (Annex C) Section 6.3 of the FERP (Annex D)
C1(b)	details of site-specific training to be provided to construction and operation personnel to ensure compliance with the plans;	4 Section 6.2 of the CNMP (Annex C) Section 6.3.3 of the FERP (Annex D) Section 5.3 of the CTPMP (Annex E)
C1(c)	a description of the measures to be implemented to comply with the relevant statutory requirements (including any relevant conditions under SSD 9302), limits, or performance measures and criteria;	3.2 Annex G Section 5 and 6 of the CNMP (Annex C) Section 6 of the FERP (Annex D) Section 4 and Appendix A and B of the CTPMP (Annex E) Section 3, 4, 5 and 6 of the LMP (Annex F)
C1(d)	a program to monitor and report on the: i. impacts and environmental performance of the development; and	6 Annex G Section 6 of the CNMP (Annex C) Section 4 and 6 of the FERP (Annex D) Section 5 and Appendix B of the CTPMP (Annex E)

Condition		CEMP reference
		Section 7 of the LMP (Annex F)
C1(d)	ii. effectiveness of the management measures set out pursuant to paragraph (c) above;	6 Annex G Section 6 of the CNMP (Annex C) Section 4 and 6 of the FERP (Annex D) Section 5 and Appendix B of the CTPMP (Annex E) Section 7 of the LMP (Annex F)
C1(e)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Annex G Section 6 of the CNMP (Annex C) Section 5 and Appendix B of the CTPMP (Annex E)
C1(f)	a program to investigate and implement ways to improve the environmental performance of the development over time;	6, 7 Section 6 of the CNMP (Annex C) Section 5 and Appendix B of the CTPMP (Annex E)
C1(g)	a protocol for managing and reporting any: i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	6.3 Section 6 of the CNMP (Annex C) Appendix B of the CTPMP (Annex E)
C1(g)	ii. complaint;	6.4 Section 6 of the CNMP (Annex C)
C1(g)	iii. failure to comply with statutory requirements; and	6.6 Section 6 of the CNMP (Annex C)

Condition		CEMP reference
C1(h)	a protocol for periodic review of the plan.	7 Section 6.8 of the CNMP (Annex C) Section 6.3.4 of the FERP (Annex D) Section 5 of the CTPMP (Annex E) Section 7 of the LMP (Annex F)
C2	The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	This plan
C3(a)	As part of the CEMP required under Condition C2 of this consent, the Applicant must include the following: Construction Traffic and Pedestrian Management Plan (see Condition B30);	Annex E
C3(b)	Erosion and Sediment Control Plan;	Annex H
C3(c)	Construction Noise Management Plan (see Condition B14);	Annex C
C3(d)	Community Consultation and Complaints Handling;	5.2 6.4 Refer to sub-plans
C3(e)	Flood Emergency Response (see Condition B23);	Annex D
C4	The Applicant must: (a) not commence construction of the development until the CEMP is approved by the Planning Secretary and provided to the EPA; and (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	Noted – this plan
Reporting and auditing		
C10	The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3.	6.3.2
C11	The Planning Secretary must be notified in writing to the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.	6.3.2

Condition		CEMP reference
C12	A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	6.3.2
C13	A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	6.3.2
Access to information		
C19	At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must: (a) make the following information and documents (as they are obtained or approved) publicly available on its website: i. the documents referred to in condition A2 of this consent; ii. all current statutory approvals for the development; iii. all approved strategies, plans and programs required under the conditions of this consent; iv. the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged; v. regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; vi. a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; vii. a summary of the current stage and progress of the development; viii. contact details to enquire about the development or to make a complaint; ix. a complaints register, updated monthly; x. the Compliance Report of the development; xi. audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report; xii. any other matter required by the Planning Secretary; and (b) keep such information up to date, to the satisfaction of the Planning Secretary.	5.2.5

1.5 CEMP structure

The CEMP comprises:

1. The CEMP (this document) which:

    a. provides background information and strategic and broad environmental management considerations for the project; and
    b. includes procedures and processes for environmental management during project delivery; and
    c. environmental management sub-plans, which describe controls and mitigation measures to manage specific environmental risks or customer/stakeholder concerns.

1.6 Standards and legislation

1.6.1 Legislation and regulatory requirements

VE Property is aware of the importance of complying with all applicable environmental measures, and where practicable, exceeds the minimum legislative and regulatory requirements. VE Property's obligations include conditions of regulatory approvals as well as the generally applicable environmental acts and their subsidiary legislation. VE Property and the project team monitor changes to environmental legislation through monthly updates on environmental law changes provided by EnviroLaw, and ensure compliance is maintained throughout the project's lifecycle.

Development consent SSD 10459 was granted to VE Property on 31 January 2021 for the project described in Chapter 2. A copy of the development consent is attached as Annex A.

The conditions relevant to the construction of the project are in Section 1.4.

1.6.2 Australian and New Zealand standards

The following standards relating to environmental management apply to the project:

- ISO 14001 Environmental Management Systems – Requirements with Guidance for Use.
- AS 1940 The Storage and Handling of Flammable & Combustible Liquids.
- AS 4326 The Storage and Handling of Oxidising Agents.
- AS 3780 The Storage and Handling of Corrosive Substances (similar standards exist for other classes of dangerous goods).
- AS 2436 Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites.
- AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods, in Packages and Intermediate Bulk Containers.

1.6.3 Other standards

The following other standards relating to environmental management apply to the project:

- BS 7385-2 Evaluation and Measurement for Vibration in Buildings. Guide to Damage Levels from Groundborne Vibration.
- IEC 61672.1-2004 Electroacoustics – Sound level meters (AS IEC 61672).

1.6.4 Guidelines

The following guidelines relating to environmental management apply to the project:

- IECA 2008 Best Practice Erosion and Sediment Control.
- ANZECC 1992 Australian Water Quality Guidelines for Fresh and Marine Waters.
- Landcom (2004) Managing urban stormwater – soils and construction volume 1.
- EPA (2014) Waste Classification Guidelines.



CHAPTER 2
PROJECT DESCRIPTION

2 PROJECT DESCRIPTION

2.1 Location and character

2.1.1 Location

The site is in Rosehill, approximately 2 km from the Parramatta Central Business District. The site address is 9 Devon Street, Rosehill and is part of lot 100 in deposited plan 1168951. The site covers 35.068 ha.

2.1.2 Zoning

The site is in the Parramatta Local Government Area (LGA) and is zoned IN3 Heavy Industrial under the land use table in Part 2 of the LEP.

2.1.3 Access and road network

The site is accessed from James Ruse Drive via Grand Avenue and Colquhoun Street or Grand Avenue, Durham and Devon streets (Figure 2.1). The site is accessed from Parramatta Road via Wentworth, Kay and Unwin streets.

Unwin, Kay, Wentworth, Colquhoun, Devon and Durham streets are local two lane/way roads with parking on both sides, although parking is limited on sections of these streets. Parramatta Road and James Ruse Drive are four lane state arterial roads.

Traffic management at local intersections comprises:

- Traffic signals at the intersections of Parramatta Road/Wentworth Street and James Ruse Drive/Grand Avenue.
- Roundabout at the intersection of Colquhoun Street/Grand Avenue.
- Priority for the Wentworth/Kay/Unwin/Colquhoun street route, with intersecting streets subject to give way and or stop signs.
- Stop sign at Grand Avenue/Durham Street intersection.

Traffic management at the Parramatta Road/Wentworth Street intersection comprises:

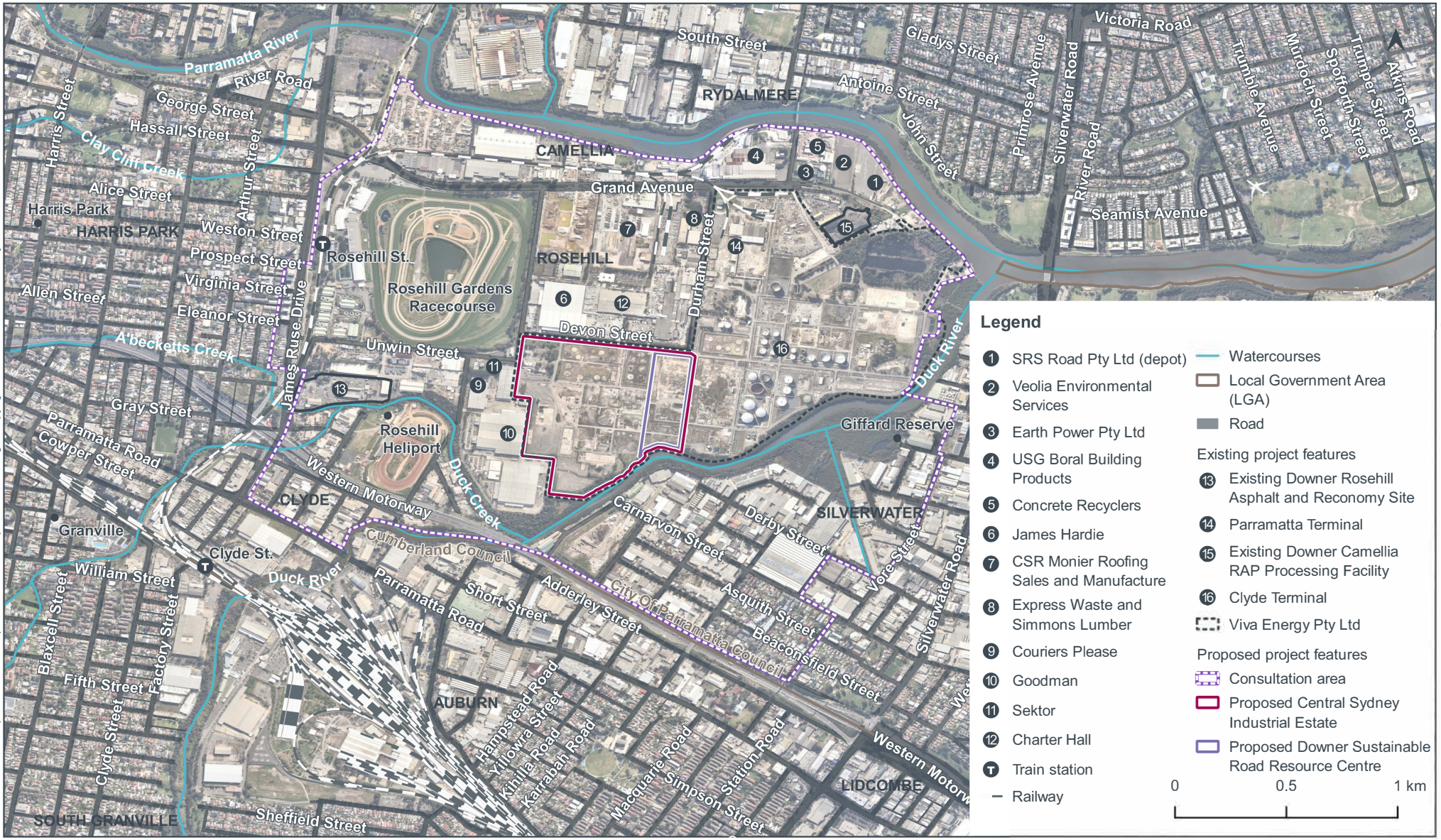
- Right turn bay and turning phase for the right turn into Wentworth Street.
- Two approach lanes in Wentworth Street.
- Two through lanes including one shared left in each direction of Parramatta Road.

Traffic management at the James Ruse Drive/Grand Avenue/Hassall Street intersection comprises:

- Right turning lanes in both approaches of James Ruse Drive and three through lanes (one shared left) in each direction.
- Multiple approach lanes in Grand Avenue and Hassall Street.

Personnel can also walk to the site from the Clyde Railway Station and bus stops on James Ruse Drive near George Street.

Figure 2.1
Local context



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2.1.4 Sensitive receivers

To assess potential impacts from the project on nearby landowners, sensitive receivers are shown on Figure 2.1 of Annex C. The receivers are categorised as:

- 'R' – private residential.
- 'FR' – future residential.
- 'In' – industrial.
- 'C' – commercial.
- 'Wor' – place of worship.
- 'Sch' – school.
- 'AR' – active recreation.

2.2 Description

The project involves the staged subdivision of the Central Sydney Industrial Estate on lands known as the Western Area of the former Shell Oil Refinery at Clyde. Stage 1 (being Lot 6 of the subdivision) will then be developed as the Downer Sustainable Road Resource Centre described in a separate CEMP.

VE Property proposes the following:

- Staged subdivision of the site into fourteen lots that will form the Estate.
- Earthworks/filling to bench the lots to form a flat pad in the northern half of the site then gradually grading down towards the Duck River in the southern half of the site.
- Construction of a new public access road running south from an intersection with Devon Street, providing access to those lots that do not front Devon Street, in accordance with council specifications.
- Installation of an inter-allotment stormwater drainage system to provide a single stormwater connection point to each lot of the proposed subdivision. Temporary erosion and sediment controls will also be installed to manage water quantity and quality over the lots until they are sold and developed, when permanent stormwater management infrastructure will be installed within each lot.
- A 40 m average riparian corridor along Duck River.
- Landscaping/planting:
    - Along both sides and around the cul-de-sac of the proposed access road.
    - Within the previously disturbed part of the proposed riparian corridor along Duck River in accordance with a LMP (Annex F) and vegetation management plan (VMP).

Provision has been made for a 5 m easement for services along the northern site boundary adjacent Devon Street. The extension of the following key municipal services will likely be required to suit the needs of each of the lots:

- Potable water – potentially construction of a ring main linking the main under Colquhoun Street to the main under Durham Street (subject to separate approval by Sydney Water).
- Wastewater (sewer) – extension of the rising main along Devon Street and minor sideline extension of the gravity sewer along Colquhoun Street (subject to separate approval by Sydney Water).
- Electricity – supply may be required to each lot from the high voltage line along Devon Street (subject to separate approval by Endeavour Energy).

Development of the Estate for new industrial uses (in accordance with current zoning), other than Lot 6, will then be subject to future applications.

2.2.1 Lot preparation

Condition B47 of SSD 9032 requires the rehabilitation of the Western Area to achieve the final landform shown in Appendix 4 of the consent. This application does not seek to modify the approved final landform, but rather, it seeks approval for the development of further earthworks to re-contour the land on the lots.

The lots other than Lot 64 will be benched in two stages (no works are proposed on Lot 64, which will be maintained as is).

Bulk earthworks on the other lots will comprise the construction of a flat pad at reduced level (RL) 4.8 m Australian height datum (AHD) in the northern half. The proposed earthworks will then gradually grade down towards Duck River in the southern half of the site to RL 4.4 m and 4.3 m AHD at the southern ends of lots 63 and 64 respectively.

Cut and fill is likely to be balanced with approximately 33,000 m^3 cut and 33,000 m^3 fill.

There will be an allowance for the importation of up to 30,000 m^3 of virgin excavated natural material (VENM) and/or excavated natural material (ENM) for site presentation.

All lots will be hydroseeded or spread with tackifier after earthworks to prevent wind erosion.

2.2.2 Access

Lots 51-56 will be accessed via new private entry driveways subject to a future development application after the lots are sold. Lots 55 and 56 will have the option of access either off Devon Street or the new public road. Lots 58-64 will be accessed from Devon Street via a new public road with driveways to the new road subject to future development applications after the lots are sold.

The new access road will be connected to Devon Street and will be an industrial road with asphalt surface and kerb and guttering to council standards. It is proposed as a public road.

The road reserve of the proposed road will be 21 m wide with a 12 m wide carriageway, 3.65 m wide western verge, and a 5.35 m wide eastern verge including a 3 m wide shared cycle/pedestrian path.

A road easement will be provided from the road to Duck River to allow for the potential road extension and bridge.

2.2.3 Stormwater management

Construction erosion and sediment controls

An erosion and sediment control plan has been included in Annex H.

Initially, a ‘Type D’ sediment basin will be installed on the southern site boundary, which will catch and treat the five day 85th percentile volume during construction. Water will be diverted to the basin via temporary diversion drains inside the site boundary, along the proposed road and the boundaries of some lots.

Type D basins are generally pumped out following rain when suspended solid concentrations of less than 50 mg/L are achieved from flocculation treatments.

Sediment fences will be installed along the site boundary to prevent sediment, not captured in the sediment basin, from migrating offsite.

Post construction pre-operation erosion and sediment controls

Once the lots are prepared, additional temporary Type D sediment basins will be installed in a corner of each lot to treat sediment laden runoff until the lots are developed by eventual owners. Additional temporary diversion drains will be provided to divert water from the lots to the basins. The basins will discharge to pits associated with the permanent drainage network described below.

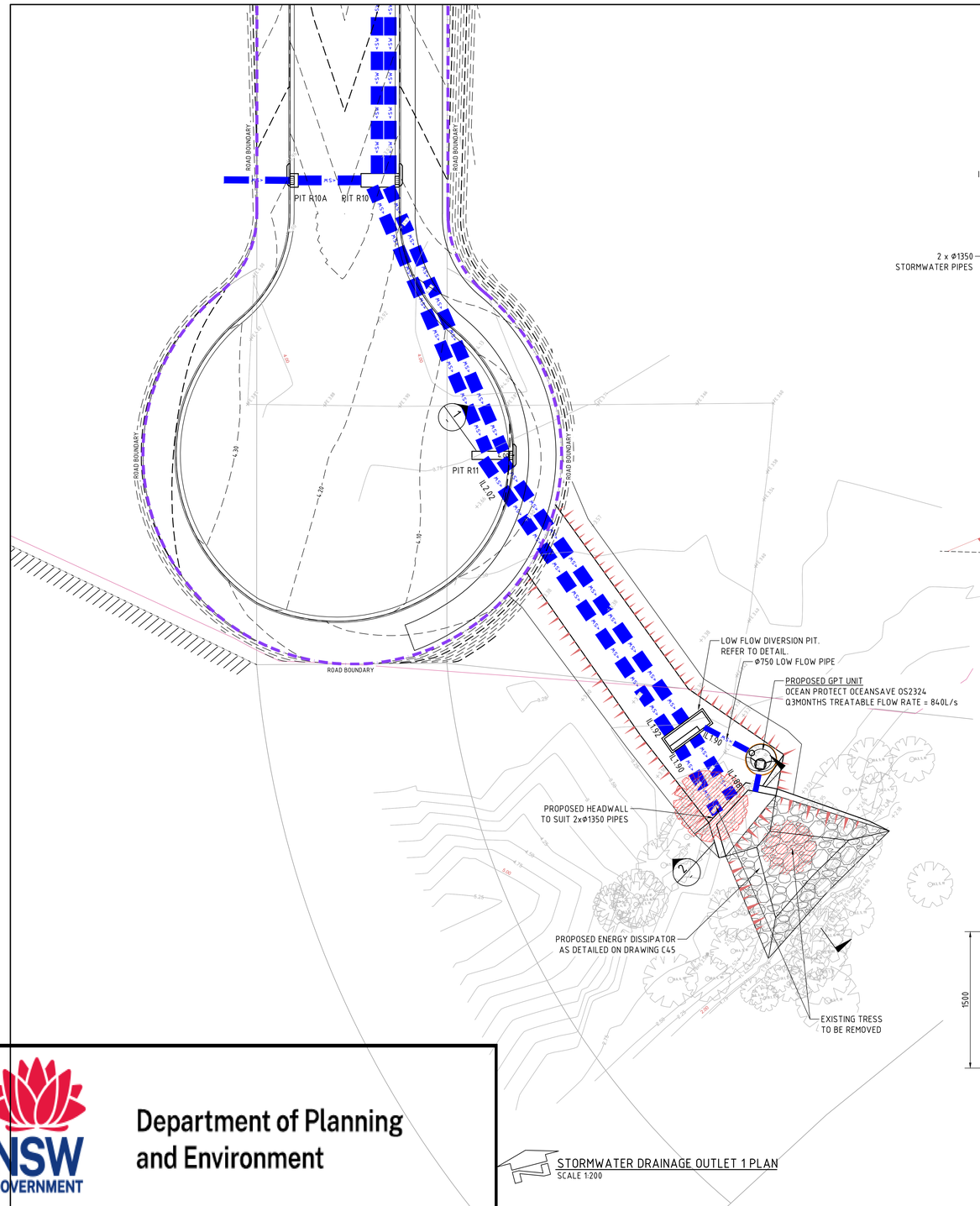
Other management measures will be:

- Minimising the extent of disturbed areas across the site at any one time.
- Progressive stabilisation of disturbed areas or previously completed earthworks.
- Regular monitoring and implementation of remedial works to maintain the efficiency of all controls.

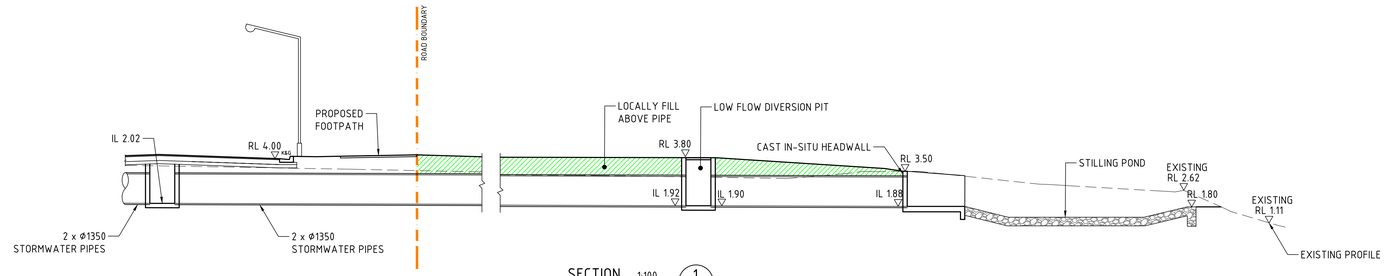
Modification to lot drainage

Stormwater from lots 51-55 will be discharged via 600 mm, 675 mm and 750 mm pipes to an existing stormwater easement along (outside) the western boundaries of lots 53, 60, 63 and 64, which eventually discharges to Duck River (Figure 2.2). The revisions are described in Costin Roe (2021) *SSD 10459 MOD1 – Central Sydney Industrial Estate Sustainable Road Resource Centre*.

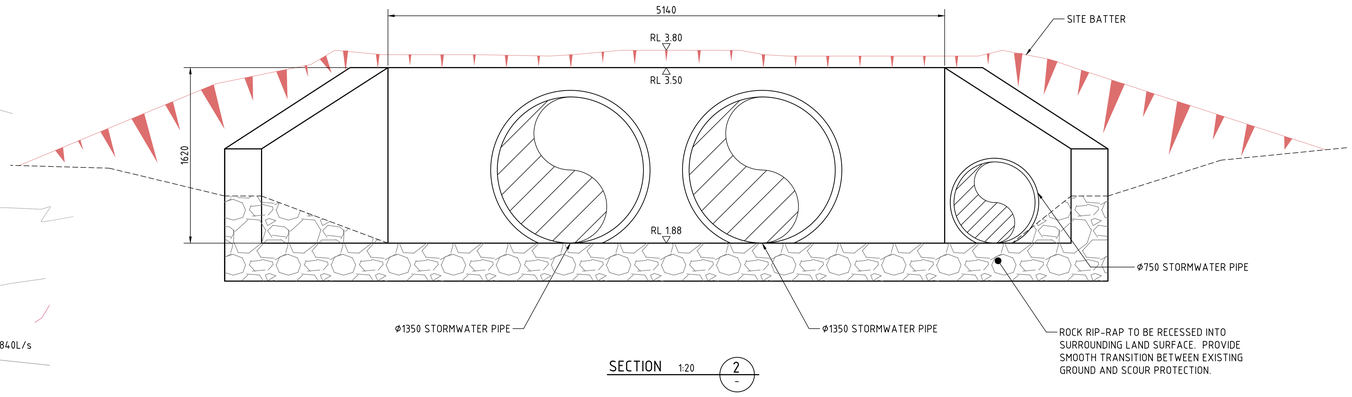
The existing outlet to the channel comprises a reinforced concrete pipe, associated head wall and natural energy dissipator. It is proposed to realign the outlet with the vegetated banks of the channel to remove potential for bank scour. Rip rap energy dissipators will be constructed in accordance with the outlet structure guideline in Landcom (2004) *Managing urban stormwater: soils and construction – volume 1.*



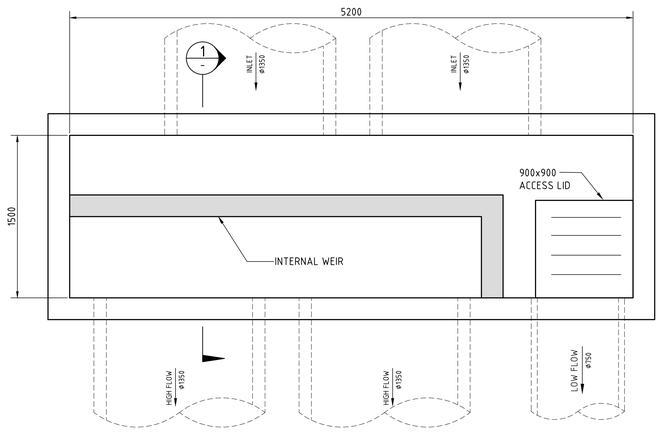
STORMWATER DRAINAGE OUTLET 1 PLAN
SCALE 1:200



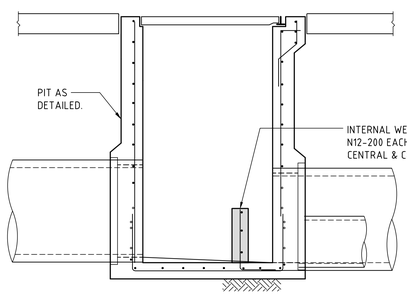
SECTION 1:100 (1)



SECTION 1:20 (2)



PLAN
SCALE 1:20



SECTION
SCALE 1:20

LOW FLOW DIVERSION PIT DETAIL

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A0 SIZE SHEET

1m 0 1 2 3 4 5 6 7 8 9 10m
SCALE 1:100 AT A0 SIZE SHEET

2m 0 5 10 15 20m
SCALE 1:200 AT A0 SIZE SHEET

Department of Planning and Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Section 4.55 (1A) Modification Application
Application number: SSD-10459-Mod-2
Granted on: 2 August 2023
Signed: JF Sheet number: 1 of 1

FOR APPROVAL

AMENDMENTS	DATE	ISSUE
ISSUED FOR APPROVAL	14.12.22	A

ARCHITECT

CLIENT

PROJECT
SUSTAINABLE ROAD RESOURCE CENTRE - STAGE 2
9 DEVON STREET, CLYDE NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
XC	HU	MAY 21		A0	AS SHOWN	C013919.01- C44

Costin Roe Consulting Pty Ltd.
Consulting Engineers ACN 003 988 668
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 9251-7699 Fax: (02) 9241-5731
email: mail@costinroe.com.au

Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE
STORMWATER DRAINAGE OUTLET 1 PLAN AND DETAILS

DRAWING No C013919.01-C44 ISSUE A

2.2.4 Landscaping

Areas of the site will be landscaped as described below and in Annex F.

Riparian corridor

There will be an average 40 m wide riparian corridor along the Duck River at the southern site boundary (Figure 2.3).

Access road reserve

The verges to the proposed road will be planted in accordance with council requirements.

Northern boundary

A 5 m easement along the sites northern and north-western boundaries will be provided for services along Devon and Colquhoun streets.

The existing turf and trees along the Devon and Colquhoun street frontages will be retained where possible, except at the proposed site access road. Provision has also been made for a 5 m landscape setback along the Devon and Colquhoun streets frontage with landscape works/planting subject to future development applications.

M.G.A

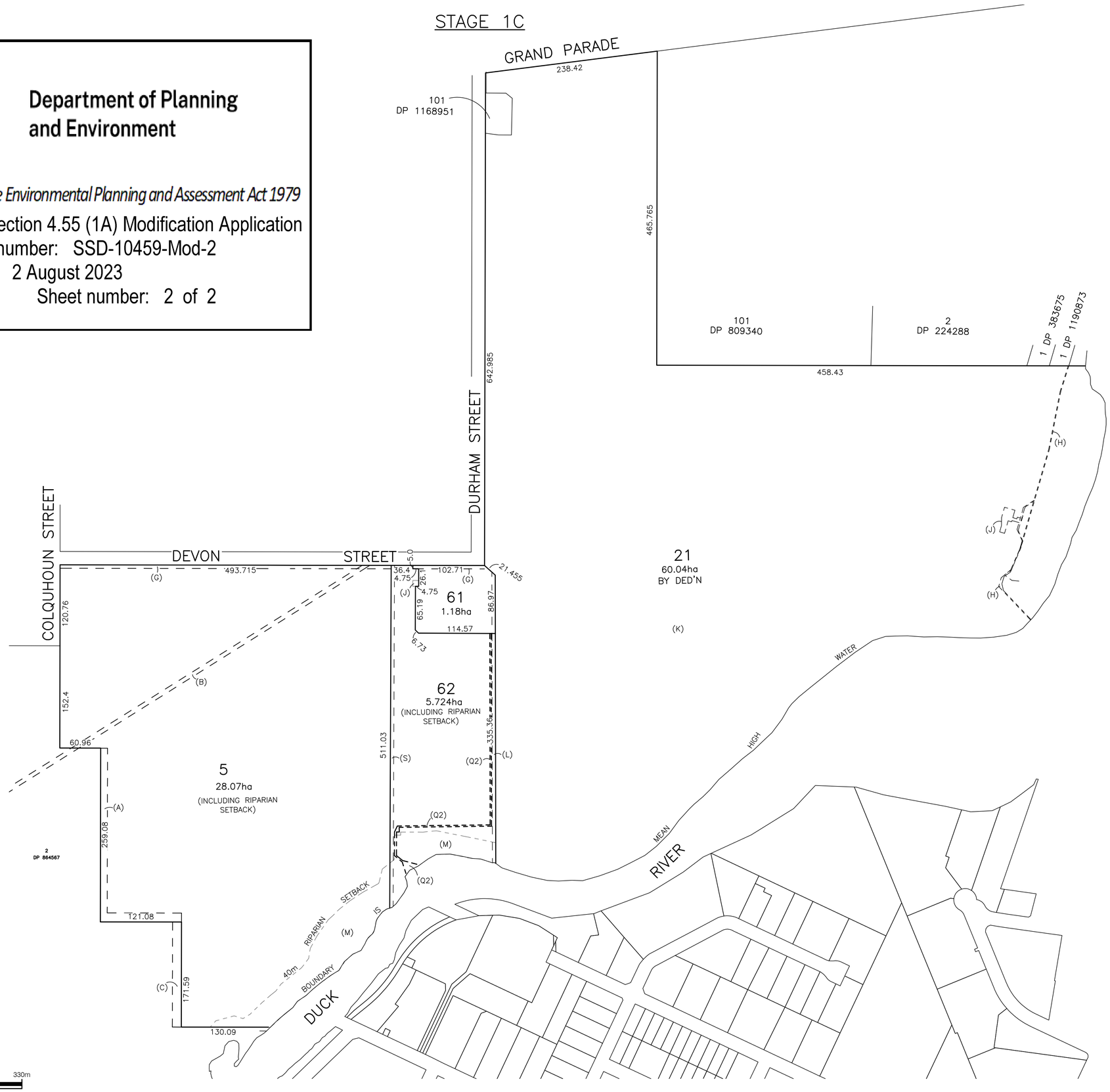
Department of Planning and Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Section 4.55 (1A) Modification Application
Application number: SSD-10459-Mod-2
Granted on: 2 August 2023
Signed: JF Sheet number: 2 of 2

NOTES:
1. ALL DIMENSIONS SHOWN HEREON ARE APPROXIMATE AND SUBJECT TO FINAL SURVEY
2. NO CADASTRAL SURVEY HAS BEEN UNDERTAKEN

(A) EASEMENT TO DRAIN WATER 10.2 & 13.4 WIDE (AC 424785)
(B) EASEMENT 6.095 WIDE (B309159) – SYDNEY WATER PIPELINE
(C) EASEMENT TO DRAIN WATER 13.4 WIDE (AC424784)
(G) PROPOSED EASEMENT FOR SERVICES 5 WIDE
(H) PIPELINE EASEMENT (V540637 & V540638)
(J) PIPELINE EASEMENT (V22813)
(K) PIPELINE EASEMENT WHOLE OF LOT (R297864)
(L) EASEMENT FOR OVERLAND FLOW 5 WIDE
(M) EASEMENT FOR PEDESTRIAN ACCESS 40 WIDE & VARIABLE WIDTH
(S) RESTRICTION ON THE USE OF LAND (DP1271928)
(Q2) EASEMENT FOR DRAINAGE OF WATER 2, 3 WIDE & VARIABLE WIDTH



30 0 60 150 330m
SCALE 1:3000

CLIENT
VE PROPERTY PTY LTD

PROJECT
PLAN OF PROPOSED SUBDIVISION OF LOT 100 IN DP 1168951 STAGE 1C

NOTES
The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.

Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.

Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

2	GKO	28/02/2023	EASEMENT (Q2) ADDED
1	GKO	14/02/2023	INITIAL ISSUE

SYM	CODE	DESCRIPTION
	BIN	BIN
	BM	BENCH MARK
	BO	BOLLARD
	DJM	DRAINAGE MANHOLE
	EFP	ELEC FUSE BOX
	ELP	ELEC GARDEN LIGHT
	EL	ELEC GREEN PILLAR
	LP	ELEC LIGHT POLE
	EP	ELECT SINGLE PIT
	SPL	ELEC STAY POLE
	PP	ELEC POWER POLE
	ELP	ELEC POLE/LIGHT
	TRANS	ELE POLE/TRANSFORM
	FD	FUEL DIP
	GM	GAS MAIN
	GMR	GAS METER
	GAS	GAS VALVE
	AG	GATE
	GUL	GULLY PIT
	HYD	HYDRANT
	BOR	BOREHOLE

SYM	CODE	DESCRIPTION
	OFM	OPTICAL FIBRE MARKER
	OFP	OPTICAL FIBRE PIT
	TM	PALM TREE
	SE	SEAT
	TS	SHRUB
	TCA	TELSTRA PIT
	SLH	SEWER LAMP HOLE
	SMH	SEWER MANHOLE
	SVP	SEWER VENT PIPE
	SI	SIGN
	BUS	BUS STOP SIGN
	T	TREE
	SGL	TRAFFIC LIGHT
	SCL	TRAFFIC CONTROLLER
	SJX	TRAFFIC JUNCTION BOX
	US	UNKNOWN SERVICE
	WAV	WATER AIR VALVE
	WMR	WATER METER
	WEP	WATER PUMP
	WSV	WATER STOP VALVE
	WTP	WATER TAP

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

DRAINAGE PIPE U/G — SW
DRAIN — D
ELECT. CABLE A/G — E
ELEC. CABLE U/G — E
GAS PIPE — GAS
FENCE LINE
SEWERAGE PIPE — S
TELSTRA CABLE — T
WATER PIPE — W

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w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: CITY OF PARRAMATTA
HEIGHT ORIGIN: N/A	SCALE: 1:3000(A1)
MERIDIAN: 56	CONTOUR INTERVAL: N/A
CO-ORD SYSTEM: MGA	SURVEYOR: N/A — DATE OF SURVEY: -
CCAD FILE: 74707 ver 9 final subdivision	DRAWN: SF — DATE: 28/02/2023
AUTOCAD FILE: SY074707.000.11C.2	CHECKED: GKO — DATE: 28/02/2023
ARCHIVE FILE: SY074707.000.11B.10	APPROVED: GKO — DATE: 28/02/2023
PLAN NUMBER: SY074707.000.11C.2	SHEET 1 OF 1

PD:GKO

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2.2.5 Services

The site is serviced with key municipal services as part of its previous use as Clyde Refinery and Terminal. However, the site will require service extensions to the proposed lots.

The following existing services are shown on Drawing C013919.01-DA15 (refer to Appendix 1 of Annex A):

- Potable (drinking) water.
- Recycled Water.
- Wastewater (sewer).
- Electricity.
- Communications.
- Gas.

Potable water

A connection to Sydney Water's 375 mm cast iron cement lined potable water main in Colquhoun Street is available to Lot 51. However, no connections are available to the other lots. VE Property has engaged a Sydney Water servicing coordinator (SWSC) to coordinate delivery of potable water to the site.

Sydney Water will issue a notice of requirements after the development application is approved, which will confirm connection requirements to the new lots. The SWSC advises potable water supply can be provided to each lot by way of mains connection along Devon Street.

However, the SWSC advises Sydney Water will likely take the opportunity to link the existing 375 mm main in Colquhoun Street with the 200 mm main in Durham Street along Devon Street. This would produce a 'ring main', providing a higher level of reliability for lots in this area in case of a main break/shutdown.

Potable water services will be designed to the requirements of Sydney Water following the receipt of the notice of requirements.

Sewer

The following Sydney Water sewer assets occur adjacent to the site:

- Rising main in Durham and Devon streets.
- Gravity main in Colquhoun Street.

The SWSC will coordinate provision of sewer to the site and advises a rising main/pressure main will be required from Colquhoun Street to the lots. Sydney Water will confirm sewer requirements in the notice of requirements.

Recycled Water

A recycled water service operated by Water Utilities Australia (Aquanet) along Devon and Durham streets is available to the site. Water Utilities Australia has advised supply could be made available and that the water is suitable for industrial uses, irrigation, wash down, cooling towers and boilers and use in recycling processes.

VE Property will negotiate extension of the current supply along the new public road to all lots to make recycled water available to future users, should new users require it.

Electricity

The site is in a good location for electrical supply given its proximity to Camellia Zone and Rosehill Zone substations.

Endeavour Energy has granted approval for the installation of all electrical services.

An electrical substation to suit the initial streetlight power for the subdivision, will be built on Lot 54.

Communications

NBN Co is the communications authority relevant to the site. There are national broadband network (NBN) services in Devon Street which can be extended to each lot. The need for minor extensions will be confirmed with NBN Co.

2.3 Hours of construction, employment, plant and equipment

Preparation of the lots will commence after conclusion of the works associated with WARP. Civil works will commence in the second half of 2021 and will take approximately nine months. Installation of services will occur prior to this, likely in the first half of 2021.

Construction will typically occur between 7am-6pm Monday-Friday and 8am-1pm Saturday. Construction will also take place at night-time and on Sundays when required. Construction on public holidays will be avoided.

There will be up to 35 construction employees on site at any time.

There will be up to 10 items of plant and equipment on site at any time comprising water cart, dump trucks, excavators, front end loaders, compactors, concrete truck, bulldozer, grader, backhoes, small and medium cranes, concrete pump, kerb and guttering machine, piling rig and concrete crusher.

2.4 Construction contacts

The key construction contacts are in Table 2.1.

Table 2.1 Construction contacts

Role	Name	Contact details
Project Director	TBC	TBC
Project Manager	TBC	TBC
Senior Project Engineer	TBC	TBC
Project Environment Manager	TBC	TBC
Site Supervisor	TBC	TBC
Safety Manager	TBC	TBC



CHAPTER 3
ENVIRONMENTAL MANAGEMENT

3 ENVIRONMENTAL MANAGEMENT

3.1 Objectives and targets

The objectives and targets in Table 3.1 aim to ensure that identified and potential environmental impacts that could occur during works are within acceptable and agreed limits. This is achieved through pro-active environmental management planning prior to carrying out work.

Table 3.1 Objectives and targets

Focus area	Objective	Target
Legal Compliance	▪ Compliance with all legal requirements. ▪ Construct the project in accordance with environmental approvals.	▪ No regulatory infringements, including PINS and prosecutions. ▪ 100% compliance with statutory approvals.
Monitoring	Complete internal environmental audits in accordance with the pre-planned audit schedule.	Complete 100% of scheduled environmental audits.
Reporting	Promote a positive reporting culture. Ensure all environmental observations, hazards and near misses and incidents are recorded. Ensure actions are closed out by the nominated due dates.	0 actions arising from incident overdue >30 days.
Planning	Ensure that workers are provided with regular and up-to-date information on environmental aspects for the duration of the project.	Review the content of the CEMP prior to 25% of the scheduled project duration to maintain the currency of information provided to workers and others.
Risk Management	Ensure that workers are familiar with hazards and risks associated with the execution of the scope of work (work under contract).	Work is conducted in accordance with the CEMP, sub-plans and conditions of consent.
Consultation	Ensure that workers are regularly consulted on matters that affect the environment.	Conduct pre-start meetings (daily), and toolbox meetings (monthly).
Training	Ensure workers are provided with training to enable work practices to be undertaken that are safe and minimise risk to the environment.	All workers undertake, as a minimum, the two levels of induction training, i.e. project specific induction and site specific induction.

3.2 Risk management

Throughout the duration of the project, risks and opportunities are identified, assessed, and controlled using a number of different tools.

The identification of environmental activities, the respective potential impact to the environment and measures to avoid, mitigate and manage the potential environmental impacts is determined following a review of the:

- contract and its associated environmental conditions;
- development consent conditions (Annex A);
- environmental impact statement and response to submissions; and
- actual scope of work and consideration of all applicable legislation, standards, and other conditions.

Table 3.2 provides measures to avoid, mitigate and manage the potential environmental impacts identified through the environmental impact assessment of the project. The sub-plans outlining further management measures for specific aspects are in the following annexes:

- Annex B: Unexpected contamination procedure.
- Annex C: Construction noise management plan (CNMP).
- Annex D: Flood emergency response plan (FERP).
- Annex E: Construction traffic and pedestrian management plan (CTPMP).
- Annex F: Landscape management plan (LMP).
- Annex G: Contingency management plan.
- Annex H: Construction erosion and sediment control plan (ESCP).

Table 3.2 Environmental management measures

Aspect	Measure	Timing/frequency
General	All reasonable and feasible measures will be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from construction.	Construction
	All licences, permits, approvals and consents will be obtained and maintained as required for the development.	Prior to construction and ongoing
	VE Property will obtain relevant approvals from service providers before the construction of any utility works.	Prior to construction
	The information listed in Condition C19 will be uploaded to the website and kept up to date.	At least 48 hours prior to construction
	The incidents and complaints management strategies in this CEMP will be implemented to ensure that any incidents and/or complaints relating to the construction activities are promptly and effectively addressed.	Construction
	Construction employees and contractors will be suitably inducted and trained prior to commencing any work on site.	Prior to construction and ongoing
Air quality	Weather forecast to be checked prior to undertaking material handling or processing and appropriate management measures implemented prior to adverse weather to minimise dust e.g. dampening exposed surfaces and haul roads, dampening or covering temporary stockpile with high fines fractions. If adverse weather conditions occur during construction, activities are to be assessed and modified as required. Cease activity where reasonable levels of dust cannot be maintained using available means.	Construction
	Engines of on-site vehicles and plant to be switched off when not in use.	Construction
	Vehicles and plant are to be fitted with pollution reduction devices where practicable.	Construction
	Vehicles are to be maintained and serviced according to manufacturer's specifications.	Construction
	Activities are to be visually monitored to identify dust generation.	Construction
	The extent of exposed surfaces and stockpiles is to be kept to a minimum.	Construction
	Exposed areas and stockpiles are either to be covered or are to be dampened with water as far as is practicable if dust emissions are visible, or there is potential for dust emissions outside operating hours. Stockpiles of material that are going to remain in place for an extended period of time and have the potential to generate dust are to either be covered or vegetated.	Construction
	Dampen material when excessively dusty during handling.	Construction
	Reduce drop heights from loading and handling equipment where practical.	Construction
	Vehicle traffic is to be restricted to designated routes.	Construction
	Co-ordinate the delivery schedule to avoid a queue of incoming or outgoing trucks that will be idling for extended periods of time.	Construction

Aspect	Measure	Timing/frequency
	Speed limits are to be enforced.	Construction
	Vehicle loads are to be covered when travelling off-site.	Construction
Water and soils	If more than 3 ML/yr of groundwater is predicted to be taken during construction of the project, VE Property or their appointed contractor will consult with NRAR regarding acquisition of a license under the NSW *Water Management Act 2000*.	Prior to groundwater dewatering
	Erosion and sediment control plans (ESCPs) (Appendix B3 of Appendix B of the RTS), or equivalent, will be incorporated into the CEMP. The ESCPs will be prepared in accordance with the Blue Book. The following aspects will be addressed within the ESCPs and CEMPs: ▪ Construction traffic restricted to delineated access tracks and maintained until construction complete. ▪ Appropriate sediment and erosion controls to be implemented prior to soil disturbance. ▪ Stormwater management to avoid flow over exposed soils which may result in erosion and impacts to water quality. ▪ Location of stockpiles outside of flow paths. ▪ Inspection of all permanent and temporary erosion and sedimentation control works prior to and post rainfall events.	Prior to and during construction
	The quality of discharge from the site is to satisfy the following Water Quality Objectives (WQOs) per Landcom Blue Book requirements: ▪ Water pH released from a controlled sediment basin outflow shall be within the range 6.5 to 8.5. ▪ Suspended solids released from controlled sediment basin outflows will be no greater than 50mg/L, 75 NTU's (Nephelometric Turbidity Units) or other turbidity measurement based on confirmed laboratory correlation. Any correlation should be confirmed through laboratory assessment. ▪ Oils and grease – no visible films or odour. ▪ Litter – no visible litter washed or blown from the site.	Construction
	The effectiveness of sediment and erosion control measures will be confirmed through ongoing site inspections by the construction contractor. Adjustments as required during the construction period will be made based on confirmed site conditions and effectiveness of the implemented measures.	Prior to and during construction
	Only VENM, ENM, or other material approved in writing by EPA will be brought onto the site.	Construction
	Accurate records of the volume and type of fill used will be kept and made available to the Planning Secretary upon request.	Construction
	VE Property or their appointed contractor will comply with section 120 of the POEO Act, which prohibits the pollution of waters.	Construction
	All temporary earth diversion berms/bunds and sediment basin embankments will be machine compacted, seeded and mulched for temporary vegetation cover as soon as they have been formed.	Construction
	Clean water will be diverted away from disturbed ground and into the drainage system.	Construction
	All sediment trapping structures and devices will be inspected after storms or high rainfall (>20mm) for structural damage or clogging, trapped material will be removed to a safe, approved location.	Construction – after rain

Aspect	Measure	Timing/frequency
	All cut and fill slopes will be seeded and hydromulched.	Construction – within 10 days of completion of slopes
	Access and exit areas will include 'truck shaker', or other approved methods, for the removal of soil materials from motor vehicles.	Construction
	VE Property or their appointed contractor will provide and maintain slopes, crowns and drains on all excavations and embankments to ensure satisfactory drainage at all times. Water will not be allowed to pond on the works unless such ponding is part of an approved ESCP.	Construction
	Sediment basins will have a marker placed as per the detail to indicate when sediment should be removed.	Construction
	Sediment removed from a basin is to be classed and dewatered prior to removal from site.	Construction
Biodiversity	An average 40 m riparian corridor will be provided along Duck River consistent with the averaging rule described in DPI Water's (2012) Guidelines for Riparian Corridors on Waterfront Land.	Construction
	The existing native vegetation along Duck River is to be demarcated as a no-go zone and is to include appropriate signage. Access to the 40 m riparian corridor (outside the existing native vegetation) during construction is to be limited to personnel and equipment required to install the stormwater outfalls and for revegetation works in accordance with the vegetation management plan. After the stormwater outfalls and revegetation works are complete, the 40 m riparian corridor will be permanently fenced, and the only access will be for maintenance. For works associated with the new stormwater outlet at the end of the new cul-de -sac, where the following management measures are proposed: ▪ A restricted access zone is to be outlined around the footprint and surrounds of the extended drainage outlet construction area. This area is to include land within a radius of 15 m from the extended drainage construction footprint, excluding the no-go area outlined above and excluding areas within the original construction footprint i.e. landwards from the extended drainage outlet. Access to this zone is to be restricted to workers and machinery working on the extended drainage outlet only. Construction activities in this zone are to be limited only to those necessary to construct the outlet. Equipment or materials that are not associated with this construction are not to be used or stored in this zone; ▪ Prior to the commencement of construction the restricted access zone is to be cleared of all high threat and/or environmental weeds by a landscape management or bush regeneration contractor. All weed control is to be undertaken in accordance with accepted low-impact bush regeneration techniques. All removed weed material is to be removed off site for disposal at a licenced green waste facility; ▪ Vegetation and habitat values within the site should be managed as per the VMP; ▪ All nearby trees not subject to full removal are to be retained and protected during construction in accordance with the arborist's recommendation (Appendix C of UTM 2023). These measures are to be Central Sydney Industrial Estate – ecological assessment of revised drainage and maintained throughout construction. Should any additional impacts to trees be required this must only be undertaken on consultation with a suitably qualified and experienced arborist; ▪ Erosion and sediment control measures are to be installed on the downhill side of all construction disturbance areas, including for an additional minimum of 20 m either side (upstream and downstream along the alignment of Duck River) from the extent of the	Prior to and during construction

Aspect	Measure	Timing/frequency
	disturbance area. These measures are to be inspected and, if necessary, maintained on a daily basis, as well as after any substantial rainfall event (<5 mm within 24 hours); ▪ No vehicle, concrete or other wash down is to be undertaken within the restricted access zone or the no-go area. All such activities must be undertaken with designated locations equipped with appropriate controls within the main construction area; ▪ Operational lighting should be directional and aimed away from the riparian corridor to avoid disturbance to nocturnal animals, particularly bats and birds; ▪ Control the movement of vehicles, machinery and human traffic into the riparian corridor during construction by demarcation and/or signage so as to minimise the potential for introduction and spread of weeds.	
	The riparian corridor within the project site is to be inspected on a regular basis to allow early identification of any unexpected impacts associated with construction of the project, so that construction management measures can be adjusted/ revised to prevent any further impacts.	Construction
	Excavations are to be checked at the start of each day for the presence of any fauna that may have entered the site and become trapped during the night. A suitably qualified ecologist is to be engaged to relocate any fauna if required.	Construction
	If unexpected threatened flora and fauna species are discovered, stop works immediately and contact DPIE - Environment, Energy and Science group for advice.	Construction
	If impacts to aquatic environments are observed within the vicinity of the work area (e.g. spill of any chemicals or substantial runoff of sediment), works at that location should cease and the NSW EPA and/or council should be contacted for further advice.	Construction
	Suitable measures will be implemented to manage declared priority weeds.	Construction
	Prior to services installation works commencing within Devon Street, VE Property is to engage an AQF Level 5 Arborist to prepare a: ▪ Tree protection plan and tree management specification to incorporate specific tree protection measures to the street trees along Devon Street in accordance with AS4970-2009 (Protection of Trees on Development Sites). ▪ Tree removal plan for any trees proposed to be removed. If street trees are required to be removed on Devon Street, replacement street trees are to be provided in consultation with Council.	Prior to installation of services
Aboriginal heritage unexpected finds protocol	The following procedure will be implemented if a suspected Aboriginal or historic heritage object is identified during construction of the project: ▪ All works must cease immediately in the area to prevent any further impacts to the object. ▪ A 10 m wide buffer area around the suspected item or object must be cordoned off. ▪ Notify environmental representative. ▪ Engage a suitably qualified archaeologist to determine the nature, extent and significance of the find and provide appropriate management advice. Management action(s) will vary according to the type of evidence identified, its significance (both scientific and cultural) and the nature of potential impacts. ▪ Notify the Environment, Energy and Science Group of the unexpected find and management advise provided by the appointed archaeologist. ▪ Prepare and submit an Aboriginal Heritage Information Management System (AHIMS) site card for the site if it is Aboriginal.	Construction

Aspect	Measure	Timing/frequency
	▪ Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974*.	
Historic heritage unexpected finds protocol	If any archaeological relics are uncovered during the course of the work, then all works must cease immediately in that area. Unexpected finds must be evaluated and recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.	Construction
Human skeletal remains	The following procedure (New South Wales Police Force, 2015; NSW Health, 2008) will be implemented if potential human skeletal remains are identified during construction of the project: 1. All work in the vicinity of the remains should cease immediately. 2. The location should be cordoned off and the NSW Police notified. 3. If the Police suspect the remains are Aboriginal, they will contact the Environment, Energy and Science Group and arrange for a forensic anthropologist or archaeological expert to examine the site. Subsequent management actions will be dependent on the findings of the inspection under Point 3 above: ▪ If the remains are identified as modern and human, the area will become a crime scene under the jurisdiction of the NSW Police. ▪ If the remains are identified as pre-contact or historic Aboriginal, the Environment, Energy and Science Group and relevant Aboriginal parties are to be formally notified in writing. Where impacts to exposed Aboriginal skeletal remains cannot be avoided an appropriate management mitigation strategy will be developed in consultation with Environment, Energy and Science Group and Aboriginal parties. ▪ If the remains are identified as historic non-Aboriginal, the site is to be secured and Heritage NSW contacted. ▪ If the remains are identified as non-human, work can recommence immediately.	Construction
Hazardous substances and dangerous goods	All personnel will complete awareness training that includes hazardous substance management, emergency response and the use of spill kits.	Construction
	Hazardous materials will be transported to and from the site by a licensed contractor, and stored and handled in accordance with the requirements of relevant regulatory requirements, Australian Standards and the ADG Code.	Construction
	Vehicles and transport vessels used on-site are to be regularly inspected for leaks, spills or other damage.	Construction
	Storage and handling of any dangerous goods shall comply with Australian Standards, including but not limited to AS1940 and AS 3780.	Construction
	Appropriately sized and stocked spill response kits would be provided within strategic areas of the site, and within mobile vehicles used to transport hazardous materials at the site.	Construction
	Spill response kits would be maintained, clearly identified and readily accessible on site for use in case of accidental spill. Key staff will be skilled in their location as well as usage, application and disposal of contaminated material.	Construction
	During construction activities, all hazardous substances will be stored in appropriate containers in bunded areas within mobile vehicles, or designated storage areas to minimise the risk of spillages and mobilisation of any pollutants into the soil or stormwater drains.	Construction

Aspect	Measure	Timing/frequency
	Vehicles and equipment will be refuelled at the diesel storage area.	Construction
	Any scheduled mobile plant maintenance and repairs will be conducted offsite	Construction
	Equipment will not be used if there are any signs of fuel, oil or hydraulic leaks. Leaks will be repaired immediately, or the equipment will be removed from site and replaced with a leak-free item.	Construction
	Any chemicals and fuels will be stored, labelled, transported and used in accordance with Australian standards and in line with best practices. All hazardous substances or chemicals imported to site shall be accompanied by a safety data sheet.	Construction
	A database would be maintained to assist in the recording and management of any chemicals and hazardous substances stored at the project site.	Construction
	Any fuels spillage will be collected, and the contaminated material disposed of at a licensed waste management facility.	Construction
	Emergency procedures will be prepared and implemented for dealing with spillage of hazardous substances and dangerous goods.	Construction
	Any contaminated soil resulting from spills would be excavated, classified in accordance with Waste Classification Guidelines, and disposed to a licensed waste management facility, or, remediated on site in accordance with recommendations provided within a contaminated land management action plan developed by a contaminated land specialist.	Construction
	The unexpected contamination procedure in Appendix B will be implemented if suspected contamination is discovered during works.	Construction
Public safety	To address the risks to public safety, the site will be fully fenced. The site entry and exit points will be monitored by surveillance cameras, and have necessary signage erected. All vehicle and pedestrian movements in and out of the site will be closely monitored.	Construction
	All visitors to the site will be required to report to the site administration office and register prior to gaining entry to the active areas of the site.	Construction
Risk to workers	Designated first aid and emergency response equipment will be available. Appropriately trained personnel will be on site throughout the life of the operations to provide first aid and respond to site emergencies.	Construction
	Any injuries incurred at the site will be reported and investigated in consultation with SafeWork NSW and other relevant authorities. Any recommendations or findings of investigation reports will be implemented by VE Property and their appointed contractor where feasible and practical.	Construction
Waste	Waste will be managed in accordance with the waste hierarchy of avoidance, re-use, recycling/re-processing/treatment and disposal.	Construction
	Waste will be managed in accordance with EPA's (2014) Waste Classification Guidelines and regulatory requirements. This will include (i) its classification prior to leaving the site and (ii) recording (via an appropriate waste tracking system) its legal off-site transportation for re-use, recycling or disposal.	Construction
	Waste will be stored in a suitable container, with a lid, and transported from the site to an appropriate facility. Enough suitable receptacles for general waste, hazardous waste and recyclable materials will be provided for waste disposal, including sufficient bins to allow separation of wastes for recycling.	Construction
	All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.	Construction

Aspect	Measure	Timing/frequency
	Wastes will be securely stored to ensure that pollutants are prevented from escaping.	Construction
	Fuel, lubricant or hydraulic fluid spillages will be collected using absorbent material and the used spill kit material will be stored separately before disposal to a suitably licensed waste facility.	Construction
	Hazardous materials will only be removed by suitably qualified, licensed and experienced contractor.	Construction
	Documents and records of the transport and destination of all materials removed from site will be kept as proof of correct disposal and for environmental auditing purposes.	Construction
	Waste streams will be sorted to maximise the reuse/recycling potential and minimise disposal costs.	Construction
	Waste will be covered, stored and removed in a timely manner so as not to attract animals.	Construction
	Waste handling, transport and disposal will be in accordance with the requirements of the POEO Act, WARR Act and relevant EPA or SafeWork NSW guidelines.	Construction
	A waste management register will be maintained and will include: ▪ Type of waste and its classification (according to the POEO Act and Waste Classification Guidelines). ▪ Quantities of waste, measured in tonnes. ▪ How and where the waste was reused, recycled, stockpiled or disposed of. ▪ Date when the waste was reused, recycled, stockpiled or disposed of. ▪ Name and waste transport licence (if applicable) of the transporter used.	Construction
	All sampling and waste classification data will be retained for the life of the development in accordance with the requirements of the EPA.	Construction
Landscaping and visual amenity	Landscaping will be in accordance with the landscape design report and landscaping plans in Annex F.	Construction
	Outdoor lighting will be installed and operated in accordance with Australia Standard 4282–2019 – Control of the obtrusive effects of outdoor lighting, including directing lighting inside the site minimising light spillage outside the site.	Pre-construction/ design and construction
New access road	Prior to the issue of a Subdivision Works Certificate for Stage 3, detailed engineering plans of the new access road, proposed as part of Stage 3 are to be submitted to Council's Traffic and Transport Manager for consideration by the Parramatta Traffic Committee and approval by Council. The construction of the proposed road is to be carried out by VE Property with all associated costs to be paid for by VE Property.	Pre-construction/ design and construction
	Prior to the release of the Subdivision Certificate for Stage 3, VE Property must complete the construction of the access road described in condition B32 to the satisfaction of the relevant roads authority. VE Property must obtain approval for the works under section 138 of the *Roads Act 1993*.	Pre-construction/ design and construction
	Prior to any dedication, VE Property must ensure that the construction of the road has been completed to the satisfaction of the relevant roads authority.	Construction

3.3 Change management

Zero Harm related changes in the workplace are managed using the following process:

- Initiate and plan the change.
- Consult on the change.
- Approve the change.
- Implement the change.
- Review the change.

3.4 Subcontractor management

Subcontractors comply with the requirements of the subcontract agreement, which includes the details of all environmental requirements while performing works under the control and direction of VE Property or their appointed contractor.

Subcontractor personnel adopt the same responsibilities as outlined for personnel, inclusive of reporting all matters relating to health, safety, and the environment.

Pre-qualification evaluation and assessment, engagement, review and on-site management and monitoring of subcontractors is undertaken.



CHAPTER 4

TRAINING AND AWARENESS

4 TRAINING AND AWARENESS

4.1 Overview

VE Property recognises the importance of employee training and induction, and the critical role it plays in supporting the safe and environmentally responsible conduct of project operations.

VE Property promotes the following:

- A person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.
- In determining what activities are required to be taken, the following are considered (amongst other things):
    - The nature of the pollution or potential pollution and the sensitivity of the receiving environment.
    - The current state of technical knowledge and likelihood of successful application of the activities that might be taken.
    - The financial implications of the activities that might be taken, as those implications relate to the class of person undertaking activities of the same or a similar kind.

VE Property manages project activities in such a manner as to:

- minimise impact to the environmental; and
- educate personnel on their responsibilities relating to protecting the environment.

All personnel have environmental management responsibilities, and VE Property ensures that these responsibilities are communicated to all personnel via appropriate environmental management training, including the initial environment induction.

4.2 Inductions

Environmental awareness training is provided to all personnel involved with the project, including all subcontractors and visitors, via inductions.

A project specific induction is delivered to all personnel and subcontractors highlighting the hazards specific to the site, and the controls necessary to manage them appropriately. Induction handbooks and associated training presentations may be used for the induction.

Personnel are re-inducted annually. The environmental component of the induction is tailored for each group of inductees (as applicable) to ensure that specific components of work are adequately addressed. This method of environmental awareness training ensures that all personnel are aware of:

- The importance of conformance with environmental policy and procedures and the requirements of the CEMP and associated sub-plans.
- The significant environmental aspects of the project works and the environmental benefits of improved work performance.
- Their roles and environmental responsibilities for achieving conformance with environmental policy and procedures and with the CEMP, including site emergency preparedness and response requirements.
- The potential consequences of departure from specified operating procedures.

All personnel, including subcontractors, attend inductions prior to commencing work on the project. Records of inductions are recorded in the project's training matrix.

4.2.1 Induction and environmental training

The Project Manager will ensure that all employees and contractors involved in construction are appropriately inducted and trained prior to commencing work on site. Training in relation to environmental responsibilities and implementation of this CEMP will take place initially through the site induction training and then on an ongoing basis through 'toolbox talks' (or similar).

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

- Purpose and objectives of the CEMP.
- Requirements of due diligence and duty of care.
- Conditions of any environmental licences, permits and approvals.
- Potential environmental emergencies on site and the emergency response procedures, locations and training in the use of emergency spill kits for spills on water and on land.
- Reporting, notification and management requirements for pollution, contamination and other environmental incidents, and for damage and maintenance to environmental controls.
- High-risk activities and associated environmental safeguards i.e. earthworks, night works, operation and maintenance of concrete washouts, and washing, refuelling and maintenance of plant and equipment.
- Working in or near environmentally sensitive areas.
- Site-specific issues including:
    - Erosion and sediment controls, water quality controls and sediment basin management (Section 3.2 and Annex H).
    - Restricted access to the Duck River riparian corridor (Section 3.2).
    - Responsibilities under the NSW *National Parks and Wildlife Act 1974*, including the need to cease work immediately and report any object of potential Aboriginal heritage unearthed during ground disturbance (Section 3.2).
    - Noise management controls (Annex C) and air quality management controls (Section 3.2).
    - Traffic controls to maintain surrounding property access for residences and businesses and to minimise disruptions to these properties for the duration of construction (Annex E).
- Incident management processes (Section 6.3).

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

- A description of the activity and the area.
- Identification of the environmental issues and risks for the area.
- Outline the mitigations measures for the works and the area (Section 3.2).

4.2.2 Visitor inductions

Subcontractors that attend site on an intermittent basis, e.g. a delivery driver, are typically inducted on a visitor basis. Subcontractors are assessed by the relevant member of the project team on a case-by-case situation to determine if a subcontractor is required to undertake a visitor induction or full site induction.

A visitor induction is valid for a period of 2 weeks.

4.3 Training

Employee training and competency requirements are reviewed annually, or as an employee's role changes.

VE Property or its contractor will maintain a database of training records and employee competencies that provides capabilities such as tracking expiry of time limited competencies and programming of training requirements.

Personnel who undertake activities with significant environmental risk complete specialist environmental training, which is conducted by the head civil contractor on behalf of VE Property, in addition to the environmental induction.



CHAPTER 5

COMMUNICATIONS

5 COMMUNICATIONS

5.1 General

Achieving effective communication between all parties is critical to ensure that the requirements of this CEMP are met.

VE Property and their appointed contractor will use a number of methods to communicate with employees, subcontractors, and visitors.

Typical methods of communication on site include:

- Pre-start meetings.
- Zero Harm start-up (i.e. pre-commencement) toolbox talks.
- Zero Harm inductions.
- Noticeboards.
- Toolbox talks.
- Environment alerts.

Pre-start and toolbox meetings include delivering key environmental messages and audit and inspection results and communicating environmental risks for the scheduled activities.

Pre-start meetings are minuted and the minutes reviewed and signed by the meeting chairperson, and made available to all VE Property workers and visitors (if applicable) on site.

The Project Manager ensures that relevant documentation is filed electronically, and hard copies made available to personnel. Hard copy documentation made available to personnel typically includes:

- Standard operating procedures.
- Work instructions.
- Fatal risk control standards.
- Risk assessments.
- Minutes of meetings.
- Copies of pertinent legislation and codes of practice.

5.2 External communication

5.2.1 Stakeholders

Primary community stakeholders during construction will comprise the following immediate neighbours:

- Viva Energy.
- Downer.
- Goodman Property.
- Charter Hall Rosehill Distribution Centre.
- Rosehill Gardens.

5.2.2 Communications information

Prior to major site establishment, VE Property or its contractor will provide information to neighbours regarding current and upcoming construction activities and possible disturbances, including:

- a program of construction activities.
- scheduling.
- details of mitigation measures to minimise impacts.

VE Property's appointed contractor will provide neighbours with 24-hour contact details.

5.2.3 Information channels

The project phone number, email and direct mail address will provide neighbours the opportunity to gain information about the project and raise any concerns. Both enquiries and complaints will provide important feedback to improve project processes and mitigation measures to avoid or minimise further complaints.

These numbers and contact details will be included on all notifications, signage and advertisements relating to construction activities.

5.2.4 Media and government relations

VE Property and their appointed contractors will implement the following protocols if contacted by the media or a government representative:

- Ensure no statement (written, verbal or photographs) is provided to media or government representatives regarding the project, without the prior written approval of VE Property executive management.
- Do not permit media or government representatives onsite without prior written approval from VE Property executive management.

5.2.5 Access to information

At least 48 hours before the commencement of construction VE Property will:

1. make the following information and documents (as they are obtained or approved) publicly available on its website:

    a. the documents referred to in condition A2 of the consent;
    b. all current statutory approvals for the development;
    c. all approved strategies, plans and programs required under the conditions of the consent;
    d. the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged;
    e. regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of the consent;
    f. a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
    g. a summary of the current stage and progress of the development;
    h. contact details to enquire about the development or to make a complaint;
    i. a complaints register, updated monthly;
    j. any other matter required by the Planning Secretary; and

2. keep such information up to date, to the satisfaction of the Planning Secretary.



CHAPTER 6

MONITORING AND CORRECTIVE ACTION

6 MONITORING AND CORRECTIVE ACTION

6.1 Audit and inspection

VE Property's civil contractor will conduct internal environmental audits to ensure the ongoing adequacy and effectiveness of the CEMP, and to facilitate continuous improvement.

In addition to planned internal audits, the project team verifies environmental conformance to the CEMP as per the reviews in Table 6.1

Table 6.1 Environmental reviews

Review	Objective	Frequency
Meteorology	Meteorological data including rainfall will be monitored.	Daily
Solid wastes	▪ Recycling where practical and economically feasible. ▪ Appropriate use of landfill site for disposal. ▪ Appropriate placement and use of site amenities.	▪ Spot checks of recycling facilities. ▪ Informal daily, formal weekly inspections using the environmental inspection checklist.
Biodiversity	▪ Compliance with the project's biodiversity management measures (Section 3.2). ▪ Pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area.	Informal daily inspections of the site to locate any fauna that may have become trapped, formal weekly inspections of the Duck River riparian corridor using the environmental inspection checklist.
Erosion and sediment control measures	▪ Implementation, monitoring, and maintenance of all soil erosion and sediment control measures defined in Section 3.2 and the erosion and sediment control plan. ▪ The quality of stormwater discharged from the site is to satisfy the WQOs as per Landcom Blue Book requirements.	▪ Informal daily, formal weekly inspections using the environmental inspection checklist. ▪ Water quality in sediment basin to be tested prior to discharge from site.
Work site storage and handling of fuels, oils, chemicals, and paints	Compliance with dangerous substances regulations.	Informal daily, formal weekly inspections using the environmental inspection checklist.
Hydrocarbon and oil spills	▪ Minimal hydrocarbon and oil spills by use of well maintained construction plant and on-site refuelling protocols. ▪ All accidental spills contained and don't pollute groundwater/ surface water. ▪ Compliance with management measures.	Continuous monitoring by Environmental Advisor and/ or Site Supervisor. Spot checks of sites and weekly inspections using the environmental inspection checklist.
Air quality and dust management	▪ No visible dust off-site. ▪ No dust complaints. ▪ Compliance with the management measures.	Monitoring by the Site Supervisor. Spot checks of sites and weekly inspections using the environmental inspection checklist.
Noise	No noise complaints.	Following a complaint: ▪ Attended noise investigations will be undertaken in response to any formal complaint to verify that the noise is from construction activities at the site and to identify the source of the noise.

Review	Objective	Frequency
		▪ Attended noise investigations will take place during the expected noisiest construction periods and be representative/ indicative of any impact across all potentially affected sensitive receivers.
Traffic management	▪ No visible mud/ dirt being tracked onto public roads. ▪ No complaints about construction heavy vehicles using the local road network. ▪ No complaints from neighbouring industrial premises about impacts to their property access/ egress.	Monitoring by the Site Supervisor. Weekly inspections using the environmental inspection checklist.
Applicable impact mitigation strategies	Compliance to task-based risk assessment requirements and the CEMP and any relevant sub-plans.	Informal daily, formal weekly using the environmental inspection checklist.
Housekeeping	▪ Tidy work site with no litter and all waste contained in appropriate containers. ▪ Containers to be emptied and disposed of at appropriate intervals. ▪ No waste leaving the site unmanaged/ accidentally eg windblown waste or waste in stormwater runoff.	Informal daily, formal weekly inspections using the environmental inspection checklist.

Whenever practical, personnel conducting an audit address identified deficiencies during the course of the inspection. In all other cases the Supervisor is responsible for ensuring an action and a date for addressing each deficiency is assigned to each outstanding action. The Site Supervisor monitors the progress of rectification of any outstanding corrective actions.

Results of all audits are made available to personnel via pre-start, and/ or toolbox meetings.

6.2 Subcontractor audits

Subcontractors are required to audit their workspace, as communicated to the subcontractor through the tender and contract. Compliance with this requirement is a contract deliverable.

The reviews listed in Table 6.1 also apply to subcontractor activities and workspaces.

6.3 Incident and environmental non-compliance

For the purposes of this CEMP, an 'incident' is *an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance*. A 'non-compliance' is *an occurrence, set of circumstances or development that is a breach of the consent*.

Common types of environmental incidents include:

- Sewage spills (to land or to water).
- Emulsion spills (to land or to water).
- Hydrocarbon spills (to land or to water).
- Sediment discharge (to land or to water).
- Unexpected finds (cultural heritage).
- Damage to heritage items or protected flora and fauna.

Possible non-compliances include non-compliance with the management measures outlined in this CEMP, and mitigation strategies/ management measures outlined in the CEMP sub-plans.

Where detected, any non-compliance or environmental impact exceeding specified limits are investigated by the Environmental Advisor to determine the extent of possible non-conformance. The non-compliance is corrected as soon as possible with necessary action taken to prevent recurrence.

All non-compliances are reported and clearly identify the corrective/ preventative actions to be taken and the close-out date.

6.3.1 Responsibility

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

- Notify the Project Manager of any hazard or potential hazard that may result in an incident and/or non-compliance, regardless of the nature or scale.
- Take immediate action (where it is safe to do so) to prevent, stop, contain and/or minimise any adverse impact associated with an incident and/or non-compliance.

The induction and toolbox talks outlined in Chapter 4 will be used to ensure all site employees, contractors and subcontractors are aware of and understand their obligations for incident and/or non-compliance response.

6.3.2 Notification requirements

Incidents

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

(a) harm to the environment is material if:

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

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

Duty of an employee or any person undertaking an activity

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

Duty of an employer or occupier of the premises to notify

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

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

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

Table 6.2 lists the contact details for these authorities. The person reporting the pollution incident will provide the following key details:

- Location of the pollution incident/emergency.
- Nature of the pollution incident/emergency.
- Their name and contact details.
- Details of any required assistance.

Table 6.2 Agency contacts

Agency	Detail	Number
DPIE	Compliance Unit	1300 305 695 or 02 9228 6111 compliance@planning.nsw.gov.au
EPA	Environment Line	131 555 info@environment.nsw.gov.au
	Head office (Sydney)	02 9995 5000
Parramatta City Council	Main switchboard	1300 617 058 or 02 9806 5050
NSW Public Health Unit	Western Sydney Local Health District	(02) 8890 5555
SafeWork NSW	Incident Notification Hotline	131 050 Select Option 3 to report a "Serious Incident or Fatality" – this will result in the incident being recorded and the appropriate person being contacted.
Emergency Services	NSW Police NSW Fire and Rescue NSW Ambulance Service	131 444 1300 729 579 Emergency: 000

Once becoming aware of an incident, VE Property will immediately (within 24 hours) notify the DPIE, via the Major Projects website, and other relevant agencies if an incident, or potential incident, causes (or may cause) harm to the environment. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3 of Annex A.

Non-compliances

DPIE will be notified via the Major Projects website within seven days of becoming aware of any non-compliance.

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

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

6.3.3 Incidents and non-compliance procedure

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

1. Preventative action

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

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

2. Assistance

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

Contacting Fire and Rescue NSW does not negate the notification requirements in Table 6.2.

3. Notify

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

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

DPIE and other relevant authorities be provided with a written incident notification via the Major Projects website within 24 hours after the incident.

A written notification will:

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

Non-compliances will be notified in accordance with Section 6.3.2.

4. Investigate

Immediately investigate the cause of the incident and/or non-compliance.

5. Remedial action

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

6. Record

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

A detailed incident report be provided to the DPIE within 30 days of the incident occurring.

The detailed incident report will include:

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

All non-compliances are recorded.

7. Preventative action

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

6.3.4 Incident and non-compliance register

An incidents and non-compliance register will be maintained during construction and will contain:

- A copy of the environmental incident and non-compliance notification requirements and handling procedure described above.
- Site evacuation procedures.
- A separate reference sheet containing the contact details for the contacts in Section 2.4 and the contact details for the regulatory authorities listed in Section 6.3.2.
- Blank hard copies of the incident report.
- Copies of all completed incident report which are to be maintained for at least five years after the event to which they relate.

6.3.5 Minor environmental incidents

There is the possibility of minor environmental incidents occurring as part of this project. A ‘minor environmental incident’ is where there has been no potential or actual material harm to the environment. Examples are excessive dust sighted by the project team or a small, contained hydrocarbon spill that does not leave a site boundary and are cleaned up without residual on-site environmental harm.

Minor environmental incidents will still be handled under the process in Section 6.3.3 except there will be no requirement for government notification. All minor or major incidents will be recorded in

the incidents and non-compliance register. A minor incident does not constitute a non-compliance with the development consent.

6.4 Environmental complaints

In the event of a third-party environmental complaint the following steps will be taken:

- Record complaints as an incident.
- Investigate and verify complaints and assesses if excessive off-site impacts have occurred.
- Implement corrective measures including modification of methods and operational techniques to avoid recurrence or minimise ongoing adverse impacts.
- Complete monitoring/additional investigations to verify the adequacy of the recommendations, as required.
- Notify the complainant of actions taken.
- Continue to monitor activity, if required.

6.4.1 Responsibility

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

All employees who take receipt of a complaint, either verbal or written, are to immediately notify the Project Manager.

6.4.2 Procedure

1. Record and acknowledge

Any employee who receives a complaint, either verbal or written, is to immediately notify the Project Manager.

In the normal course of events, the first contact for complaints will usually be made in person or by telephone. The complainant's name, address and contact details, along with the nature of the complaint, will be requested. If the complainant refuses to supply the requested information, a note will be made on the form and the complainant advised of this.

2. Assess and prioritise

The Project Manager will prioritise all complaints by considering the seriousness of the complaint including risk to health and safety and will attempt to provide an immediate response via phone or email.

3. Investigate

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

If the complaint is due to an incident, the notification requirements and handling procedures outlined in Section 6.3 will be followed.

4. Action or rectify

Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact.

The Project Manager will assess whether the complaint is founded or unfounded and delegate the remediation, as required.

5. Respond to complainant

The Project Manager will oversee the rectification of the issue and respond to the complainant once the issue has been resolved. The complainant will be provided with a follow up verbal response on what action is proposed. Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant.

6. Record

Every complaint received is to be recorded in the complaints register. In accordance with Condition C19 of SSD 10459, the complaints register will be uploaded to the website 48 hours prior to commencing construction and will be updated monthly.

7. Preventive action

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

6.4.3 Dispute resolution

VE Property's dispute resolution process meets the requirements of the Work Health and Safety Regulation 2011.

If there is a dispute arises between VE Property and Council or a public authority, in relation to an applicable requirement in the Development Consent or relevant matter relating to construction, either party may refer the matter to the Planning Secretary for resolution. The Planning Secretary's determination of any such dispute will be final and binding on the parties.

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

6.5 Environmental breach

Subcontractors found to be in breach of this CEMP are managed in accordance with the subcontract under which they have been engaged.

Employees who breach the requirements of this CEMP are managed in accordance with the project's employee relations management plan. Personnel found to be grossly negligent or commit an intentional environmental breach are removed from site and managed in accordance with the project's employee relations management plan.

6.6 Reporting

Environmental performance is reviewed and documented via minutes of scheduled project meetings utilising inputs from the Environmental Advisor, Project Manager and Safety Manager.

Environmental reporting requirements are in Table 6.3.

Table 6.3 Environmental reporting requirements

Requirement	Timing/frequency	CoC/CEMP reference
The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3.	Within 24 hours	SSD 10459 Condition C10
The Planning Secretary must be notified in writing to the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.	Within 7 days	SSD 10459 Condition C11
A register of all complaints, incidents and non-compliances will be kept.	For at least 5 years after completion	CEMP sections 6.3.4 and 6.4.2
VE Property or their appointed contractor will record environmental performance during regular management meetings and/or 'toolbox talks'. Items to be discussed and recorded include: ▪ Results of any monitoring. ▪ Any environmental incidents that have occurred during the previous period, including the management/ corrective actions. ▪ Any complaints that have been received during the previous period, including any management/ corrective actions.	Weekly	CEMP Section 4.2
A copy of all environmental records will be maintained, including: ▪ Site environmental inspection reports. ▪ Environmental monitoring data. ▪ Internal and external audit reports. ▪ Reports of environmental incidents, environmental, associated actions taken, and follow-up actions. ▪ Minutes of management review meetings. ▪ Induction and training records.	For at least 5 years after completion	Best practice and CEMP sections 6.1, 6.2, 6.3.4, 6.7, 4.2 and 4.3
A Waste Management Register will be maintained and will include: ▪ Type of waste and its classification (according to the POEO Act and Waste Classification Guidelines). ▪ Quantities of waste, measured in tonnes. ▪ How and where the waste was reused, recycled, stockpiled or disposed of. ▪ Date when the waste was reused, recycled, stockpiled or disposed of. ▪ Name and waste transport licence (if applicable) of the transporter used.	Ongoing	Section 3.2

6.7 Contingency plan

The table in Annex G lists the actions to be implemented if inspections, monitoring and/or auditing indicate that the mitigation measures listed in Section 3.2 and the sub-plans are not effective in managing environmental impacts.

All Condition Amber and Condition Red occurrences will be recorded and discussed during the toolbox talks.



CHAPTER 7

CEMP REVIEW

7 CEMP REVIEW

The CEMP is formally reviewed annually (as a minimum) and whenever the plan, risk, and/ or activities change from the scope/ content.

The review is conducted by a review team comprising the Project Manager (or delegate) and the Environmental Advisor/ Project Environmental Manager (or Safety Manager) and considers performance against the CEMP with respect to incident trends and findings from internal and external audits.

The Project Manager (or delegate) ensures any changes to the CEMP as a result of review/ change is communicated to personnel.

Development Consent

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

As delegate of the Minister for Planning and Public Spaces under delegation executed on 9 March 2020, I approve the Development Application referred to in Schedule 1, subject to the conditions specified in Schedule 2.

These conditions are required to:

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

Sydney 2 August 2023 File: EF20/21442

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

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

SCHEDULE 1

Application Number: SSD-10459

CONSOLIDATED CONSENT

Applicant:	VE Property Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site:	Lot 100 DP 1168951 9 Devon Street, Rosehill
Development:	Industrial subdivision over three (3) stages (Stage 1A/1B/1C, Stage 2 and Stage 3) and the construction and operation of a combined asphalt plant, reclaimed asphalt pavement (RAP) facility, bitumen products plant and a road waste sweepings recycling facility (Reconomy) on proposed Lot 6.
Definitions:	The document assessing the environmental impact of the proposed modification of consent and any other information submitted with the following modification applications made under the EP&A Act: (a) SSD-10459-Mod-1 – 'Modification 1 – Lot Drainage' prepared by Element Environment, Revision 1, dated 24 August 2021. (b) SSD-10459-Mod-2 – 'Modification 2 – Lot drainage and subdivision prepared by Element Environment, Revision 1, dated 28 February 2023.

FOR INFORMATION

SUMMARY OF MODIFICATIONS

Application Number	Determination Date	Decider	Modification Description
SSD-10459-Mod-1	19 November 2021	Director	Modification to amend the approved stormwater management system for Proposed Lots 51 - 55
SSD-10459-Mod-1	31 July 2023	Director	Modification to amend the approved stormwater design of the development and subdivide the Estate Stage 1B to create two lots.

FOR INFORMATION

TABLE OF CONTENTS

DEFINITIONS ..... **V**

PART A ADMINISTRATIVE CONDITIONS **8**

Obligation to Minimise Harm to the Environment 8
Terms of Consent 8
Limits of Consent 8
Notification of Commencement 9
Evidence of Consultation 9
Staging, Combining and Updating Strategies, Plans or Programs 9
Protection of Public Infrastructure 9
Structural Adequacy 9
Compliance 10
Contributions to Council 10
Operation of Plant and Equipment 10
External Walls and Cladding – DSRRC Building works 10
Utilities and Services 10
Subdivision 10
Work as Executed Plans – DSRRC Building Works 11
Applicability of Guidelines 11

PART B SPECIFIC ENVIRONMENTAL CONDITIONS **12**

Contamination 12
Air Quality 12
Noise 13
Soils, Water Quality and Hydrology 14
Traffic and Access 16
Hazards and Risk – DSRRC 17
Aboriginal Heritage 17
Historic Heritage 17
Waste Management 17
Visual Amenity 18

PART C ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING **20**

Environmental Management 20
Construction Environmental Management Plan 20
Operational Environmental Management Plan – DSRRC 20
Revision of Strategies, Plans and Programs 21
Reporting and Auditing 21
Access to Information 22

APPENDIX 1 DEVELOPMENT LAYOUT PLANS **24**

APPENDIX 2 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES **27**

APPENDIX 3 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS **35**

DEFINITIONS

Applicant	VE Property Pty Ltd, or any person carrying out any development to which this consent applies
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016*
Calendar year	A period of 12 months commencing on 1 January
Carrier	Operator of a telecommunication network and/ or associated infrastructure, as defined in section 7 of the *Telecommunications Act 1997* (Cth)
Certifier	A council or an accredited certifier (including principal certifiers) who is authorised under section 6.5 of the EP&A Act to issue Part 6 certificates
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997*
Conditions of this consent	Conditions contained in Schedule 2 of this document
Construction	The demolition and removal of buildings or works, the carrying out of works for the purpose of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent
Council	City of Parramatta Council
CSIE site	Central Sydney Industrial Estate created as part of the Stage 1A subdivision works
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Department	NSW Department of Planning, Industry and Environment
Development	The development described in Schedule 1, the EIS and Response to Submissions, including the works and activities comprising a staged industrial subdivision to create the Central Sydney Industrial Estate (CSIE) site and the construction and operation of the Downer Sustainable Road Resource Centre (DSRRC) - a combined asphalt plant, reclaimed asphalt pavement (RAP) facility, bitumen products plant and a road waste sweepings recycling facility (Reconomy) on proposed Lot 6 within the CSIE site, as modified by the conditions of this consent
Development layout	The plans at Appendix 1 of this consent
DSRRC site	Downer Sustainable Road Resource Centre located on proposed Lot 6 as described in the plans at Appendix 1
Earthworks	Bulk earthworks, site levelling, import and compaction of fill material, excavation for installation of drainage and services, to prepare the site for construction
EES	Environment, Energy and Science Group of the Department
EIS	The Environmental Impact Statement titled *Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre State Significant Development Application*, prepared by Element Environment dated September 2020, submitted with the application for consent for the Development
ENM	Excavated Natural Material
Environment	As defined in section 1.4 of the EP&A Act
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence under the POEO Act
Evening	The period from 6 pm to 10 pm
Fibre ready facility	As defined in section 372W of the *Telecommunications Act 1997* (Cth)
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement

Heritage item	An item as defined under the *Heritage Act 1977,* and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974'*, the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), or anything identified as a heritage item under the conditions of this consent
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance Note: "material harm" is defined in this consent
Land	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
Material harm	Is harm that: (a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)
Minister	NSW Minister for Planning and Public Spaces (or delegate)
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Modification Assessments	The document assessing the environmental impact of the proposed modification of consent and any other information submitted with the following modification applications made under the EP&A Act: (a) SSD-10459-Mod-1 – '*Modification 1 – Lot Drainage*' prepared by Element Environment, Revision 1, dated 24 August 2021. (a) SSD-10459-Mod-2 – 'Modification 2 – Lot Drainage and subdivision' prepared by Element Environment, Revision 1, dated 2 March 2023.
Monitoring	Any monitoring required under this consent must be undertaken in accordance with section 9.40 of the EP&A Act
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
NRAR	Natural Resources Access Regulator of the Department
OEMP	Operational Environmental Management Plan
Operation	The use of a combined asphalt plant, reclaimed asphalt pavement (RAP) facility, bitumen products plant and a road waste sweepings recycling facility (Reconomy) on proposed Lot 6, as described in the EIS and Response to Submissions
Principal Certifier	The certifier appointed as the principal certifier for the building work under section 6.6(1) of the EP&A Act or for the subdivision work under section 6.12(1) of the EP&A Act
Planning Secretary	The Secretary of the Department, or delegate
POEO Act	*Protection of the Environment Operations Act 1997*
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements.
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Response to submissions	The Applicant's response to issues raised in submissions received in relation to the application for consent for the development under the EP&A Act and includes the document titled *Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre – State Significant Development Application – Response to Submissions* prepared by Element Environment, Revision 1, dated 30 November 2020

Sensitive receivers	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area
Site	The land defined in Schedule 1
Site Auditor	As defined in section 4 of the *Contaminated Land Management Act 1997*
Site Audit Report	As defined in section 4 of the *Contaminated Land Management Act 1997*
Site Audit Statement	As defined in section 4 of the *Contaminated Land Management Act 1997*
SSD 9302	Development consent granted by the Minister for Planning and Public Spaces on 7 May 2020 for the Western Area Remediation Project (SSD 9302) which permitted the remediation of contaminated land on Part Lot 100 DP 1168951 of the former Shell Refinery site
TfNSW	Transport for New South Wales
VENM	Virgin Excavated Natural Material
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
Year	A period of 12 consecutive months

FOR INFORMATION

SCHEDULE 2

PART A ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

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

TERMS OF CONSENT

A2. The development may only be carried out:

(a) in compliance with the conditions of this consent;

(b) in accordance with all written directions of the Planning Secretary;

(c) in accordance with the EIS and Response to Submissions;

(d) in accordance with the Modification Assessments;

(e) in accordance with the Development Layout in Appendix 1; and

(f) in accordance with the management and mitigation measures in Appendix 2.

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

(a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and

(b) the implementation of any actions or measures contained in any such document referred to in condition A3(a).

A4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or ~~A2(e)~~A2(d) and A2(f). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) or ~~A2(e)~~A2(d) and A2(f), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

LIMITS OF CONSENT

Lapsing

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

A6. The draft section 88B instrument (*Conveyancing Act 1919*) submitted by the Applicant as part of the Response to Submissions does not form part of this consent.

Development Limits - DSRRC

A7. The DSRRC is not to exceed the following production or processing limits:

(a) 550,000 tonnes per year of Asphalt production;

(b) 250,000 tonnes per year of Reclaimed Asphalt Pavement processing;

(c) 15,000 tonnes per year of Bitumen Products production; and

(d) 40,000 tonnes per year of Reconomy processing.

Works under SSD 9302 – Western Area Remediation Project

A8. Prior to the issue of a Subdivision Certificate for each of Stages 1B, 2 and 3, the Applicant must submit to the Planning Secretary and Certifier the following which are to demonstrate the relevant stage has been remediated in accordance with the approval of SSD 9302 and is suitable for an industrial land use:

(i) a Site Audit Statement (accompanied by an Environmental Management Plan, if required by an EPA accredited Site Auditor); and

(ii) an accompanying Site Audit Report prepared by an EPA accredited Site Auditor in accordance with the NSW Contaminated Land Management – Guidelines.

A9. The Applicant must implement the Long Term Environmental Management Plan (LTEMP) approved under condition B8 of SSD 9302 and provide evidence to the Planning Secretary that the LTEMP is listed on the relevant planning certificate(s) issued under section 10.7 of the EP&A Act for each lot created by Stages 1A and B, 2 and 3 as shown in the 'Subdivision Drawings prepared by Land Partners' in Appendix 1.

A10. Nothing in this consent limits, restricts or removes the conditions of consent for SSD 9302.

FOR INFORMATION

NOTIFICATION OF COMMENCEMENT

A11. The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in writing, at least one week before that date, or as otherwise agreed with the Planning Secretary:

(a) construction;

(b) operation; and

(c) cessation of operations.

A12. If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing, at least one week before the commencement of each stage (or other timeframe agreed with the Planning Secretary), of the date of commencement and the development to be carried out in that stage.

EVIDENCE OF CONSULTATION

A13. Where conditions of this consent require consultation with an identified party, the Applicant must:

(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and

(b) provide details of the consultation undertaken including:

i. the outcome of that consultation, matters resolved and unresolved; and

ii. details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

A14. With the approval of the Planning Secretary, the Applicant may:

(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);

(b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and

(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).

A15. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.

A16. If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.

PROTECTION OF PUBLIC INFRASTRUCTURE

A17. Before the commencement of construction, the Applicant must:

(a) consult with the relevant owner and provider of services that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure;

(b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and

(c) submit a copy of the dilapidation report to the Planning Secretary and Council.

A18. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:

(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and

(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

STRUCTURAL ADEQUACY

A19. All new buildings and structures that are part of the development, must be constructed in accordance with the relevant requirements of the BCA.

Note:

- *Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.*

FOR INFORMATION

COMPLIANCE

A20. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

CONTRIBUTIONS TO COUNCIL

A21. Before the issue of an occupation certificate for any part of the development, a contribution under section 7.12 of the EP&A Act must be paid to Council under the *City of Parramatta S94A Development Contributions Plan* (Amendment No.5). The cost of development works must be calculated in accordance with clause 25J of the EP&A Regulation by a suitably qualified quantity surveyor.

OPERATION OF PLANT AND EQUIPMENT

A22. All plant and equipment used on site, or to monitor the performance of the development, must be:

(a) maintained in a proper and efficient condition; and

(b) operated in a proper and efficient manner.

EXTERNAL WALLS AND CLADDING – DSRRC BUILDING WORKS

A23. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.

A24. Prior to the issue of:

(a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and

(b) an Occupation Certificate,

the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.

A25. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.

UTILITIES AND SERVICES

A26. Before the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers. The Applicant is to include TfNSW in any consultation with Sydney Water regarding the proposed wastewater and potable water mains on Colquhoun Street.

A27. Before the issue of a Subdivision Works Certificate or Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for:

(a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and

(b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development, demonstrated through an agreement with a carrier.

A28. Before the issue of the Occupation Certificate for the DSRRC building works or Subdivision Certificate, the Applicant must demonstrate that the carrier has confirmed in writing they are satisfied that the fibre ready facilities are fit for purpose.

SUBDIVISION

All Stages

A29. The Applicant must subdivide the site in accordance with the subdivision plans listed in Appendix 1.

A30. Prior to the issue of a Subdivision Certificate for each of Stages 1A ~~and~~ 1B and 1C, 2 and 3, the Applicant must:

(a) provide the Certifier evidence that all matters required to be registered on title, including easements, have been prepared and are included on the plan of subdivision for registration at Land Registry Services;

(b) obtain a Compliance Certificate for water and sewerage infrastructure servicing of the relevant stage under section 73 of the *Sydney Water Act 1994*; and

(c) demonstrate to the satisfaction of the Certifier that satisfactory service arrangements for electricity for the relevant stage have been established.

FOR INFORMATION

A30A Notwithstanding Condition A30(a), any easements proposed for Stages 1A ~~and~~ 1B and 1C may be registered on title within six (6) months of obtaining a Subdivision Certificate for each of Stages 1A ~~and~~ 1B A and 1C or no later than the issue of a Subdivision Certificate for Stage 2, whichever is sooner.

Stages 2 and 3

A31. Prior to the issue of a Subdivision Certificate for each of Stages 2 and 3, detailed work-as-executed drawings prepared and signed by a Registered Surveyor, which show the finished surface levels of the access road (for stage 3), drainage and any areas of fill, carried out under this consent for the relevant stage, must be submitted to the Certifier and Council.

A32. The subdivision of Stage 3 must include the dedication of the new internal access road and carriageway (Stage 3) required under condition B32, to Council.

WORK AS EXECUTED PLANS – DSRRC BUILDING WORKS

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

APPLICABILITY OF GUIDELINES

A34. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.

A35. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

ADVISORY NOTES

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

FOR INFORMATION

PART B SPECIFIC ENVIRONMENTAL CONDITIONS

CONTAMINATION

Unexpected Finds

B1. Prior to the commencement of earthworks, the Applicant must prepare an unexpected contamination procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with condition C2 and must ensure any material identified as contaminated is disposed off-site, or otherwise treated to the satisfaction of the EPA Accredited Site Auditor, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the site.

B2. The Applicant must ensure the development does not result in a change of risk in relation to any pre-existing contamination on the site so as to result in significant contamination.

Note: Significant contamination is defined under section 11 of the CLM Act.

AIR QUALITY

Dust Minimisation

B3. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

B4. During construction, the Applicant must ensure that:

(a) exposed surfaces and stockpiles are suppressed by regular watering or other alternative suppression method;

(b) all trucks entering or leaving the site with loads have their loads covered;

(c) trucks associated with the development do not track dirt onto the public road network;

(d) public roads used by these trucks are kept clean; and

(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

Air Quality Discharges - DSRRC

B5. The Applicant must install and operate equipment in line with best practice to ensure that the development complies with all load limits, air quality criteria/air emission limits and air quality monitoring requirements as specified in the EPL applicable to the DSRRC site.

B6. Driveways and hardstand areas must be swept/cleaned as required by a street sweeper during operations. The street sweeper must be utilised to maintain the sealed surfaces in such a manner that prevents or minimises air pollution.

B7. Where possible, all mobile non-road diesel equipment operated at the DSRRC site must achieve a particulate matter emission performance commensurate with US EPA Tier 4 particulate emission standards.

Air Quality Management Plan - DSRRC

B8. Prior to the commencement of operation of the DSRRC, the Applicant must prepare an Air Quality Management Plan (AQMP) to the satisfaction of the Planning Secretary. The AQMP must form part of the OEMP required by condition C5. The AQMP must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with the EPA;

(c) detail and rank all emissions from all sources of the development, including particulate emissions;

(d) describe a program that is capable of evaluating the performance of the operation and determining compliance with key performance indicators, including the prescribed concentrations contained in the *Protection of the Environment Operations (Clean Air) Regulation 2010*;

(e) identify the control measures that will be implemented for each emission source; and

(f) nominate the following for each of the proposed controls:

i. key performance indicator;

ii. monitoring method;

iii. location, frequency and duration of monitoring;

iv. record keeping;

v. complaints register;

vi. response procedures; and

vii. compliance monitoring.

B9. The Applicant must:

(a) not commence operation until the AQMP required by condition B8 is approved by the Planning Secretary; and

(b) implement the most recent version of the AQMP approved by the Planning Secretary for the duration of the development.

FOR INFORMATION

Air Quality Verification - DSRRC

B10. An Air Quality Verification Report (AQVR) must be submitted to the EPA and Planning Secretary within three (3) months of the commencement of operation of the DSRRC. The AQVR must:

(a) be undertaken in accordance with the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW*;

(b) demonstrate that all reasonable and feasible mitigation measures have been incorporated into the development;

(c) reference manufacturer's specifications and/or performance guarantees for the asphalt plant;

(d) demonstrate compliance with the prescribed concentrations contained in the *Protection of the Environment Operations (Clean Air) Regulation 2010*;

(e) outline management actions to be taken to address circumstances where the concentrations specified in part d) have been exceeded; and

(f) describe the contingency measures and the timing of their implementation in the event the management actions are not effective in reducing the air emissions to an acceptable level.

Odour Management

B11. The Applicant must ensure the development does not cause or permit the emission of any offensive odour beyond the boundary of the site (as defined in the POEO Act).

NOISE

Hours of Work

B12. The Applicant must comply with the hours detailed in Table 1.

Table 1 *Hours of Work*

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

B13. Earthworks and construction works outside of the hours identified in condition B12 may be undertaken in the following circumstances:

(a) works do not exceed the noise limits detailed in Table 8 of the *Noise and Vibration Impact Assessment*, prepared by Muller Acoustic Consulting, dated 17 September 2020; or

(b) works agreed to in writing by the Planning Secretary; or

(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

(d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Construction Noise Management Plan

B14. The Applicant must prepare a Construction Noise Management Plan (CNMP) for the development to the satisfaction of the Planning Secretary. The Plan must form part of the CEMP required under condition C2 and must:

(a) be prepared by a suitably qualified and experienced acoustic expert;

(b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time);

(c) describe the measures to be implemented to manage high noise generating works such as piling; and

(d) include a complaints management system that would be implemented for the duration of the development.

B15. The Applicant must:

(a) not commence construction of any relevant stage until the CNMP required by condition B14 is approved by the Planning Secretary; and

(b) implement the most recent version of the CNMP approved by the Planning Secretary for the duration of construction.

Operational Noise Limits - DSRRC

B16. The Applicant must ensure that noise generated by the operation of the DSRRC does not exceed the noise limits in Table 2.

FOR INFORMATION

Table 2 *Noise Limits (dB(A))*

Location	Day $L_{Aeq(15\ minute)}$	Evening $L_{Aeq(15\ minute)}$	Night $L_{Aeq(15\ minute)}$	Night L_{AMax}
R1A – 72 River Road, Ermington	30	30	33	52
R1B – 530 John Street, Rydalmere	31	31	34	52
R2A – 86 Carnarvon Street, Silverwater	34	34	37	53
R2B – 101 Beaconsfield Street, Silverwater	36	35	38	53
R3A – 71 Penelope Lucas Lane, Rosehill	30	30	30	55
R3B – 88 James Ruse Drive, Rosehill	30	32	30	55
FR01 – 181 James Ruse Drive	30	30	30	55

Note *Noise generated by the development is to be measured and assessed in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (as may be updated or replaced from time to time).*

Noise Verification Report - DSRRC

B17. A Noise Verification Report (NVR) must be submitted to the EPA and the Planning Secretary within three months of the commencement of operation of the DSRRC. The NVR must be prepared by a suitably qualified and experienced acoustic consultant and include:

(a) an analysis of compliance with noise limits specified in condition B16, undertaken to the satisfaction of the Planning Secretary and in accordance with the *Noise Policy for Industry* (EPA, 2017);

(b) demonstrate that all reasonable and feasible mitigation measures have been incorporated into the development;

(c) reference manufacturer's specifications and/or performance guarantees for the asphalt plant;

(d) an outline of management actions to be taken to where the limits specified in condition B16 have been exceeded; and

(e) describe the contingency measures and the timing of their implementation in the event the management actions are not effective in reducing the noise impacts to an acceptable level.

Road Traffic Noise

B18. The Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Code is to be incorporated into the CEMP required under condition C2 and the OEMP required under condition C5.

SOILS, WATER QUALITY AND HYDROLOGY

Imported Soil

B19. The Applicant must:

(a) ensure that only VENM, ENM, or other material approved in writing by the EPA or the Site Auditor is brought onto the site during construction;

(b) keep accurate records of the volume and type of fill to be used; and

(c) make these records available to the Planning Secretary upon request.

Erosion and Sediment Control

B20. Prior to the commencement of any construction or other surface disturbance the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by condition C2.

FOR INFORM

Discharge Limits

B21. The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.

Stormwater Management System - DSRRC

B22. Prior to the commencement of operation of the DSRRC, the Applicant must design, install and operate a stormwater management system for the development. The system must:

(a) be designed by a suitably qualified and experienced person(s);

(b) be generally in accordance with the conceptual design in the EIS and Response to Submissions;

(c) be in accordance with applicable Australian Standards;

(d) ensure that the system capacity has been designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016) and *Managing Urban Stormwater: Council Handbook* (EPA, 1997) guidelines; and

(e) divert clean surface water around operational areas of the site.

Flood Management

B23. Prior to the commencement of construction, the Applicant must prepare a Flood Emergency Response Plan (FERP). The FERP must form part of the CEMP and OEMP required by conditions C2 and C5 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) address the provisions of the *Floodplain Development Manual* (2005) and any relevant guidelines;

(c) be prepared in consultation with the State Emergency Service;

(d) include details of:

i. the flood emergency responses for both construction and operation phases of the development;

ii. predicted flood levels;

iii. flood warning time and flood notification;

iv. assembly points and evacuation routes;

v. evacuation and refuge protocols; and

vi. awareness training for employees and contractors.

B24. The Applicant must:

(a) not commence construction until the FERP required by condition B23 is submitted to the Planning Secretary for information purposes; and

(b) implement the most recent version of the FERP for the duration of the development.

B25. All habitable building floor levels must be no lower than the 1% Annual Exceedance Probability flood plus 500 mm of freeboard.

B26. All structures that are built below the 1% Annual Exceedance Probability flood must be constructed from flood compatible building components to ensure structural stability during a flood event.

Surface Water Management Plan - DSRRC

B27. Prior to the commencement of operation of the DSRRC, the Applicant must prepare a Surface Water Management Plan (SWMP) to the satisfaction of the Planning Secretary. The SWMP must form part of the OEMP required by condition C5. The SWMP must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with the EPA;

(c) characterise the expected quality of discharges in terms of the typical and maximum concentrations of all pollutants likely to be present at non-trivial levels;

(d) contain a program to monitor surface water quality;

(e) include surface water impact assessment criteria, including trigger levels for investigating any potential adverse surface water impacts;

(f) include a protocol for investigation and mitigation where surface water impact assessment criteria is exceeded; and

(g) contain an ongoing maintenance program to ensure the entire surface water management infrastructure continues to operate and perform as designed.

B28. The Applicant must:

FOR INFORMATION

(a) not commence operation until the SWMP required by condition B27 is approved by the Planning Secretary; and

(b) implement the most recent version of the SWMP approved by the Planning Secretary for the duration of the development.

Surface Water Verification Report - DSRRC

B29. A Surface Water Verification Report (SWVR) must be submitted to the Planning Secretary and the EPA within eighteen (18) months (or as otherwise agreed by the Planning Secretary) of the commencement of all operations associated with the DSRRC. The SWVR must:

(a) include an analysis of compliance with the maximum concentrations identified under condition B27(c) undertaken to the satisfaction of the Planning Secretary;

(b) demonstrate that all reasonable and feasible mitigation measures have been incorporated into the development;

(c) reference manufacturer's specifications and/or performance guarantees;

(d) an outline of management actions to be taken to address any exceedances of the maximum concentrations identified under condition B27; and

(e) describe the contingency measures and the timing of their implementation in the event the management actions are not effective in reducing water quality impacts to an acceptable level.

TRAFFIC AND ACCESS

Construction Traffic and Pedestrian Management Plan

B30. Prior to the commencement of construction, the Applicant must prepare a Construction Traffic and Pedestrian Management Plan (CTPMP) for the development to the satisfaction of the Planning Secretary. The CTPMP must form part of the CEMP required by condition C2 and must:

(a) be prepared by a suitably qualified and experienced person(s),

(b) be prepared in consultation with TfNSW;

(c) detail the measures that are to be implemented to ensure road safety, network efficiency and pedestrian movements during construction;

(d) detail heavy vehicle routes, access and parking arrangements;

(e) include a Driver Code of Conduct to:

i. minimise the impacts of earthworks and construction on the local and regional road network;

ii. minimise conflicts with other road users;

iii. minimise road traffic noise; and

iv. ensure truck drivers use specified routes;

(f) include a program to monitor the effectiveness of these measures; and

(g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

B31. The Applicant must:

(a) not commence construction until the CTPMP required by condition B30 is approved by the Planning Secretary; and

(b) implement the most recent version of the CTPMP approved by the Planning Secretary for the duration of construction.

Roadworks and Access

New Access Road – Stage 3

B32. Prior to the issue of a Subdivision Works Certificate for Stage 3, detailed engineering plans of the new access road, proposed as part of Stage 3 are to be submitted to Council's Traffic and Transport Manager for consideration by the Parramatta Traffic Committee and approval by Council. The construction of the proposed road is to be carried out by the Applicant with all associated costs to be paid for by the Applicant.

B33. Prior to the release of the Subdivision Certificate for Stage 3, the Applicant must complete the construction of the access road described in condition B32 to the satisfaction of the relevant roads authority. The Applicant must obtain approval for the works under section 138 of the *Roads Act 1993*.

B34. Prior to any dedication, the Applicant must ensure that the construction of the road has been completed to the satisfaction of the relevant roads authority.

FOR INFORMATION

Parking – DSRRC

B35. The Applicant must provide sufficient parking facilities on-site for the DSRRC, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public streets.

Operating Conditions - DSRRC

B36. The Applicant must ensure at the DSRRC that:

(a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of *AS 2890.1:2004 Parking facilities Off-street car parking* (Standards Australia, 2004), *AS 2890.2:2018 Parking facilities Off-street commercial vehicle facilities* (Standards Australia, 2018) and *AS 2890.6.2009 Parking facilities Off-street parking for people with disabilities* (Standards Australia, 2009)

(b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guidelines;

(c) the development does not result in any vehicles queuing on the public road network;

(d) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site;

(e) all vehicles are wholly contained on site before being required to stop;

(f) all loading and unloading of materials is carried out on-site;

(g) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network; and

(h) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.

HAZARDS AND RISK – DSRRC

B37. Dangerous goods, as defined by the Australian Dangerous Goods Code, must be stored and handled strictly in accordance with:

(a) all relevant Australian Standards;

(b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and

(c) the Environment Protection Manual for Authorised Officers: Bunding and Spill Management – technical bulletin (EPA, 1997).

In the event of an inconsistency between the requirements of part (a) to (c), the most stringent requirement must prevail to the extent of the inconsistency.

B38. The development must not result in the non-compliance of any existing dangerous goods fuel and gas pipelines in accordance with AS2885 Pipelines – Gas and Liquid Petroleum.

ABORIGINAL HERITAGE

Unexpected Finds Protocol

B39. If any item or object of Aboriginal heritage significance is identified on site:

(a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;

(b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and

(c) Heritage NSW must be contacted immediately.

B40. Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974*.

HISTORIC HERITAGE

Unexpected Finds Protocol

B41. If any archaeological relics are uncovered during the course of the work, then all works must cease immediately in that area. Unexpected finds must be evaluated and recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.

WASTE MANAGEMENT

Waste Monitoring Program – DSRRC Site

B42. From the commencement of operation of the DSRRC, the Applicant must implement a Waste Monitoring Program for the development. The program must:

(a) be prepared by a suitably qualified and experienced person(s) prior to the commencement of operation;

FOR INFORMATION

(b) include suitable provision to monitor the:

i. quantity, type and source of waste received on site; and

ii. quantity, type and quality of the outputs produced on site; and

(c) ensure that:

i. all waste that is controlled under a tracking system, has the appropriate documentation prior to acceptance at the site; and

ii. staff receive adequate training in order to be able to recognise and handle any hazardous or other prohibited waste including asbestos.

Waste Processing and Storage

B43. The Applicant must unload all waste received at the site within the designated waste unloading areas.

B44. All waste processing must be undertaken within designated areas.

Waste Management Plan – DSRRC

B45. Prior to the commencement of operation of the DSRRC, the Applicant must prepare a Waste Management Plan (WMP) for the development to the satisfaction of the Planning Secretary. The WMP must form part of the OEMP required under condition C5. The WMP must:

(a) detail the type and quantity of waste to be generated during operation of the development;

(b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the *Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014* and the *Waste Classification Guideline* (EPA, 2014);

(c) detail the materials to be reused or recycled, either on or off site; and

(d) include the Management and Mitigation Measures included in Appendix 2.

B46. The Applicant must:

(a) not commence operation until the WMP is approved by the Planning Secretary;

(b) implement the most recent version of the WMP approved by the Planning Secretary.

Statutory Requirements

B47. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

B48. The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) and dispose of all wastes to a facility that may lawfully accept the waste.

B49. The Applicant must retain all sampling and waste classification data for the life of the development in accordance with the requirements of the EPA.

Pests, Vermin and Priority Weed Management

B50. The Applicant must:

(a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and

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

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

VISUAL AMENITY

Landscaping

B51. Prior to the commencement of construction, the Applicant must prepare a Landscape Management Plan (LMP) to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The LMP must form part of the OEMP required under condition C5. The LMP must:

(a) detail the species to be planted on-site, using only locally native species;

(b) describe the monitoring and maintenance measures to manage revegetation and landscaping works; and

(c) be consistent with the Applicant's Management and Mitigation Measures at Appendix 2.

B52. The Applicant must:

(a) not commence construction until the LMP is approved by the Planning Secretary.

(b) must implement the most recent version of the LMP approved by the Planning Secretary; and

FOR INFORMATION

(c) maintain the landscaping and vegetation on the site in accordance with the approved LMP required by condition B51 for the life of the development.

B53. Prior to services installation works commencing within Devon Street, the Applicant is to engage an AQF Level 5 Arborist to prepare a:

(a) Tree Protection Plan and Tree Management Specification to incorporate specific tree protection measures to the street trees located along Devon Street in accordance with AS4970-2009 (Protection of Trees on Development Sites); and

(b) Tree Removal Plan for any trees proposed to be removed. In the event that street trees are required to be removed on Devon Street, replacement street trees are to be provided in consultation with Council.

Lighting

B54. The Applicant must ensure the lighting associated with the development:

(a) complies with the latest version of AS 4282-2019 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 2019); and

(b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties, the public road network or the riparian corridor / Duck River.

Signage and Fencing

B55. All signage and fencing must be erected in accordance with the development plans referenced in Appendix 1.

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

FOR INFORMATION

PART C ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Management Plan Requirements

C1. Management plans required under this consent must be prepared by a suitably qualified and experienced person/s in accordance with relevant guidelines, and include:

(a) details of:

i. the relevant statutory requirements (including any relevant approval, licence or lease conditions);

ii. any relevant limits or performance measures and criteria; and

iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;

(b) details of site-specific training to be provided to construction and operation personnel to ensure compliance with the plans;

(c) a description of the measures to be implemented to comply with the relevant statutory requirements (including any relevant conditions under SSD-9302), limits, or performance measures and criteria;

(d) a program to monitor and report on the:

i. impacts and environmental performance of the development; and

ii. effectiveness of the management measures set out pursuant to paragraph (c) above;

(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;

(f) a program to investigate and implement ways to improve the environmental performance of the development over time;

(g) a protocol for managing and reporting any:

i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);

ii. complaint;

iii. failure to comply with statutory requirements; and

(h) a protocol for periodic review of the plan.

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

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.

C3. As part of the CEMP required under condition C2 of this consent, the Applicant must include the following:

(a) Construction Traffic and Pedestrian Management Plan (see condition B30);

(b) Erosion and Sediment Control Plan;

(c) Construction Noise Management Plan (see condition B14);

(d) Community Consultation and Complaints Handling; and

(e) Flood Emergency Response (see condition B23).

C4. The Applicant must:

(a) not commence construction of the development until the CEMP is approved by the Planning Secretary and provided to the EPA; and

(b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN – DSRRC

C5. The Applicant must prepare an Operational Environmental Management Plan (OEMP) for the DSRRC site in accordance with the requirements of condition C1, in consultation with the EPA and to the satisfaction of the Planning Secretary.

C6. As part of the OEMP required under condition C5 of this consent, the Applicant must include the following:

(a) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;

(b) describe the procedures that would be implemented to:

FOR INFORMATION

i. keep the local community and relevant agencies informed about the operation and environmental performance of the development;
ii. receive, handle, respond to, and record complaints;
iii. resolve any disputes that may arise;
iv. respond to any non-compliance;
v. respond to emergencies; and

(c) describe:
i. how the DSRRC will ensure compliance with any relevant statutory obligations;
ii. the processes involved for each aspect of operation including processes for each of the individual facilities;
iii. how each of the facilities interrelate and how they will be managed in concert with one another during operation; and
iv. how the operation will be managed in concert with any relevant conditions under SSD-9302 and any other relevant planning or licensing conditions related to the premises;

(d) include the following environmental management plans or codes:
i. Air Quality (see condition B8);
ii. Driver Code of Conduct (see condition B18);
iii. Waste (see condition B45);
iv. Flood Emergency Response (see condition B23); and
v. Water (see condition B27).

C7. The Applicant must:
(a) not commence operation until the OEMP is approved by the Planning Secretary; and
(b) operate the development in accordance with the OEMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).

REVISION OF STRATEGIES, PLANS AND PROGRAMS

C8. Within three months of:
(a) the submission of a Compliance Report under condition C14;
(b) the submission of an incident report under condition C10;
(c) the submission of an Independent Audit under condition C16;
(d) the approval of any modification of the conditions of this consent; or
(e) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review,

the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing that a review is being carried out.

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

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

REPORTING AND AUDITING

Incident Notification, Reporting and Response

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

Non-Compliance Notification

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

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

FOR INFORMATION

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

Compliance Reporting - DSRRC

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

(a) identify any trends in the monitoring data over the life of the development;

(b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

(c) describe what measures will be implemented over the next year to improve the environmental performance of the development

C15. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.

Independent Audit - DSRRC

C16. Within one year of the commencement of operations of the DSRRC, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit (Audit) of the development. Audits must:

(a) be prepared in accordance with the Independent Audit Post Approval Requirements (Department 2020)

(b) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary; and

(c) be submitted to the satisfaction of the Planning Secretary within three months of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).

C17. In accordance with the specific requirements in the Independent Audit Post Approval Requirements (Department 2020), the Applicant must:

(a) review and respond to each Independent Audit Report prepared under condition C16 of this consent;

(b) submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations;

(c) implement the recommendations to the satisfaction of the Planning Secretary; and

(d) make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.

Monitoring and Environmental Audits

C18. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing.

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

ACCESS TO INFORMATION

C19. At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must:

(a) make the following information and documents (as they are obtained or approved) publicly available on its website:

i. the documents referred to in condition A2 of this consent;

ii. all current statutory approvals for the development;

iii. all approved strategies, plans and programs required under the conditions of this consent;

iv. the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged;

v. regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;

vi. a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;

FOR INFORMATION

vii. a summary of the current stage and progress of the development;

viii. contact details to enquire about the development or to make a complaint;

ix. a complaints register, updated monthly;

x. the Compliance Report of the development;

xi. audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report;

xii. any other matter required by the Planning Secretary; and

(b) keep such information up to date, to the satisfaction of the Planning Secretary.

FOR INFORMATION

APPENDIX 1 DEVELOPMENT LAYOUT PLANS

FOR INFORMATION

SUBDIVISION DRAWINGS PREPARED BY LAND PARTNERS			
DRAWING NO.	**REV.**	**DATED**	**TITLE**
SY074707.000.11A.5	5	11/11/2020	PLAN OF PROPOSED SUBDIVISION OF LOT 100 IN DP 1168951 – STAGE 1A
SY074707.000.11B.6	6	11/11/2020	PLAN OF PROPOSED SUBDIVISION OF LOT 100 IN DP 1168951 – STAGE 1B
SY074707.000.12.7	7	11/11/2020	PLAN OF PROPOSED SUBDIVISION OF LOT 5 OF STAGE 1 OF SUBDIVISION OF LOT 100 IN DP 1168951 – STAGE 2
SY074707.000.13.8	8	23/11/2020	PLAN OF PROPOSED SUBDIVISION OF LOT 57 OF STAGE 2 OF SUBDIVISION OF LOT 100 IN DP 1168951 – STAGE 3
SY074707.000.11C.2	2	28/02/2023	PLAN OF PROPOSED SUBDIVISION OF LOT 100 IN DP 1168951 STAGE 1C BY LAND PARTNERS.
CIVIL ENGINEERING DRAWINGS PREPARED BY COSTIN ROE			
DRAWING NO.	**REV.**	**DATED**	**TITLE**
CO13919.01-DA10	C	12/08/2020	DRAWING LIST & GENERAL NOTES
CO13919.01-DA15	H	30/11/2020	SERVICES ARRANGEMENT PLAN
CO13919.01-DA21	F	30/11/2020	EROSION & SEDIMENT CONTROL PLAN – PHASE 1
CO13919.01-DA22	F	30/11/2020	EROSION & SEDIMENT CONTROL PLAN – PHASE 2
CO13919.01-DA23	G	13/07/2021	EROSION & SEDIMENT CONTROL PLAN – FINAL STAGE
CO13919.01-DA25	B	12/08/2020	EROSION & SEDIMENT CONTROL DETAILS
CO13919.01-DA31	G	30/11/2020	BULK EARTHWORKS PLAN – PHASE 1
CO13919.01-DA32	G	30/11/2020	BULK EARTHWORKS PLAN – PHASE 2
CO13919.01-DA35	C	12/08/2020	BULK EARTHWORKS SECTIONS
CO13919.01-DA41	G	30/11/2020	CONCEPT STORMWATER DRAINAGE PLAN – PHASE 1
CO13919.01-DA42	K	16/07/2021	CONCEPT STORMWATER DRAINAGE PLAN – PHASE 2
CO13919.01-DA45	B	12/08/2020	CONCEPT STORMWATER DRAINAGE DETAILS – SHEET 1
CO13919.01-DA46	C	18/11/2020	CONCEPT STORMWATER DRAINAGE DETAILS – SHEET 2
CO13919.01-DA51	E	30/11/2020	CONCEPT FINISHED LEVELS PLAN – PHASE 1
CO13919.01-DA60	F	30/11/2020	PROPOSED PUBLIC ACCESS ROAD & TYPICAL SECTION
C013919.01-C44	A	14/12/2022	STORMWATER DRAINAGE OUTLET 1 PLAN AND DETAILS
LANDSCAPE PLANS PREPARED BY GEOSCAPES			
DRAWING NO.	**REV.**	**DATED**	**TITLE**
SSD-00	K	26/11/2020	COVER SHEET
SSD-01	K	26/11/2020	OVERALL MASTER PLAN
SSD-02	K	26/11/2020	TEMPORARY EROSION CONTROL PLAN
SSD-03	K	26/11/2020	STREETSCAPE PLAN – DEVON STREET
SSD-04	K	26/11/2020	STREETSCAPE PLAN – PROPOSED ACCESS ROAD
SSD-05	K	26/11/2020	RIPARIAN CORRIDOR DETAIL PLAN – 1
SSD-06	K	26/11/2020	RIPARIAN CORRIDOR DETAIL PLAN – 2
SSD-07	K	26/11/2020	RIPARIAN CORRIDOR DETAIL PLAN – 3
SSD-08	K	26/11/2020	RIPARIAN CORRIDOR SECTION A-A
SSD-09	K	26/11/2020	RIPARIAN CORRIDOR SECTION B-B
SSD-10	K	26/11/2020	STAGE 1 LOT 6 (DOWNER) DETAIL PLAN – 1
SSD-11	K	26/11/2020	STAGE 1 LOT 6 (DOWNER) DETAIL PLAN – 2
SSD-12	K	26/11/2020	STAGE 1 LOT 6 (DOWNER) DETAIL PLAN – 3
SSD-13	K	26/11/2020	STAGE 1 LOT 6 (DOWNER) DETAIL PLAN – 4
SSD-14	K	26/11/2020	STAGE 1 LOT 6 (DOWNER) SECTION CC
SSD-15	K	26/11/2020	STAGE 1 LOT 6 (DOWNER) SECTION DD & EE
SSD-16	K	26/11/2020	SPECIFICATIONS & TYPICAL DETAILS
SSD-17	K	26/11/2020	PLANTING SCHEDULES & IMAGERY

FOR INFORMATION

LOT 6 SITE DRAWINGS PREPARED BY COSTIN ROE			
DRAWING NO.	**REV.**	**DATED**	**TITLE**
CO13919.02-AR100	K	20/11/2020	PROPOSED SITE LAYOUT
CO13919.02-AR101	A	20/11/2020	PROPOSED SITE LAYOUT WITH RTS CHANGES
CO13919.02-AR200	B	23/12/2020	PROPOSED PAVEMENT LAYOUT
CO13919.02-AR310	C	09/12/2020	RAP FINISHED PRODUCTS ROOF PLAN & ELEVATIONS
CO13919.02-AR301	D	22/12/2020	RECONOMY RECEIVAL PITS & RECONOMY MATERIAL STORAGE BUNKER ELEVATIONS – SHEET 1
CO13919.02-AR302	A	22/12/2020	RECONOMY RECEIVAL PITS & RECONOMY MATERIAL STORAGE BUNKER ELEVATIONS – SHEET 2
CO13919.02-AR300	F	22/12/2020	RECONOMY AREA PLAN & SECTION

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APPENDIX 2 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES

Noise
Construction noise management
▪ Regularly train workers and contractors (such as toolbox talks) to use equipment in ways to minimise noise.
▪ Avoid shouting and minimise talking loudly and slamming vehicle doors.
▪ Keep truck drivers informed of designated vehicle routes, parking locations, acceptable delivery hours and other relevant practices.
▪ Avoid the use of equipment which generates impulsive noise and minimise metal to metal contact and dropping materials from height.
▪ Consider notifying immediate adjoining neighbours of the start, duration and nature of the construction activities.
▪ Keep a register for any complaints, including details of the complaint such as date, time, person receiving complaint, complainant's contact details, person referred to, description of the complaint, work area and response.
▪ Use quieter methods and equipment where feasible and reasonable.
▪ Operate plant in a quiet and efficient manner.
▪ Regularly maintain equipment to ensure that it is in good working order.
▪ Place as much distance as possible between the equipment and sensitive land uses.
▪ Avoid the use of reverse beepers by designing the site to avoid reversing or install broadband reverse beepers where possible.
▪ Schedule noisy activities to occur during less sensitive periods.
▪ Avoid undertaking multiple highly noise intensive activities concurrently.
Operational noise management - DSRRC
▪ Using the quietest plant that can do the job.
▪ Scheduling the use of noisy equipment at the least-sensitive time of day.
▪ Reducing highly noise generating activities at night.
▪ Siting noisy equipment behind structures that act as barriers, or at the greatest distance from the noise-sensitive area.
▪ Keeping equipment well maintained and operating it in a proper and efficient manner.
▪ Employing 'quiet' practices when operating equipment, for example, positioning idling trucks in appropriate areas.
▪ Running staff-education programs and regular tool box talks on the effects of noise and the use of quiet work practices.
▪ Using best available technology including alternatives to tonal reversing alarms and efficient muffler design.
Air quality
Construction air quality management
▪ Weather forecast to be checked prior to undertaking material handling or processing and appropriate management measures implemented prior to adverse weather to minimise dust e.g. dampening exposed surfaces and haul roads, dampening or covering temporary stockpiles with high fines fractions. ▪ If adverse weather conditions occur during construction, activities are to be assessed and modified as required. Cease activity where reasonable levels of dust cannot be maintained using available means.
▪ Engines of on-site vehicles and plant to be switched off when not in use.
▪ Vehicles and plant are to be fitted with pollution reduction devices where practicable.
▪ Vehicles are to be maintained and serviced according to manufacturer's specifications.
▪ Visual monitoring of activities is to be undertaken to identify dust generation.
▪ The extent of exposed surfaces and stockpiles is to be kept to a minimum.
▪ Exposed areas and stockpiles are either to be covered or are to be dampened with water as far as is practicable if dust emissions are visible, or there is potential for dust emissions outside operating hours.

FOR INFORMATION

▪ Stockpiles of material that are going to remain in place for an extended period of time and have the potential to generate dust are to either be covered or vegetated.
▪ Dampen material when excessively dusty during handling.
▪ Reduce drop heights from loading and handling equipment where practical.
▪ Vehicle traffic is to be restricted to designated routes.
▪ Co-ordinate the delivery schedule to avoid a queue of incoming or outgoing trucks that will be idling for extended periods of time.
▪ Speed limits are to be enforced.
▪ Vehicle loads are to be covered when travelling off-site.
Operational air quality management - DSRRC
▪ Ensure all emission controls built into the design of the asphalt plant (e.g. the stack exhaust controls and the bitumen vapour evacuation system at the loadout area) are being maintained to operate as per manufacturers specifications.
▪ Clean up any aggregates that spill onto the road surface at the underground aggregate loading hopper (as soon as possible after the spill) to prevent them being tracked onto the internal and external roads.
▪ A dedicated access road will be established through the centre of the RAP stockpile area.
▪ The RAP stockpiling area and access road will be a sealed asphaltic concrete surface.
▪ Dedicated truck tipping areas will be established in the RAP stockpile areas and will be kept free from RAP material.
▪ The unprocessed RAP stockpiles must be restricted to the designated stockpile areas and not be allowed to encroach onto the truck access road through the centre of the stockpile area. This central unprocessed RAP stockpile area access road must be swept on a regular basis to remove spilt RAP material.
▪ The unprocessed RAP material must be dampened using the proposed sprinkler system when visible dust is evident from either the stockpiles or during handling of the RAP material.
▪ The volume of unprocessed RAP must be regularly monitored and receival of unprocessed RAP stopped when the stockpile area reaches capacity, to prevent RAP being stockpiled outside the designated stockpile area.
▪ Maintenance access roller doors on the RAP processing shed must remain closed at all times during RAP processing.
▪ All dust controls built into the design of the RAP processing facility (e.g. roll top type belt covers on conveyors and spray misters at discharge points of the radial transfer conveyors) must be maintained to operate as per manufacturers specifications.
▪ The volume of processed RAP in the finished product bunkers must be regularly monitored and processing stopped, when the bunkers reach capacity, to prevent RAP spilling out of the bunkers and RAP processing shed.
▪ Ensure all emission controls built into the design of the bitumen plant (e.g. the carbon filter on bitumen storage tanks) are being maintained to operate as per manufacturers specifications.
▪ Organic material recovered from road sweepings in the Reconomy plant must be removed from site on a regular basis to reduce the level of decomposition and associated odour.
▪ Weather forecast to be checked daily and appropriate management measures implemented prior to adverse weather to minimise particulate emissions from the site. ▪ If adverse weather conditions occur during operations, activities are to be assessed and modified as required. Cease activity where reasonable levels of dust cannot be maintained using available means.
▪ Engines of on-site vehicles and plant to be switched off when not in use.
▪ Vehicles and plant are to be fitted with pollution reduction devices where practicable.
▪ Vehicles are to be maintained and serviced according to manufacturer's specifications.
▪ Visual monitoring of activities is to be undertaken to identify dust generation.
▪ Maintain an odour complaint logbook and in the event of a complaint conduct an immediate investigation of any odour sources, together with appropriate actions to eliminate any identified excessive odour.
▪ Reduce drop heights from loading and handling equipment where practical.
▪ Spills on trafficked areas to be cleaned as soon as possible.

FOR INFORMATION

▪ Driveways and hardstand areas to be swept/cleaned regularly as required. A road sweeper will be regularly deployed to the operational site to sweep/clean internal roads periodically to prevent any tracking of fine debris.
▪ Co-ordinate the delivery schedule to avoid a queue of incoming or outgoing trucks that will be idling for extended periods of time.
▪ Speed limits are to be enforced.
▪ Vehicle loads are to be covered when travelling off-site.
Greenhouse gas
▪ Investigating ways to reduce energy consumption throughout the life of the project and reviewing energy efficient alternatives.
▪ Regular maintenance of equipment and plant.
▪ Ensure plant and equipment are switched off when not in use.
▪ Monitoring the consumption of fuel and regularly maintaining diesel powered equipment to ensure operational efficiency.
▪ Monitoring the total site electricity and natural gas consumption and investigating avenues to minimise consumption.
▪ Source consumables materials from environmentally sustainable sources.
Water and soils
Construction
▪ If more than 3 ML/yr of groundwater is predicted to be taken during construction of the project NRAR will be consulted with regarding acquisition of a license under the NSW *Water Management Act 2000*.
▪ Erosion and sediment control plans (ESCPs) (Appendix B3 of Appendix B of the RTS), or equivalent, will be incorporated into the CEMP. The ESCPs will be prepared in accordance with the Blue Book. The following aspects will be addressed within the ESCPs and CEMPs: – Construction traffic restricted to delineated access tracks and maintained until construction complete. – Appropriate sediment and erosion controls to be implemented prior to soil disturbance. – Stormwater management to avoid flow over exposed soils which may result in erosion and impacts to water quality. – Location of stockpiles outside of flow paths. – Inspection of all permanent and temporary erosion and sedimentation control works prior to and post rainfall events.
▪ The quality of discharge from the site is to satisfy the following Water Quality Objectives (WQOs) per Blue Book requirements: – Water pH released from a controlled sediment basin outflow shall be within the range 6.5 to 8.5. – Suspended solids released from controlled sediment basin outflows will be no greater than 50mg/L, 75 NTUs (Nephelometric Turbidity Units) or other turbidity measurement based on confirmed laboratory correlation. Any correlation should be confirmed through laboratory assessment. – Oils and grease – no visible films or odour. – Litter – no visible litter washed or blown from the site.
▪ The effectiveness of sediment and erosion control measures will be confirmed through ongoing site inspections by the construction contractor. Adjustments as required during the construction period will be made based on confirmed site conditions and effectiveness of the implemented measures.
▪ Prepare a Flood Emergency Response Plan, which will be submitted to DPIE prior to the commencement of construction.
Operations - DSRRC
▪ Prepare a Flood Emergency Response Plan, which will be submitted to DPIE prior to operation of the DSRRC.
▪ Stipulate in purchase contracts that a Flood Emergency Response Plan must be prepared for each other lot. The plans must be submitted to DPIE prior to operations on those lots.
▪ Energy dissipators will be provided on stormwater outlet structures in accordance with Guidelines for Waterfront Land and NSW Department of Primary Industries 'Guidelines for Outlet Structures'.
▪ Downer commits to applying for a trade waste agreement prior to discharging liquid waste to sewer.
▪ The stormwater management system will be maintained during operation of the DSRRC in accordance with the Surface Water Management Plan.

FOR INFORMATION

- A Surface Water Management Plan will form part of the OEMP and will be prepared to minimise water and hydrology impacts and will include proactive and reactive maintenance measures, and emergency response and incident management protocols for the following types of emergency or incident:
  - On-site spills or leaks - including use of spill kits to prevent smaller spills entering the sites stormwater system and the use of the proposed cut-off valve to prevent any spills that enter the stormwater inlet drains from leaving the site.
  - Off-site discharges.

Biodiversity

- An average 40 m riparian corridor will be provided along Duck River consistent with the averaging rule described in DPI Water's (2012) Guidelines for Riparian Corridors on Waterfront Land.

- The existing native vegetation along Duck River is to be demarcated as a no-go zone and is to include appropriate signage. Access to the 40 m riparian corridor (outside the existing native vegetation) during construction is to be limited to personnel and equipment required to install the stormwater outfalls and for revegetation works in accordance with the Vegetation Management Plan. After the stormwater outfalls and revegetation works are complete, the 40 m riparian corridor will be permanently fenced.
- For works associated with the new stormwater outlet at the end of the new cul-de -sac, where the following management measures are proposed:
  - A restricted access zone is to be outlined around the footprint and surrounds of the extended drainage outlet construction area. This area is to include land within a radius of 15 m from the extended drainage construction footprint, excluding the no-go area outlined above and excluding areas within the original construction footprint i.e. landwards from the extended drainage outlet. Access to this zone is to be restricted to workers and machinery working on the extended drainage outlet only. Construction activities in this zone are to be limited only to those necessary to construct the outlet. Equipment or materials that are not associated with this construction are not to be used or stored in this zone;
  - Prior to the commencement of construction the restricted access zone is to be cleared of all high threat and/or environmental weeds by a landscape management or bush regeneration contractor. All weed control is to be undertaken in accordance with accepted low-impact bush regeneration techniques. All removed weed material is to be removed off site for disposal at a licenced green waste facility;
  - Vegetation and habitat values within the site should be managed as per the VMP;
  - All nearby trees not subject to full removal are to be retained and protected during construction in accordance with the arborist's recommendation (Appendix C of UTM 2023). These measures are to be Central Sydney Industrial Estate – ecological assessment of revised drainage and maintained throughout construction. Should any additional impacts to trees be required this must only be undertaken on consultation with a suitably qualified and experienced arborist;
  - Erosion and sediment control measures are to be installed on the downhill side of all construction disturbance areas, including for an additional minimum of 20 m either side (upstream and downstream along the alignment of Duck River) from the extent of the disturbance area. These measures are to be inspected and, if necessary, maintained on a daily basis, as well as after any substantial rainfall event (<5 mm within 24 hours);
  - No vehicle, concrete or other wash down is to be undertaken within the restricted access zone or the no-go area. All such activities must be undertaken with designated locations equipped with appropriate controls within the main construction area;
  - Operational lighting should be directional and aimed away from the riparian corridor to avoid disturbance to nocturnal animals, particularly bats and birds;
  - Control the movement of vehicles, machinery and human traffic into the riparian corridor during construction by demarcation and/or signage so as to minimise the potential for introduction and spread of weeds.

- Vegetation and habitat values within the site should be managed as per the Vegetation Management Plan.

- If unexpected threatened flora and fauna species are discovered, stop works immediately and contact DPIE - Environment, Energy and Science group for advice.

- If impacts to aquatic environments are observed within the vicinity of the work area (e.g. spill of any chemicals or substantial runoff of sediment), works at that location should cease and the NSW EPA and/or council should be contacted for further advice.

Aboriginal heritage unexpected finds protocol

- The following procedure will be implemented if a suspected Aboriginal object is identified during construction of the project:
- All works must cease immediately in the area to prevent any further impacts to the object.

FOR INFORMATION

▪ Notify environmental representative. ▪ Engage a suitably qualified archaeologist to determine the nature, extent and significance of the find and provide appropriate management advice. Management action(s) will vary according to the type of evidence identified, its significance (both scientific and cultural) and the nature of potential impacts. ▪ Notify the Environment, Energy and Science Group of the unexpected find and management advise provided by the appointed archaeologist. ▪ Prepare and submit an AHIMS site card for the site.
Human skeletal remains
▪ The following procedure (New South Wales Police Force, 2015; NSW Health, 2008) will be implemented if potential human skeletal remains are identified during construction of the project: 1. All work in the vicinity of the remains should cease immediately. 2. The location should be cordoned off and the NSW Police notified. 3. If the Police suspect the remains are Aboriginal, they will contact the Environment, Energy and Science Group and arrange for a forensic anthropologist or archaeological expert to examine the site. ▪ Subsequent management actions will be dependent on the findings of the inspection under Point 3 above: ▪ If the remains are identified as modern and human, the area will become a crime scene under the jurisdiction of the NSW Police. ▪ If the remains are identified as pre-contact or historic Aboriginal, the Environment, Energy and Science Group and relevant Aboriginal parties are to be formally notified in writing. Where impacts to exposed Aboriginal skeletal remains cannot be avoided an appropriate management mitigation strategy will be developed in consultation with Environment, Energy and Science Group and Aboriginal parties. ▪ If the remains are identified as historic non-Aboriginal, the site is to be secured and Heritage NSW contacted. ▪ If the remains are identified as non-human, work can recommence immediately.
Hazardous substances and dangerous goods - DSRRC
▪ The final layout and design for the DSRRC facilities would meet the bunding and separation distance requirements of AS 1940 (storage and handling of flammable and combustible liquids) and AS 3780 (storage and handling of corrosive substances).
▪ All personnel will complete awareness training that includes hazardous substance management, emergency response and the use of spill kits.
▪ Hazardous materials will be transported to and from the site by a licensed contractor, and stored and handled in accordance with the requirements of relevant regulatory requirements, Australian Standards and the ADG Code.
▪ Vehicles and transport vessels used on-site are to be regularly inspected for leaks, spills or other damage.
▪ Storage and handling of any dangerous goods shall comply with Australian Standards, including but not limited to AS1940 and AS 3780.
▪ Appropriately sized and stocked spill response kits would be provided within strategic areas of the site, and within mobile vehicles used to transport hazardous materials at the site.
▪ Spill response kits would be maintained, clearly identified and readily accessible on site for use in case of accidental spill. Key staff will be skilled in their location as well as usage, application and disposal of contaminated material.
▪ During construction activities, all hazardous substances will be stored in appropriate containers in bunded areas within mobile vehicles, or designated storage areas to minimise the risk of spillages and mobilisation of any pollutants into the soil or stormwater drains.
▪ Vehicles and equipment will be refuelled at the diesel storage area.
▪ Any scheduled mobile plant maintenance and repairs will be conducted offsite.
▪ Equipment will not be used if there are any signs of fuel, oil or hydraulic leaks. Leaks will be repaired immediately, or the equipment will be removed from site and replaced with a leak-free item.
▪ Any chemicals and fuels will be stored, labelled, transported and used in accordance with Australian Standards and in line with best practices. All hazardous substances or chemicals imported to site shall be accompanied by a Safety Data Sheet.
▪ A database would be maintained to assist in the recording and management of any chemicals and hazardous substances stored at the project site.

FOR INFORMATION

▪ Any fuels spillage will be collected, and the contaminated material disposed of at a licensed waste management facility.
▪ Emergency procedures will be prepared and implemented for dealing with spillage of hazardous substances and dangerous goods.
▪ Any contaminated soil resulting from spills would be excavated, classified in accordance with Waste Classification Guidelines, and disposed to a licensed waste management facility, or, remediated on site in accordance with recommendations provided within a contaminated land management action plan developed by a contaminated land specialist.
Public safety
▪ To address the risks to public safety, the site will be fully fenced, monitored by surveillance cameras, necessary signage erected at the site entrance and a security hut located at the entry/exit to the site and all vehicle and pedestrian movements in and out of the site will be closely monitored.
▪ Downer will continuously review and improve security at the site, including new fencing, security cameras, gates and signage.
▪ All visitors to the site will be required to report to the site administration office and register prior to gaining entry to the active areas of the site.
Risk to workers - DSRRC
▪ Downer commits to preparing an emergency and evacuation plan in accordance with AS 3745–2010 Planning for emergencies in facilities, which will be appended to and submitted to DPIE with the operational environmental management plan. The plan will include measures to be implemented during floods and flood evacuation.
▪ Downer commits to preparing an emergency services information package, which will be appended to the operational environmental management plan and made available to emergency services as they enter Lot 6.
▪ Designated first aid and emergency response equipment will be available during construction and operation phases of the project. Appropriately trained personnel will be on site throughout the life of the operations to provide first aid and respond to site emergencies.
▪ Any injuries incurred at the site will be reported and investigated in consultation with SafeWork NSW and other relevant authorities. Any recommendations or findings of investigation reports will be implemented where feasible and practical.
Waste
General
▪ Waste will be managed in accordance with the waste hierarchy of avoidance, re-use, recycling/re-processing/treatment and disposal.
▪ An environmental management plan will be implemented for construction of the subdivision and the DSRRC and operation of the DSRRC, which will include measures for: – Quantification and classification of materials that would be required to be removed from the site. – Disposal/reuse strategies for each type of material. – Details of how waste will be stored and managed on site. – Identification of non-recyclable waste. – Identification of strategies to reduce, reuse and recycle. – Procedures and disposal arrangements for potentially hazardous material.
▪ The environmental management plan will include the following: – Waste will be managed in accordance with EPA's (2014) Waste Classification Guidelines and regulatory requirements. This will include (i) its classification prior to leaving the site and (ii) recording (via an appropriate waste tracking system) its legal off-site transportation for re-use, recycling or disposal. – Waste will be stored in a suitable container, with a lid, and transported from the site to an appropriate facility. Enough suitable receptacles for general waste, hazardous waste and recyclable materials will be provided for waste disposal, including sufficient bins to allow separation of wastes for recycling. – Disposal of wastes will only take place at a licenced waste disposal facility. – Wastes will be securely stored to ensure that pollutants are prevented from escaping. – Fuel, lubricant or hydraulic fluid spillages will be collected using absorbent material and the used spill kit material will be stored separately before disposal to a suitably licensed waste facility. – Hazardous materials will only be removed by a suitably qualified, licensed and experienced contractor. – Documents and records of the transport and destination of all materials removed from site will be kept as proof of correct disposal and for environmental auditing purposes.

FOR INFORMATION

– Waste streams will be sorted to maximise the reuse/recycling potential and minimise disposal costs. – Waste will be covered, stored and removed in a timely manner so as not to attract animals. ▪ Waste handling, transport and disposal will be in accordance with the requirements of the POEO Act, WARR Act and relevant EPA or SafeWork NSW guidelines.
RAP, Reconomy and asphalt plants - DSRRC
▪ The Sustainable Road Resource Centre will not accept or process any waste and materials that are contaminated/non-conforming. The following inspection protocols will be implemented for all waste received at the site: – Verification by the supplier of the waste, that it meets the relevant waste classification. – Prior to tipping the waste at the site, the load is visually inspected. – The load is then tipped at the relevant waste receival area and visually inspected again. When the waste is tipped, that load is kept separate from the other already tipped material so that it can be quarantined/reloaded into a truck and taken to an appropriate waste facility if it doesn't meet the required waste classification.
▪ Every load of RAP and Reconomy waste will be weighed on receival and dispatch and the following records kept of the material received on site: – weight; – description; – origin; – licence plate of truck.
▪ Downer's existing RAP work instruction and Reconomy environmental management plan will be amended to reflect the proposal and all controls/procedures required to be implemented to meet the conditions of existing and any new site specific or general resource recovery exemptions and orders.
▪ Glass fines will only be accepted if deliveries are accompanied by a written statement of compliance certifying that all the requirements set out in The recovered glass sand order 2014 have been met.
▪ Coal ash will only be accepted if deliveries are accompanied by a written statement of compliance certifying that all the requirements set out in The coal ash order 2014 have been met.
▪ Steel furnace slag will only be accepted if deliveries are accompanied by a written statement of compliance certifying that all the requirements set out in The steel furnace slag order 2014 have been met.
The following requirements for processors will be implemented in accordance with clause 4 of the RAP order (2014): ▪ Contaminants – – The RAP work instruction and Reconomy environmental management plan will be implemented to minimise the potential for receiving/processing asbestos in RAP, including documentation of compliance records. – A procedure will be prepared and implemented to minimise the potential for receiving/processing coal tar in RAP, including documentation of compliance records. ▪ Notification – Downer will provide the following to each person it supplies RAP to: – A written statement of compliance certifying that all the requirements set out in the RAP order (2014) have been met. – A copy of the RAP exemption (2014), or a link to the EPA website where the RAP exemption (2014) can be found. – A copy of the RAP order (2014), or a link to the EPA website where the RAP order (2014) can be found. ▪ Records – Downer will keep a record of the following for six years: – The quantity of any reclaimed asphalt pavement supplied. – The name and address of each person to whom the processor supplied the reclaimed asphalt pavement, or the registration details of the vehicle used to transport the reclaimed asphalt pavement.
The following requirements for processors will be implemented in accordance with the Downer recovered aggregate and sand order 2019, or if that document is not amended, the corresponding clauses in the glass order/exemption 2014 and aggregate order/exemption 2014. ▪ Sampling – Downer will prepare a sampling plan including sample preparation and storage procedures for recovered aggregate and sand. – Material will be sampled in accordance with clauses 4.2-4.9 in Downer recovered aggregate and sand order 2019 and Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – sampling – aggregates (or equivalent). – Material will not be supplied if concentrations of analytes exceed the values specified in Table 1 in Downer recovered aggregate and sand order 2019. ▪ Notification – Downer will provide the following to each person it supplies Reconomy material to:

FOR INFORMATION

– A written statement of compliance certifying that all the requirements set out in Downer recovered aggregate and sand order 2019 have been met. – A copy of Downer recovered aggregate and sand order 2019. – A copy of the Downer recovered aggregate and sand exemption 2019. ▪ Records – Downer will keep a record of the following for six years: – The sampling required to be prepared under clause 4.1.1 of Downer recovered aggregate and sand order 2019. – All sampling results in relation to the Downer recovered aggregate and sand supplied. – The quantity of the Downer recovered aggregate and sand supplied. – The name and address of each person to whom the processor supplied the Downer recovered aggregate and sand. – The processor must provide, on request, the most recent characterisation results for Downer recovered aggregate and sand supplied to any consumer of the Downer recovered aggregate and sand. – The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 4.1 to 4.13 of Downer recovered aggregate and sand order 2019.
The following requirements for processors will be implemented in accordance with the Downer bituminous pavement order 2019. ▪ General – no Reconophalt containing Tonerplas will be supplied before it has been demonstrated to meet the specifications in Downer (2020) Reconophalt quality management process. ▪ Notification – Downer will provide the following to each person it supplies bituminous pavement to: – A written statement of compliance certifying that all the requirements set out in Downer bituminous pavement order 2019 have been met. – A copy of the Downer bituminous pavement order 2019. – A copy of the Downer bituminous pavement exemption 2019. ▪ Records – Downer will keep a record of the following for six years: – The quantity of Downer bituminous pavement supplied. – The name and address of each person to whom the processor supplied the Downer bituminous pavement. – The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 5.1.
Visual
▪ The use of highly reflective elements materials on the tallest components should be minimised and limited to those components that require unpainted steel/stainless steel finished surfaces as they need to withstand high temperatures.
▪ Colour the tallest, most visible components of DSRRC a light/mid-grey tone similar to that shown in illustrations.
▪ Paint or colour-treat the lower elements of DSRRC to blend with the surroundings and decrease their visibility and contrast. Choose a colour two to three shades darker than the background colour such as mid/dark grey.
▪ Do not paint components white or brightly coloured unless there is a safety or functional requirement to do so.
▪ Ensure all external structures have a non-reflective finish. Avoid highly reflective elements (such as glossy silver/steel) except where unavoidable (note with time any glossy steel components would weather to more of a matt grey).
▪ Use semi-gloss finish rather than flat or gloss finish.

FOR INFORMATION

APPENDIX 3 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

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

INCIDENT REPORT REQUIREMENTS

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



APPENDIX B

UNEXPECTED CONTAMINATION PROCEDURE

APPENDIX B – UNEXPECTED CONTAMINATION PROCEDURE

Procedure

During excavation works there is the potential of encountering in-ground unexpected contamination. Unexpected contamination may include (but not be limited to):

- Asbestos containing materials.
- Additional light non-aqueous phase liquid/hydrocarbon impact.
- Buried building rubble.
- Unusual soil staining and discoloration.
- Odours emanating from the ground during earthworks.

Where unexpected finds are uncovered:

- Works are to cease immediately in the vicinity of the excavation.
- The site supervisor is to be informed immediately.
- If deemed necessary the area surrounding the unexpected find is to be barricaded to ensure the area is not further disturbed.
- If required a suitably qualified environmental specialist is to visit the site, assess the discovery and undertake assessment/provide recommendations.

The environmental specialist is to advise on the required course of action for the unexpected contamination, this may include:

- Sample collection and analysis.
- A detailed assessment (if required).
- Preparation of an assessment report and remediation plan (if required).

All reports are to be prepared in accordance with relevant NSW EPA guidance and provided to relevant regulatory/approval authority and VE Property for record keeping requirements.

Where analysis of unexpected contamination indicates a potential risk to either human health and/or the environment, a task specific works plan (as detailed below) may be prepared. The plan is to be developed to outline task specific procedures/processes to be adopted to minimise the risk to human health and/or the environment from any unexpected contamination.

Task specific works plan

If suspected contamination is encountered, the construction contractor will ensure a task specific works plan is prepared by a suitably qualified environmental professional to ensure all environmental risks are appropriately managed.

1. The works plan should be prepared for the specific works to be undertaken.
2. The works plan should be prepared in accordance with industry best practice standards at the time of works and must comply with all relevant NSW EPA regulatory guideline criteria relating to contaminated sites.

The plans should include (but not be limited to) the following details:

- Risks to human health and the environment – potential risks associated with the work should be highlighted.
- General site management – details of required inductions of employees or contractors.
- Procedures and methods to be used for undertaking the works.
- Specific details of ways to limit disturbance of impacted soils/groundwater/redundant site drainage infrastructure etc.
- Mitigation measures.

- Air/dust monitoring action levels, including monitoring procedures for lower explosive limit and volatile organic compounds around areas of residual hydrocarbon impacts.
- Personal protective equipment.
- Other protection measures (cabin ventilation, etc.).
- Roles and responsibilities for implementing the mitigation measures.
- Soil and groundwater management controls – as a minimum the following requirements should be detailed:
    - Any groundwater extracted during intrusive works is to be disposed in accordance with NSW EPA waste disposal guidance.
    - Excavated soils should be placed in a bunded area to minimise potential run off.
    - Excavated concrete containing asbestos formwork should be covered following excavation to prevent wind-blown emissions of potential asbestos.
    - Soil / concrete material should be kept moist to limit dust.
    - Excavated materials, where possible, be replaced in the same location. Where this is not practical, material must be disposed of in accordance with NSW EPA waste disposal regulations.
    - Excavated concrete materials containing asbestos formwork are not to be replaced in the site and are to be disposed offsite in accordance with NSW waste disposal requirements at the time of works.
- Reinstatement of the site surface.
- Waste management including waste disposal.
- Record keeping, audit and review.

Emergency response

In the event of any incident, the first priority shall be the safety of all personnel and the community in the immediate vicinity.

In the event of a serious emergency at the site, the following procedure will be followed:

1. Stop work.
2. All personnel shall leave the work zone via established entry/exit routes.
3. Leave the site and assemble at the emergency assembly area (as designated by the project manager).
4. Await further instructions from the designated project manager. No project personnel or visitors are to leave the assembly area unless advised to do so by the project manager or their onsite representative to be nominated at a later stage.

The project manager or their designated entity will notify the relevant service as to the details regarding any emergency.

Following emergency response, all practical steps should be taken to minimise the risk of further environmental damage as soon as possible after the event. The situation should be stabilised by following the appropriate incident management or contingency plan procedures. The appropriate staff should be notified and emergency procedures enacted.

Typical first response actions may include:

1. Assessment of vapour concentrations/asbestos fibre counts from air monitoring in excavation areas and associated risk to human health.
2. Temporary repair or isolation of failed plant/equipment component.
3. Sampling of impacted site media, be it soil, groundwater and/or surface water.

Follow-up action will include the development of a work plan to remediate or manage the impacted site media. The work plan would detail any sampling and analysis requirements to define the

nature and extent of impact, methods for the recovery, handling, storage and treatment of impacted material, disposal and/or reuse options for impacted material and personal protective equipment requirements.

Records will be kept of any incidents, accidents, hazardous situations, unusual events and unsafe health exposures and the corrective action taken. Where necessary, this procedure should be updated based on findings of corrective actions/improvements etc.

Reporting

Reporting in relation to unexpected contamination is summarised in Table B.1.

Table B.1

Report	Requirement
Material classification reports	▪ All reports relating to unexpected contamination are to be kept by VEP upon completion of works. ▪ Reports are to include detailed laboratory analysis and subsequent classification information and materials tracking information detailing the total volume and final placement/disposal location.
Non-conformance reporting	▪ Non-conformances will be recorded in a non-conformance and corrective action report. Details of the non-conformance, including any immediate corrective actions undertaken, are to be recorded by the operational staff. ▪ It is the responsibility of the project manager to immediately initiate corrective actions, if required. Once completed, the site supervisor/foreman will provide details of the actions undertaken on the non-conformance report and sign, date and file the report.
Incident reporting	▪ Records will be kept of any environmental incidents, accidents, hazardous situations, unusual events and unsafe health exposures and the corrective action taken. ▪ The project manager will adequately investigate the cause of any incident so that necessary changes in work practices can be made to prevent the incident recurring.
Performance monitoring	This procedure should be reviewed by VEP after incidents or reported findings, to ensure that: ▪ Information and environmental management strategies remain current. ▪ Any opportunities for improvement are identified. ▪ Changes to legislation, licence and approval conditions are identified and complied with. The assessment should take into account all changes such as (but not limited to): ▪ Changes to site conditions. ▪ Work requirements. ▪ Legislation. ▪ Environmental condition.



APPENDIX C

CONSTRUCTION NOISE MANAGEMENT PLAN

Central Sydney Industrial Estate (excluding Lot 6) | SSD 10459

CONSTRUCTION NOISE MANAGEMENT PLAN

Prepared for VE Property Pty Ltd | 24 March 2021



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element.



Central Sydney Industrial Estate (excluding Lot 6)

SSD 10459 | CONSTRUCTION NOISE MANAGEMENT PLAN

Prepared for VE Property Pty Ltd
24 March 2021

PR122

	Prepared by	Reviewed by	Reviewed by
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Position	Senior Environmental Consultant	Director	Director
Project Role	Lead Author	Project Director	Peer review/sign-off
Signature			
Date	24 March 2021	24 March 2021	24 March 2021

This report has been prepared in accordance with the scope of services set out in the contract between Element Environment Pty Ltd and the client. The report is for the use of the client and no responsibility will be taken for its use by other parties.

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DOCUMENT CONTROL

Revision	Date	Description	Prepared by	Reviewed by
0	15 March 2021	For VE Property review	Element Environment	VE Property Pty Ltd
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Contents

1 INTRODUCTION 3

1.1 Overview 3
1.2 Scope 3
1.2.1 Suitably qualified expert 4

2 PROJECT SUMMARY 7

2.1 Location 7
2.2 Receivers 7
2.3 Project summary 7
2.3.1 Lot preparation 8
2.3.2 Access 8
2.3.3 Stormwater management 9
2.3.4 Landscaping 9
2.3.5 Services 10
2.4 Hours of construction, employment, plant and equipment 10

3 CONSTRUCTION NOISE CRITERIA 15

3.1 Noise monitoring 15
3.2 Interim construction noise guidelines 15

4 CONSTRUCTION NOISE IMPACTS 19

4.1 Construction noise activities 19
4.2 Predicted construction noise levels 19

5 NOISE MANAGEMENT AND VERIFICATION 23

5.1 Management measures 23
5.2 Validation of noise emissions 24

6 COMPLIANCE MANAGEMENT 27

6.1 Roles and responsibilities 27
6.2 Training 27
6.3 Inspections 27
6.4 Incident notification and monitoring 27
6.5 Management of noise complaints 27
6.6 Monitoring 28
6.7 Internal audits 29
6.8 Review and improvement 29

Tables

Table 1.1 Noise CoCs 3
Table 3.1 RBLs and ambient noise levels 15
Table 3.2 ICNG NMLs for residential receivers 15

Table 3.3 NMLs – residential receivers ($LA_{eq,\ 15min}$ – dB(A)) 16
Table 4.1 Combined construction noise predictions 19
Table 4.2 Construction maximum noise levels 20
Table 5.1 Construction noise management measures 23

Figures

Figure 2.1 Sensitive noise receivers 11



CHAPTER 1

INTRODUCTION

1 INTRODUCTION

1.1 Overview

VE Property Pty Ltd (VE Property), will develop the Central Sydney Industrial Estate (CSIE) on land formerly known as the 'Western Area' of the former Shell Oil Refinery at Clyde. Stage 1 (Lot 6 of the subdivision) will be developed as the Downer Sustainable Road Resource Centre, the construction of which is addressed in a separate construction environmental management plan (CEMP) and noise management plan.

Environmental impacts of the CSIE were assessed in Element (2020) *Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre – State significant development – environmental impact statement* (the EIS), which was submitted with an application for State significant development (SSD) to the Department of Planning, Industry and Environment (DPIE) on 18 September 2020.

The SSD application was determined and conditions of consent (CoC) provided by DPIE on 31 January 2021. CoC B14 requires VE Property to prepare a construction noise management plan (CNMP or 'the plan') which must be approved by DPIE prior to the start of construction of the CSIE. This CNMP has been prepared by Element Environment Pty Ltd to satisfy this condition.

1.2 Scope

This plan has been prepared as required by the CoCs summarised in Table 1.1, including sections of the plan where they are addressed.

Table 1.1 Noise CoCs

CoC	Description	Plan section
B12	The Applicant must comply with the hours detailed in Table 1. Earthworks and construction: Monday – Friday: 7 am to 6 pm Saturday: 8 am to 1 pm	2.4
B13	Earthworks and construction works outside of the hours identified in condition B12 may be undertaken in the following circumstances: (a) works do not exceed the noise limits detailed in Table 8 of the Noise and Vibration Impact Assessment, prepared by Muller Acoustic Consulting, dated 17 September 2020; or (b) works agreed to in writing by the Planning Secretary; or (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	2.4 Table 3.3 Table 5.1
B14	The Applicant must prepare a Construction Noise Management Plan (CNMP) for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must:	This plan
B14(a)	be prepared by a suitably qualified and experienced acoustic expert;	1.2.1
B14(b)	describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);	5; 6
B14(c)	describe the measures to be implemented to manage high noise generating works such as piling;	Table 5.1
B14(d)	include a complaints management system that would be implemented for the duration of the development.	6.5; 10.4 of CEMP

CoC	Description	Plan section
B15	The Applicant must: (a) not commence construction of any relevant stage until the CNMP required by condition B14 is approved by the Planning Secretary; and (b) implement the most recent version of the CNMP approved by the Planning Secretary for the duration of construction.	Noted
B18	The Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Code is to be incorporated into the CEMP required under condition C2 and the OEMP required under condition C5.	Appendix B of Construction Traffic and Pedestrian Management Plan in Annex E of the CEMP

1.2.1 Suitably qualified expert

Condition B14(a) requires this plan "be prepared by a suitably qualified and experienced noise expert". Element Environment requested via email on 18 January 2021 to David Koppers (DPIE) that this plan be prepared by an environmental scientist with significant experience in assessment and management of construction noise and reviewed/signed-off by the director of Muller Acoustic Consulting Pty Ltd (Oliver Muller). David approved this approach.

Oliver is a member of the Australian Acoustical Society (MAAS) and has reviewed this plan and signed on the document control page.



CHAPTER 2

PROJECT SUMMARY

2 PROJECT SUMMARY

2.1 Location

The site address is 9 Devon Street, Rosehill and is part of lot 100 in deposited plan 1168951 and covers 35.068 ha. The project will be on the newly created lots shown on Figure 2.1.

The site is in the Parramatta Local Government Area (LGA) and is zoned IN3 Heavy Industrial under the land use table in Part 2 of the LEP.

The site is accessed from James Ruse Drive via Grand Avenue and Colquhoun Street or Grand Avenue, Durham and Devon streets. The site is accessed from Parramatta Road via Wentworth, Kay and Unwin streets.

2.2 Receivers

Potential noise impacts on the sensitive receivers on Figure 2.1 during construction were assessed. The receivers are categorised as:

- 'R' – private residential.
- 'FR' – future residential.
- 'In' – industrial.
- 'C' – commercial.
- 'Wor' – place of worship.
- 'Sch' – school.
- 'AR' – active recreation.

2.3 Project summary

The project involves the staged subdivision of the Central Sydney Industrial Estate on lands known as the Western Area of the former Shell Oil Refinery at Clyde. Stage 1 (being Lot 6 of the subdivision) will then be developed as the Downer Sustainable Road Resource Centre described in a separate CEMP.

VE Property proposes the following:

- Staged subdivision of the site into fourteen lots that will form the Estate.
- Earthworks/filling to bench the lots to form a flat pad in the northern half of the site then gradually grading down towards the Duck River in the southern half of the site.
- Construction of a new public access road running south from an intersection with Devon Street, providing access to those lots that do not front Devon Street, in accordance with council specifications.
- Installation of an inter-allotment stormwater drainage system to provide a single stormwater connection point to each lot of the proposed subdivision. Temporary erosion and sediment controls will also be installed to manage water quantity and quality over the lots until they are sold and developed, when permanent stormwater management infrastructure will be installed within each lot.
- A 40 m average riparian corridor along Duck River.
- Landscaping/planting:
    - Along both sides and around the cul-de-sac of the proposed access road.
    - Within the previously disturbed part of the proposed riparian corridor along Duck River in accordance with a landscape management plan and vegetation management plan.

Provision has been made for a 5 m easement for services along the northern site boundary adjacent Devon Street. The extension of the following key municipal services will likely be required to suit the needs of each of the lots:

- Potable water – potentially construction of a ring main linking the main under Colquhoun Street to the main under Durham Street (subject to separate approval by Sydney Water).
- Wastewater (sewer) – extension of the rising main along Devon Street and minor sideline extension of the gravity sewer along Colquhoun Street (subject to separate approval by Sydney Water).
- Electricity – supply may be required to each lot from the high voltage line along Devon Street (subject to separate approval by Endeavour Energy).

Development of the Estate for new industrial uses (in accordance with current zoning), other than Lot 6, will then be subject to future applications.

2.3.1 Lot preparation

Condition B47 of SSD 9032 requires the rehabilitation of the Western Area to achieve the final landform shown in Appendix 4 of the consent. This application does not seek to modify the approved final landform, but rather, it seeks approval for the development of further earthworks to re-contour the land on the lots.

The lots other than Lot 64 will be benched in two stages (no works are proposed on Lot 64, which will be maintained as is).

Bulk earthworks on the other lots will comprise the construction of a flat pad at reduced level (RL) 4.8 m Australian height datum (AHD) in the northern half. The proposed earthworks will then gradually grade down towards Duck River in the southern half of the site to RL 4.4 m and 4.3 m AHD at the southern ends of lots 63 and 64 respectively.

Cut and fill is likely to be balanced with approximately 33,000 m^3 cut and 33,000 m^3 fill.

There will be an allowance for the importation of up to 30,000 m^3 of virgin excavated natural material (VENM) and/or excavated natural material (ENM) for site presentation.

All lots will be hydroseeded or spread with tackifier after earthworks to prevent wind erosion.

2.3.2 Access

Lots 51-56 will be accessed via new private entry driveways subject to a future development application after the lots are sold. Lots 55 and 56 will have the option of access either off Devon Street or the new public road. Lots 58-64 will be accessed from Devon Street via a new public road with driveways to the new road subject to future development applications after the lots are sold.

The new access road will be connected to Devon Street and will be an industrial road with asphalt surface and kerb and guttering to council standards. It is proposed as a public road.

The road reserve of the proposed road will be 21 m wide with a 12 m wide carriageway, 3.65 m wide western verge, and a 5.35 m wide eastern verge including a 3 m wide shared cycle/pedestrian path.

A road easement will be provided from the road to Duck River to allow for the potential road extension and bridge.

2.3.3 Stormwater management

Construction erosion and sediment controls

An erosion and sediment control plan has been included in Annex H of the CEMP.

Initially, a 'Type D' sediment basin will be installed on the southern site boundary, which will catch and treat the five day 85th percentile volume during construction. Water will be diverted to the basin via temporary diversion drains inside the site boundary, along the proposed road and the boundaries of some lots.

Type D basins are generally pumped out following rain when suspended solid concentrations of less than 50 mg/L are achieved from flocculation treatments.

Sediment fences will be installed along the site boundary to prevent sediment, not captured in the sediment basin, from migrating offsite.

Post construction pre-operation erosion and sediment controls

Once the lots are prepared, additional temporary Type D sediment basins will be installed in a corner of each lot to treat sediment laden runoff until the lots are developed by eventual owners. Additional temporary diversion drains will be provided to divert water from the lots to the basins. The basins will discharge to pits associated with the permanent drainage network described below.

Other management measures will be:

- Minimising the extent of disturbed areas across the site at any one time.
- Progressive stabilisation of disturbed areas or previously completed earthworks.
- Regular monitoring and implementation of remedial works to maintain the efficiency of all controls.

2.3.4 Landscaping

Areas of the site will be landscaped as described below (also refer to Annex F of the CEMP).

Riparian corridor

There will be an average 40 m wide riparian corridor along the Duck River at the southern site boundary.

Access road reserve

The verges to the proposed road will be planted in accordance with council requirements.

Northern boundary

A 5 m easement along the sites northern and north-western boundaries will be provided for services along Devon and Colquhoun streets.

The existing turf and trees along the Devon and Colquhoun street frontages will be retained, where possible, except at the proposed site access road. Provision has also been made for a 5 m landscape setback along the Devon and Colquhoun streets frontage with landscape works/planting subject to future development applications.

2.3.5 Services

The site is serviced with key municipal services as part of its previous use as Clyde Refinery and Terminal. However, the site will require service extensions to the proposed lots.

The following existing services are shown on Drawing C013919.01-DA15 (refer to Appendix 1 of Annex A of the CEMP):

- Potable (drinking) water.
- Recycled Water.
- Wastewater (sewer).
- Electricity.
- Communications.
- Gas.

2.4 Hours of construction, employment, plant and equipment

Preparation of the lots will commence after conclusion of the works associated with WARP. Civil works will commence in the second half of 2021 and will take approximately nine months. Installation of services will occur prior to this, likely in the first half of 2021.

Construction will typically occur between 7am-6pm Monday-Friday and 8am-1pm Saturday. Construction will also take place at night-time and on Sundays in the following circumstances:

- works do not exceed the noise limits detailed in Table 3.3; or
- works agreed to in writing by the Planning Secretary; or
- for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

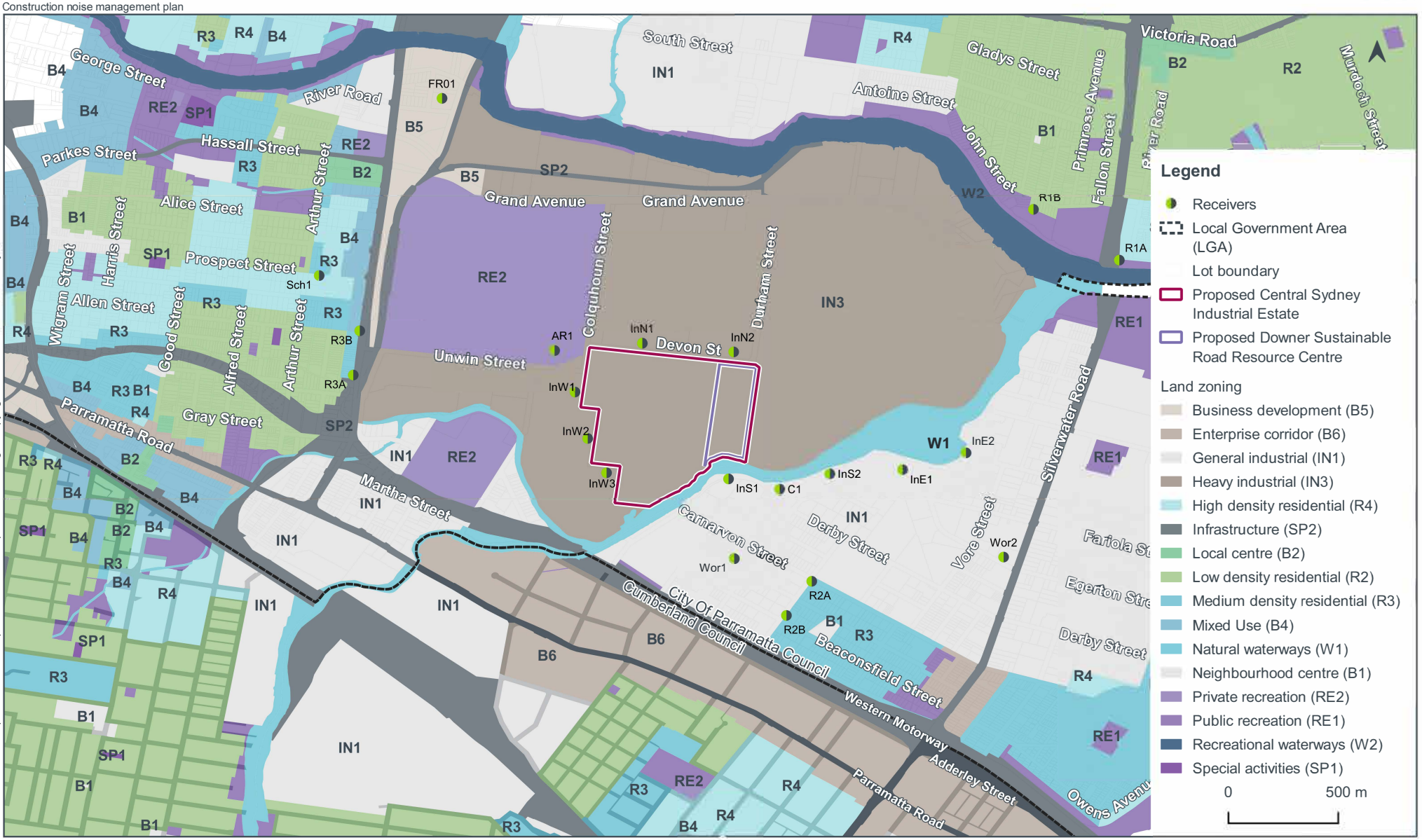
Construction on public holidays will be avoided.

There will be up to 35 construction employees on site at any time.

There will be up to 10 items of plant and equipment on site at any time comprising water cart, dump trucks, excavators, front end loaders, compactors, concrete truck, bulldozer, grader, backhoes, small and medium cranes, concrete pump, kerb and guttering machine, piling rig and concrete crusher.

Figure 2.1
Sensitive noise receivers

Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre
Construction noise management plan



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CHAPTER 3
CONSTRUCTION NOISE CRITERIA

3 CONSTRUCTION NOISE CRITERIA

3.1 Noise monitoring

Noise around the site was monitored in 2017 for a previous project, with results used to characterise existing ambient noise at the site. The monitoring was used to determine the rating background level (RBL) (the noise level exceeded for 90% of the measurement time) and the ambient noise level (the all-encompassing noise in the environment).

The noise was monitored at the following locations:

- Rydalmere – Location M1: 530 John Street, Rydalmere to establish the ambient noise at residential receivers in Rydalmere to the north of the site.
- Silverwater – Location M2: 101 Asquith Street, Silverwater to establish ambient noise at residential receivers in Silverwater to the south of the site.
- Rosehill – Location M3: 1-9 Eleanor Street, Rosehill to establish the ambient noise at residential receivers in Rosehill to the west of the site.

The resulting RBLs and ambient noise levels are summarised in Table 3.1.

Table 3.1 RBLs and ambient noise levels

Location	RBL ($dB_{LA90(period)}$)			Ambient level ($dB_{LAeq(period)}$)		
	Day	Evening	Night	Day	Evening	Night
M1	44	41	37	52	51	44
M2	42	41	38	55	51	48
M3	51	51	40	58	58	52

Day: 7am-6pm Mon-Sat and 8am-6pm Sun and public holidays; Evening: 6pm-10pm; night: remaining periods.

3.2 Interim construction noise guidelines

Noise impacts on sensitive receivers are assessed and managed in accordance with DECC (2009) *Interim construction noise guideline* (ICNG).

The ICNG contains procedures for determining project specific noise management levels (NMLs) for sensitive receivers based on the existing background noise in the area. The 'worst-case' noise levels from construction of a project are predicted and then compared to the NMLs in a 15-minute assessment period to determine the likely impact.

The NMLs are not mandatory limits. However, where construction noise levels are predicted or measured to be above the NMLs, feasible and reasonable work practices to minimise noise emissions are to be investigated.

The ICNG approach for determining NMLs at residential receivers is shown in Table 3.2.

Table 3.2 ICNG NMLs for residential receivers

Time	NML ($LA_{eq(15\ min)}$)	How to apply
Standard construction hours Monday to Friday 7:00 am to 6:00 pm	RBL* + 10 dB	▪ The noise affected level represents the point above which there may be some community reaction to noise ▪ Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practises to meet the noise affected level

Time	NML ($LA_{eq(15\ min)}$)	How to apply
Saturday 8:00 am to 1:00 pm No work on Sundays or public holidays		▪ The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dBA	▪ The Highly Noise Affected (HNA) level represents the point above which there may be strong community reaction to noise ▪ Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours that the very noisy activities can occur, taking into account: - Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools or mid-morning or mid-afternoon for works near residences - If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside standard construction hours	RBL + 5 dB	▪ A strong justification would typically be required for works outside the recommended standard hours. ▪ The proponent should apply all feasible and reasonable work practices to meet the noise affected level. ▪ Where all feasible and reasonable practises have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.

* The RBL is the rating background level and the ICNG refers to the calculation procedures in the *NSW Industrial Noise Policy* (INP). The INP has been superseded by the *NSW Noise Policy for Industry* (NPfI).

The NMLs apply to the receivers during construction of both the subdivision and Stage 1. The modelling incorporated all construction activities and demonstrated they can occur simultaneously without exceeding noise criteria at sensitive receivers, as discussed in Chapter 4.

The ICNG NMLs for residential receivers are shown in Table 3.3.

Table 3.3 NMLs – residential receivers ($LA_{eq,\ 15min}$ – dB(A))

Receiver	Standard hours NML	Out of hours NML	
	Day	Period 1	Period 2
R1	54	46	42
R2	52	46	43
R3	61	56	45

Note: period 1 = 6-10pm Monday-Friday, 1-6pm Saturday, 8am-6pm Sunday; period 2 = 10pm-7am Monday-Friday, 6pm-7am Saturday/Sunday (8am Sunday).

For NMLs applicable to non-residential receivers refer to Chapter 4.1.2 and 4.1.3 of the ICNG.



CHAPTER 4

CONSTRUCTION NOISE IMPACTS

4 CONSTRUCTION NOISE IMPACTS

4.1 Construction noise activities

The iNoise three-dimensional model was used to predict construction noise from the project and the Central Sydney Industrial Estate subdivision at the receivers. Modelling was based on the sound power level for the plant and equipment listed in Table 16 of MAC (2020) *Noise and vibration impact assessment – Central Sydney Industrial Estate* operating simultaneously for 100% of the time during all time periods for the following scenarios:

1. Bulk earthworks to bench the site and provide level pads to the whole of the subdivision.
2. Construction of a new road from Devon Street.
3. Sealing/capping of Lot 6.
4. Construction/installation of plant on Lot 6.

A maximum noise level of 117 dBLA$_{max}$ was assumed for impacts such as an excavator dropping rock into a truck at night for the sleep disturbance assessment.

4.2 Predicted construction noise levels

Predicted noise levels for the construction scenarios are in Table 4.1. Construction noise is demonstrated to comply with NMLs during standard construction hours at assessed residential receivers. The cumulative noise levels during the day, evening and night period for all construction activities (Scenario 1 to Scenario 4) will satisfy the noise management levels at all assessed residential receiver locations with the implementation of good noise management practices during the evening and night periods.

Table 4.1 Combined construction noise predictions

Receiver (day, period 1, period 2 NML – LA$_{eq,15min}$ – dB(A))	Predicted noise level (dB LA$_{eq(15min)}$)				
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Cumulative[1]
R1A (54, 46, 42)	34	<30	31	34	33
R1B (54, 46, 42)	35	<30	32	35	34
R2A (52, 46, 43)	41	33	37	40	40
R2B (52, 46, 43)	40	31	39	41	40
R3A (61, 56, 45)	38	31	32	35	36
R3B (61, 56, 45)	40	33	33	35	37

Note 1: 10 dB reduction applied for external to internal noise attenuation as per the ICNG, as noise levels at schools and places of worship are assessed internally.

The predicted LA$_{max}$ noise levels at the residential receivers are in Table 4.2. Sleep disturbance by transient events will not exceed the maximum noise trigger level at assessed residential receivers.

Table 4.2 Construction maximum noise levels

Receiver	Predicted noise level and criteria (brackets) dB dB LA_{max}
R1A	32 (52)
R1B	36 (52)
R2A	45 (53)
R2B	45 (53)
R3A	43 (55)
R3B	45 (55)



CHAPTER 5

NOISE MANAGEMENT AND VERIFICATION

5 NOISE MANAGEMENT AND VERIFICATION

5.1 Management measures

The management measures in Table 5.1 will be implemented to reduce impacts from noise generated during construction of the project.

Table 5.1 Construction noise management measures

Strategies	Management measures	Timing	Responsibility
Universal work practices	Provide regular training to workers and contractors (such as toolbox talks) to use equipment in ways to minimise noise.	Pre and during construction	Project Manager Site Supervisor
	Avoid shouting and minimise talking loudly and slamming vehicle doors.	During construction	All personnel
	Keep truck drivers informed of designated vehicle routes, parking locations, acceptable delivery hours and other relevant practices.	During construction	Project Manager Site Supervisor
	Avoid the use of equipment which generates impulsive noise and minimise metal to metal contact and dropping materials from height.	During construction	Project Manager Site Supervisor Equipment operators
Consultation and notification	Consider notifying immediate adjoining neighbours of the start, duration and nature of the construction activities.	Pre construction	Project Manager Site Supervisor
	Keep a register for any complaints, including details of the complaint such as date, time, person receiving complaint, complainant's contact details, person referred to, description of the complaint, work area and response.	During construction	Project Manager Site Supervisor
Plant and equipment	Use quieter methods and equipment where feasible and reasonable.	During construction	Equipment operators
	Operate plant in a quiet and efficient manner, minimise idling.	During construction	Equipment operators
	Regularly maintain equipment to ensure that it is in good working order.	During construction	Site Supervisor Equipment operators
	Place as much distance as possible between the equipment and sensitive land uses.	During construction	Equipment operators
	Avoid the use of reverse alarms by designing the site to avoid reversing or install broadband reverse alarms where possible.	Pre construction	Project Manager Site Supervisor
	Where possible, schedule noisy activities to occur during less sensitive periods.	During construction	Site Supervisor Equipment operators
	Avoid undertaking multiple highly noise intensive activities concurrently.	During construction	Site Supervisor
	Ensure truck movements are kept to a minimum i.e. trucks are fully loaded on each trip.	During construction	Site Supervisor Equipment operators

5.2 Validation of noise emissions

Noise levels will be quantified at surrounding residential receivers via validation calculations or modelling and results compared against relevant NMLs. This is to manage noise emission from noisy works (such as piling) that have a greater sound power level or an overall noise level that significantly differs from scenarios originally assessed as part of the *Noise and vibration impact assessment*.

Where the calculated/modelled noise levels exceed relevant NMLs, feasible and reasonable noise measures will be implemented so that compliance with NMLs is achieved prior to these activities. This will be done where relevant during either standard hours or non-standard hours.

VE Property will apply to the Planning Secretary in writing for permission to carry out any out of hours work where reasonable and feasible noise measures or controls cannot achieve relevant NMLs in Table 3.3.



CHAPTER 6

COMPLIANCE MANAGEMENT

6 COMPLIANCE MANAGEMENT

6.1 Roles and responsibilities

The overall roles and responsibilities for construction personnel are outlined in Annex I of the CEMP. Specific responsibilities for the implementation of mitigation measures specific to noise management are detailed in Chapter 5 of this CNMP.

6.2 Training

All employees, contractors and staff working on site will be inducted and trained in relation to noise management, comprising:

- Requirements of this plan.
- Relevant legislation.
- Approved working hours.
- Location of sensitive receivers.
- Roles and responsibilities for noise management.
- Procedure to follow if out of hour works are required.
- Complaints handling process.
- Disciplinary action around non-compliance with this plan.

Further details regarding staff induction and training are in sections 4.2 and 4.3 of the CEMP.

6.3 Inspections

General requirements and responsibilities in relation to inspections and compliance monitoring are in Chapter 6 of the CEMP. Routine environmental inspections will include determination of compliance with this plan.

6.4 Incident notification and monitoring

Incidents will be notified to DPIE in accordance with Appendix 2 of the development consent and Section 6.3 of the CEMP.

6.5 Management of noise complaints

A procedure for complaints received during construction of the project is in Section 6.4 of the CEMP and comprises:

1. Record and acknowledge.
2. Assess and prioritise.
3. Investigate.
4. Action or rectify.
5. Respond to complaint.
6. Record.
7. Preventive action.

Noise specific complaints will be handled in accordance with this complaints handling procedure. The following additional procedures specific to a noise complaint will also be implemented:

1. Record and acknowledge: Ask the complainant to describe as accurately as possible what the noise sounded like, exactly what time they heard that noise, where they heard the noise from

(eg address) and what direction the noise was coming from. This will allow VE Property to confirm that the noise was from their construction site and to identify if there was a particular activity that caused the noise complaint.

2. Assess and prioritise: Ask the complainant how the noise they can hear is affecting them (waking them up at night vs irritating daytime noise) to ascertain the seriousness of the complaint and the level of priority it receives.
3. Investigate: If it is established that the noise complaint is from construction activities at the site and is causing disturbance to the complainant, then VE Property will conduct attended noise investigations at the address from where the noise was noticed. The attended noise investigations will be undertaken at a time of day and during construction activities that are aligned as closely as possible to when the complainant noticed the noise which caused their complaint.
4. Action or rectify: If the attended noise investigations identifies that standard construction hours noise affected construction NMLs have been exceeded, VE Property will investigate whether all management measures in Table 5.1 are being applied, will apply them where feasible where they aren't being applied and will apply additional reasonable and feasible noise management measures to specifically attenuate the noise from the identified construction activity source.

   If the attended noise investigations identify that standard construction hours highly noise affected construction NMLs have been exceeded following implementation of the above procedures for addressing exceedances, VE Property will further investigate whether they can implement respite periods by restricting the hours that the very noisy activities can occur.

   If the attended noise monitoring identifies that outside of standard construction hours noise affected construction NMLs have been exceeded and the above procedures for addressing exceedances of noise affected construction NMLs have been implemented, VE Property will investigate whether they can rather undertake the activities causing the exceedance, during standard construction hours. If this is not possible then VE Property would investigate implementing respite periods by restricting the hours that the very noisy activities can occur.

   VE Property will then conduct follow up attended noise investigations at the address from where the noise complaint originated to establish whether the noise management measures applied have suitably reduced the noise to within the relevant construction NMLs or whether further noise management measures are required.

5. Respond to complaint: The complainant will be notified of the results of the initial attended noise investigations, what additional noise management measures have been implemented to address any identified exceedances of relevant construction NMLs and results of follow up attended noise monitoring after the implementation of additional noise management measures.
6. Record: All aspects of the noise complaints handling procedure will be recorded including where and when it occurred, results of initial noise monitoring, noise management measures applied, results of follow up noise monitoring and all correspondence with the complainant.
7. Preventive action: In planning future phases of work during construction, VE Property will ensure that where the same or similar plant and equipment (or with similar sound power levels or noise characteristics) is to be used, that all noise management measures identified as being necessary during previous noise complaint handling processes, are implemented.

6.6 Monitoring

Noise monitoring may be required in response to a formal complaint to verify that construction noise from the site complies with relevant NMLs.

Should monitoring be required, monitoring will be conducted by a suitably qualified specialist. The location and extent of attended monitoring will be determined taking into account consultation with project staff, consideration of the construction activities taking place and the source of the complaint.

The monitoring will be representative/indicative of any impact across all potentially affected residential receivers.

All items of acoustic instrumentation will be designed to comply with AS *IEC 61672.1-2019 Electroacoustics – Sound level meters* – Specifications and carry current NATA or manufacturers calibration certificates.

6.7 Internal audits

This plan will be internally audited periodically to ensure the development consent conditions and commitments and environmental management controls are properly implemented. Audit reports will be used to determine corrective actions.

6.8 Review and improvement

This plan will be reviewed, and if necessary, updated in the following circumstances:

- Significant changes to the equipment, machinery and plant operated onsite.
- If monitoring identifies the noise performance of the project is not in accordance with this plan.
- At the request of the relevant regulatory authority.

All employees and contractors will be informed of any revisions to this plan during toolbox talks.

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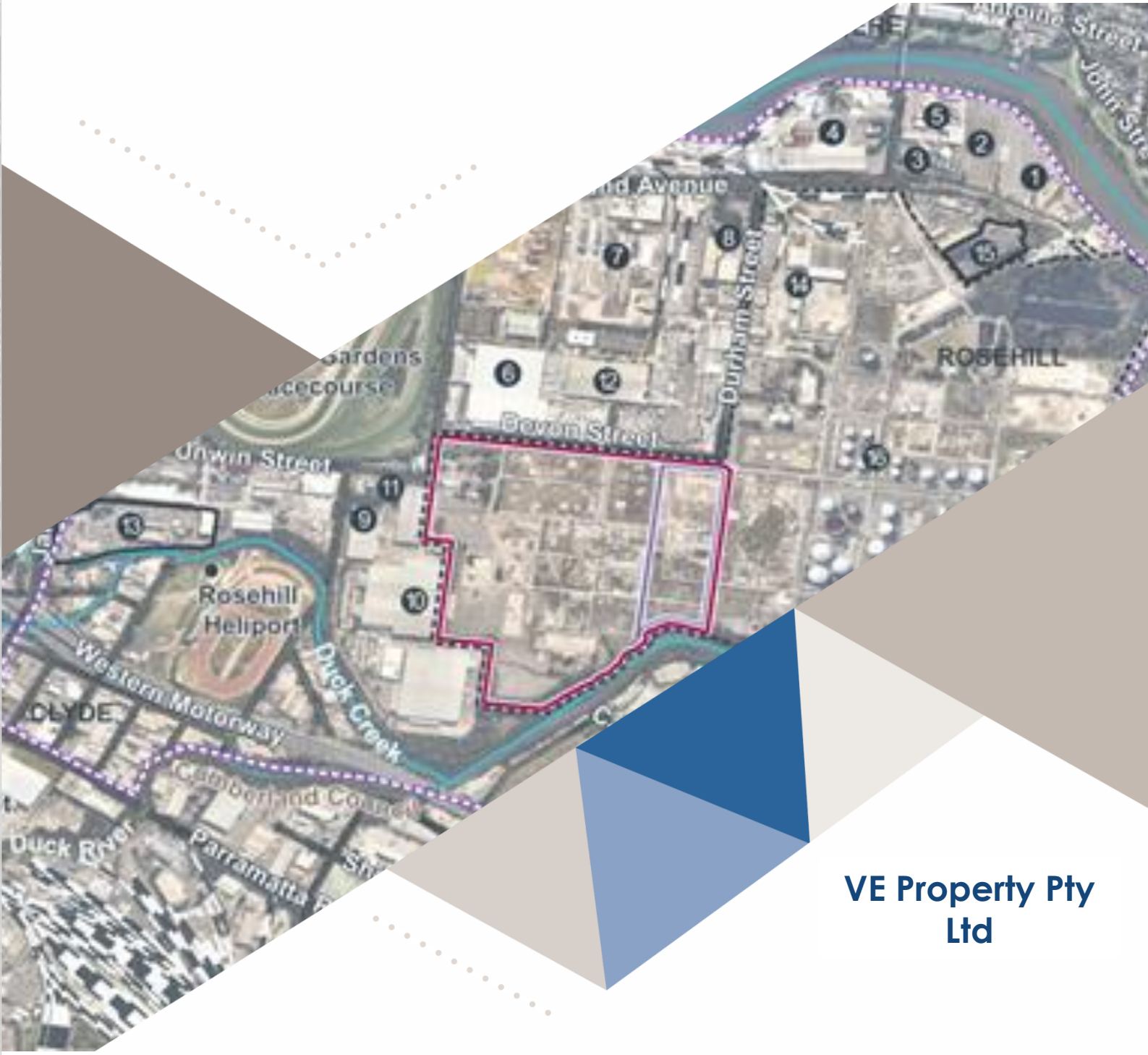


APPENDIX D

FLOOD EMERGENCY REPONSE PLAN

MOLINO STEWART

ENVIRONMENT & NATURAL HAZARDS



VE Property Pty Ltd

Central Sydney Industrial Estate Subdivision and Infrastructure Construction

Flood Emergency Response Plan

Final

Central Sydney Industrial Estate Subdivision and Infrastructure Construction

Flood Emergency Response Plan

Final

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Cover photo from: Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre State Significant Development Application Environmental Impact Statement (September 2020) prepared by Element Environment for VE Property Pty Ltd and Downer EDI Works Pty Ltd.

March 2021

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Document Approval

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Contents

1| Introduction 1
1.1 Background 1
1.2 Scope of this Report 2

2| Description of the Proposed Development 4
2.1 Site Overview 4
2.1.1 Access 4
2.1.2 Topography and Drainage 4
2.2 Construction Works 9
2.2.1 Central Sydney Industrial Estate 9
2.2.2 Construction Hours and People on Site 9

3| Flood Risks 10
3.1 Flood Generating Weather 10
3.2 Flood Probabilities 10
3.3 Flooding of the Site 11
3.3.1 Available Flood Model Results 11
3.3.2 Flood Levels and Depths 12
3.3.3 Frequency of Flooding 12
3.3.4 Flood Hazard 13
3.3.5 Flood Duration and Rate of Rise 13

4| Flood Forecasts and Warnings 29
4.1 Bureau of Meteorology (BoM) 29
4.2 Floodsmart 29

5| Emergency Management Considerations 32
5.1 Consultation with the NSWSES 32
5.2 The Emergency Response Strategy 32

6| Flood Emergency Response Plan 34
6.1.1 Priorities 34
6.2 Responsibilities 34
6.2.1 NSW State Emergency Services (NSWSES) 34
6.2.2 Site Management 34
6.3 What do to Before, During and After a Flood 35
6.3.1 Before a Flood 35
6.3.2 When a Flood is Possible 36
6.3.3 During a Flood 36

6.3.4 After a Flood 37

7| References 39

Appendices

Appendix A| Action Checklist

Appendix B| Emergency Contact List

List of Tables

Table 1. Summary of the Conditions of Consent related to flooding and where in this report these are addressed. 1
Table 2. Peak flood depths and levels in Central Sydney Industrial Estate. 12
Table 3. FloodSmart warning messages. 30
Table 4. Relevant FloodSmart warning messages for the site. 31

List of Figures

Figure 1. Local context of the Industrial Estate (from: Element Environment, 2020a). 6
Figure 2. The final proposed subdivision plan (from: Element Environment, 2020b). 7
Figure 3. Central Sydney Industrial Estate surface water management plan (from: Element Environment, 2020b). 8
Figure 4. Peak flood depth for the 1% AEP flood on the Duck River (with concomitant steady flooding of the Parramatta River). 14
Figure 5. Peak hydraulic hazard for the 1% AEP flood on the Duck River (with concomitant steady flooding of the Parramatta River; no trim of model). 15
Figure 6. Peak flood depth for the PMF on the Duck River (with concomitant steady flooding of the Parramatta River). 16
Figure 7. Peak hydraulic hazard for the PMF on the Duck River (with concomitant steady flooding of the Parramatta River; no trim of model). 17
Figure 8. Peak flood depth for the 1% AEP overland flood. 18
Figure 9. Peak hydraulic hazard for the 1% AEP overland flood (<5 cm trimmed out). 19
Figure 10. Peak flood depth for the overland PMF. 20
Figure 11. Peak hydraulic hazard for the overland PMF (<5 cm trimmed out). 21
Figure 12. Parramatta River peak PMF depth. 22
Figure 13. Parramatta River peak PMF hazard. 23
Figure 14. Flood hazard vulnerability curves (source: Smith et al., 2015). 24
Figure 15. Mainstream PMF Hydrographs at site access point on corner of Unwin and Colquhoun Streets. 25

Figure 16. Mainstream PMF Hydrographs at James Ruse Drive Low Point. 26
Figure 17. Overland PMF Hydrographs at site access point on corner of Unwin and Colquhoun Streets. 27
Figure 18. Overland PMF Hydrographs at Grand Avenue Low Point. 28

1 | Introduction

1.1 Background

The proposed Central Sydney Industrial Estate and Downer Sustainable Road Resource Centre (SSD-10459), located on Lot 100 DP 1168951 at 9 Devon Street (Rosehill), is State Significant Development (SSD) involving:

1. A staged 15-lot industrial subdivision and relevant infrastructure works to create a new 35-hectare Central Sydney Industrial Estate (the Estate) on the site of the former Shell Clyde refinery. The proponent of this subdivision and works is VE Property (VEP); and
2. The development and operation of a road resource facility in one of the lots (i.e. Lot 6) obtained through the above subdivision. Such facility is referred to as the "Downer's Sustainable Road Resource Centre" and will include an asphalt plant, reclaimed asphalt pavement processing facilities, a bitumen products plant and a detritus road waste recycling plant. Downer EDI Works Pty Ltd has agreed with VEP to acquire Lot 6 of the above proposed subdivision to build the road resource facility. Lot 6 will become available as a result of the Stage 1 of the subdivision.

The Development Application for the stages of work on this site from applicant VE Property Pty Ltd has been approved subject to conditions. The development conditions related to flood risks are summarised in Table 1. The table also include a reference to which parts of this report address each condition.

Table 1. Summary of the Conditions of Consent related to flooding and where in this report these are addressed.

Condition	Addressed in Section	Notes
B23. Prior to the commencement of construction, the Applicant must prepare a Flood Emergency Response Plan (FERP). The FERP must form part of the CEMP and OEMP required by conditions C2 and C5 and must:		
(a) *be prepared by a suitably qualified and experienced person(s);*	1.2	
(b) *address the provisions of the Floodplain Development Manual (2005) and any relevant guidelines;*	1.2	
(c) *be prepared in consultation with the State Emergency Service;*	5.1	
(d) *include details of:* i. *the flood emergency responses for both construction and operation phases of the development;*	6	This FERP only covers the construction phase.
ii. *predicted flood levels;*	3.3.2	
iii. *flood warning time and flood notification;*	4 and 5.2	

iv. *assembly points and evacuation routes;*	5.2	
v. *evacuation and refuge protocols; and*	6	
vi. *awareness training for employees and contractors.*	6.3.1	
B24. *The Applicant must:* (a) not commence construction until the FERP required by condition B23 is submitted to the Planning Secretary for information purposes; and (b) *implement the most recent version of the FERP for the duration of the development.* (c) *implement the most recent version of the Flood Emergency Response Plan for the duration of the development.*	N/A	Noted.
B25. *All habitable building floor levels must be no lower than the 1% Annual Exceedance Probability flood plus 500 mm of freeboard.* **B26.** *All structures that are built below the 1% Annual Exceedance Probability flood must be constructed from flood compatible building components to ensure structural stability during a flood event.*	N/A	Conditions B25 to B26 do not pertain to emergency planning and as such are not addressed by this report.

1.2 Scope of this Report

This report is the Flood Emergency Response Plan (FERP) for the subdivision and infrastructure construction works to create 14 of the 15 new lots included in the proposed Central Sydney Industrial Estate. This FERP fulfills the requirements of condition B23 with regard to construction activities. Flood emergency management procedures for the operation and construction of the Downer Sustainable Road Resource Centre (in Lot 6) are addressed in separate FERPs.

As per condition B23 (a), this report is prepared by qualified and experienced flood consultants from Molino Stewart. The work has been prepared by Steven Molino who is a founding Principal of Molino Stewart with more than 35 years' experience in floodplain management. Steven is a leading expert in flood emergency planning in NSW, and particularly western Sydney. He is a Registered Professional Engineer NPER 3 Civil and Environmental (1053737). Working with Steven is, Dr Filippo Dall'Osso who has 14 years' experience in floodplain risk management and flood emergency response in NSW.

This FERP has been prepared in a consistent manner with the Floodplain Development Manual (2005). All staff at Molino Stewart are extremely familiar with the Floodplain Development Manual (2005) and have used this to produce several flood emergency response plans and floodplain risk management studies and plans for clients ranging from private developers, local councils to State-Government Organisations.

An Environmental Impact Statement (EIS) has been prepared for the site by Element Environment Pty Limited (Element) on behalf of VEP for submission to the NSW Department of Planning, Industry and Environment (DPIE) to gain SSD approval. The EIS included a flooding assessment produced by WMAWater. Following review of the EIS by government agencies and other relevant stakeholders,

response to submissions were produced that included a number of clarifications and refinements to the original plan. This FERP draws on information presented in these documents, which are:

- Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre State Significant Development Application: Environmental Impact Statement (Element Environment, 2020a)
- Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre State Significant Development Application: Response to Submissions (Element Environment, 2020b)
- Central Sydney Industrial Estate incorporating Downer Sustainable Road Resource Centre Flooding Assessment (WMAWater, 2020a)
- Central Sydney Industrial Estate incorporating Downer Sustainable Road Resource Centre Review of Flooding Submissions (WMAWater, 2020b)

2| Description of the Proposed Development

2.1 Site Overview

The Central Sydney Industrial Estate will be constructed at 9 Devon Street, Rosehill (lot 100 in deposited plan 1168951) within Parramatta Local Government Area (LGA) (Figure 1 and Figure 2). It is approximately 35 ha and is zoned IN3 Heavy Industrial. It will be divided into 15 lots.

The site is in the Duck River catchment, and the river is adjacent to the southern site boundary. The site is west of the confluence of Duck River and Parramatta River, with the latter river located approximately 900 m north of the site.

2.1.1 Access

Primary construction access will initially be through the existing site access at the corner of Unwin and Colquhoun streets. A new public access road running through the site from Devon Street will be built, which will provide secondary construction access (Figure 2).

Access from James Ruse Drive (to the site's west) is via Grand Avenue and Colquhoun Street. Alternatively, the site primary construction entrance can be accessed from the south from Parramatta Road via Wentworth Street, Kay Street, and Unwin Street.

2.1.2 Topography and Drainage

The topography of the site has been shaped by its previous usage as the former Shell Oil Refinery at Clyde. The site is currently undergoing rehabilitation under existing State Significant Development (Viva Energy Clyde Western Area Remediation Project), which will alter the landform of the site. The works covered by the scope of this FERP will involve further post-remediation earthworks to re-contour the land.

The proposed lots and their numbers are shown in Figure 2. Aside from Lot 64 in the southwest corner of the site (on which there are no works proposed), the lots will be benched in two stages. For lots 51 to 56, and 58 to 59 in the northern half of the estate, bulk earthworks will include the construction of flat pads at RL 4.8 m AHD. The proposed earthworks will gradually grade down towards Duck River in the southern half of the site. Lots in the southern half of the estate (60 to 63) will have pads that grade down from RL 4.8 to RL 4.2 m AHD. Lot 63 will have the lowest proposed pad between 4.2 and 4.6 m AHD. The lowest part of the site outside of the Duck River riparian zone is approximately 2 m AHD in Lot 62 adjacent to the river. The proposed road in the development that joins Devon Street has a planned level of 4.2 m AHD.

The proposed stormwater drainage system that will be constructed for the entire site is shown in Figure 3. It is proposed to construct piped drainage (and associated easements) to convey runoff from each lot, with ultimate discharge into the Duck River. Drainage is proposed along the southern boundaries of lots 52, 55 and 59. It will converge with drainage from the other lots and will be directed south in an easement along the boundary of lots 63 and 62. The site discharge point into the Duck River will be in the south-west corner of lot 62, which is at a level of 0.2 m AHD. There is existing public stormwater drainage infrastructure along Lot 53 which will be relocated to be along the site boundary.

This only covers stormwater drainage that will apply to the construction of all the lots in the Industrial Estate. There will be future stormwater systems associated with subsequent development of the individual lots that will connect to the above system, which are outside of the scope of this plan.

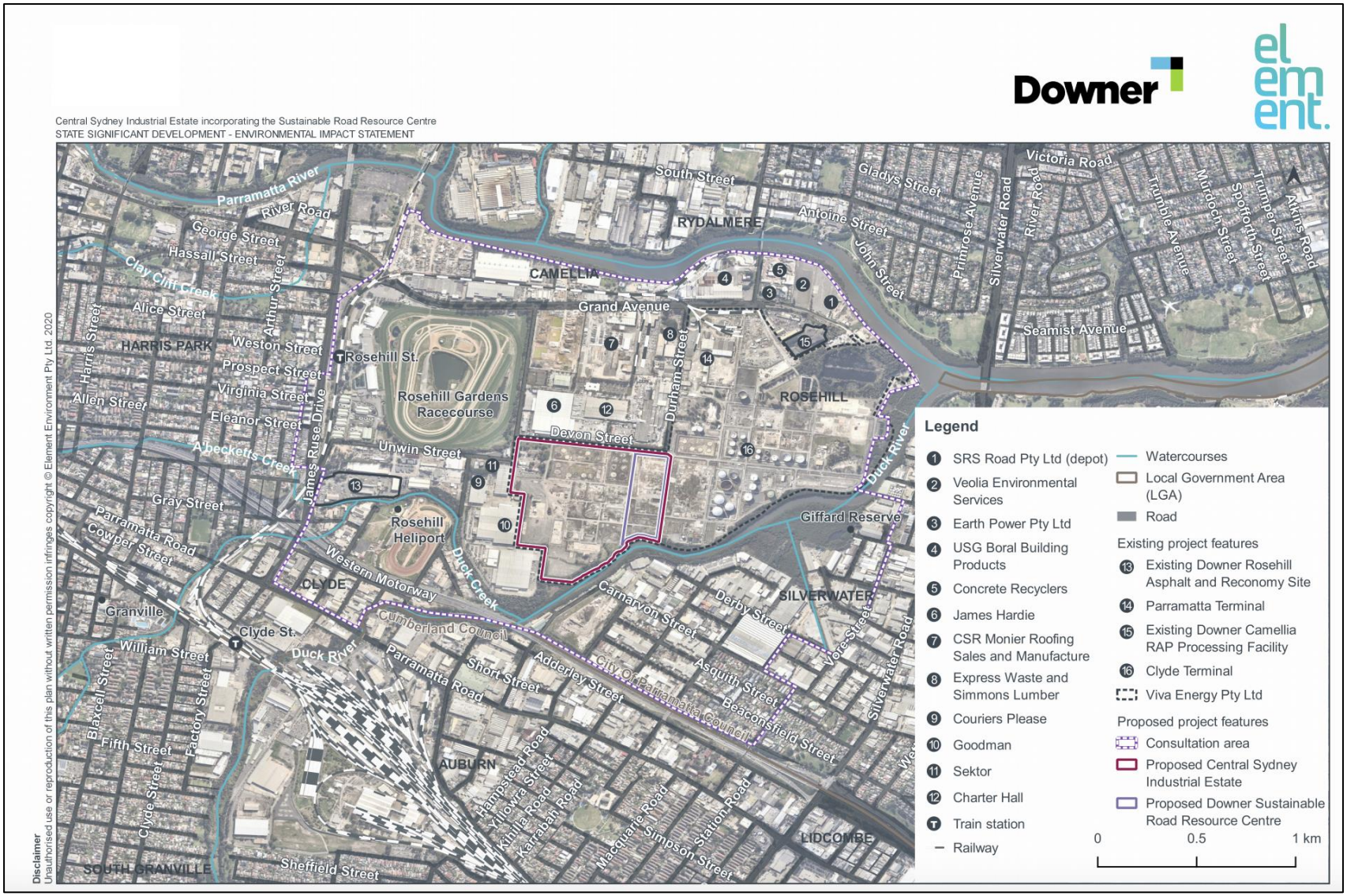


Figure 1. Local context of the Industrial Estate (from: Element Environment, 2020a).

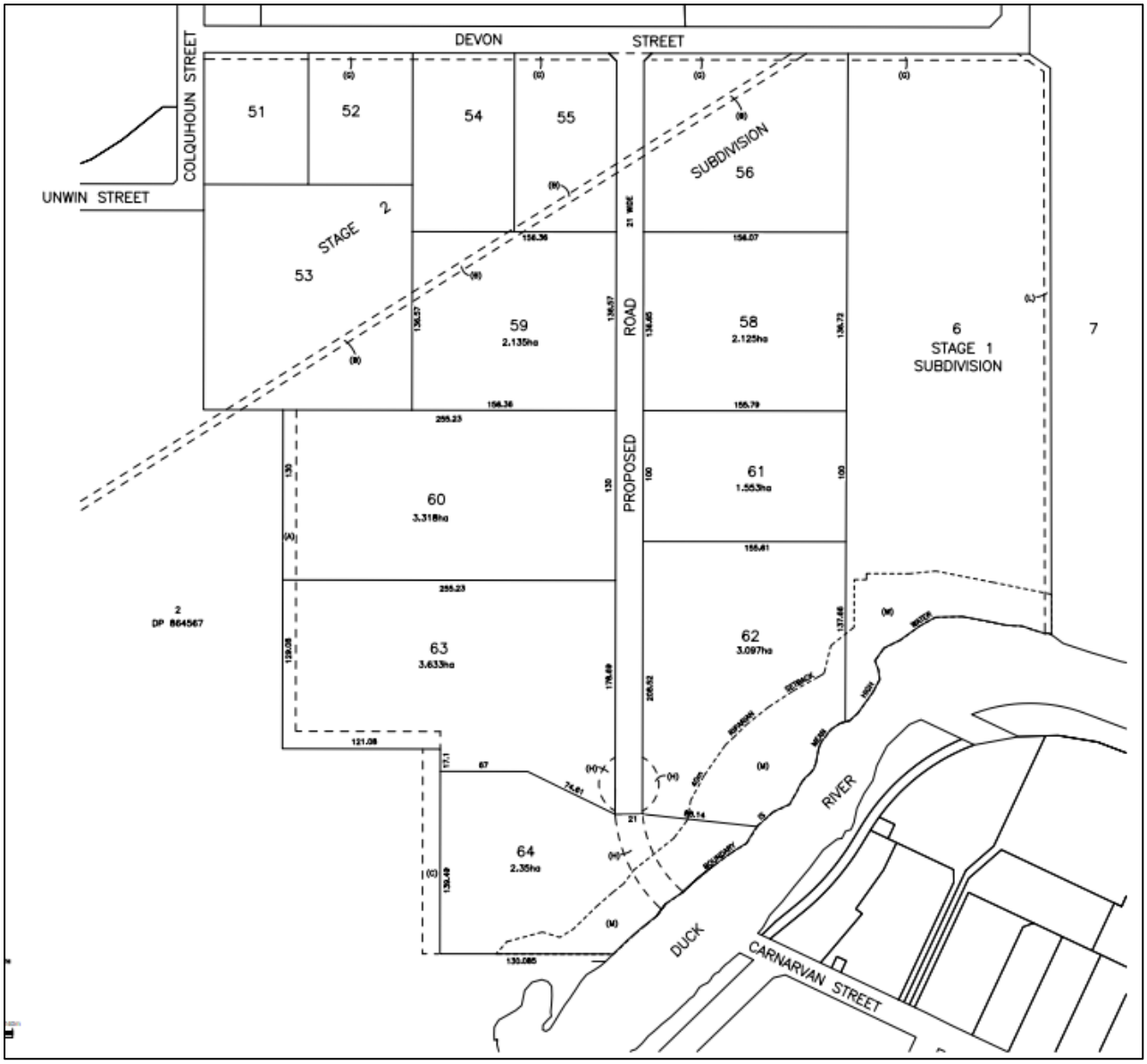


Figure 2. The final proposed subdivision plan (from: Element Environment, 2020b).

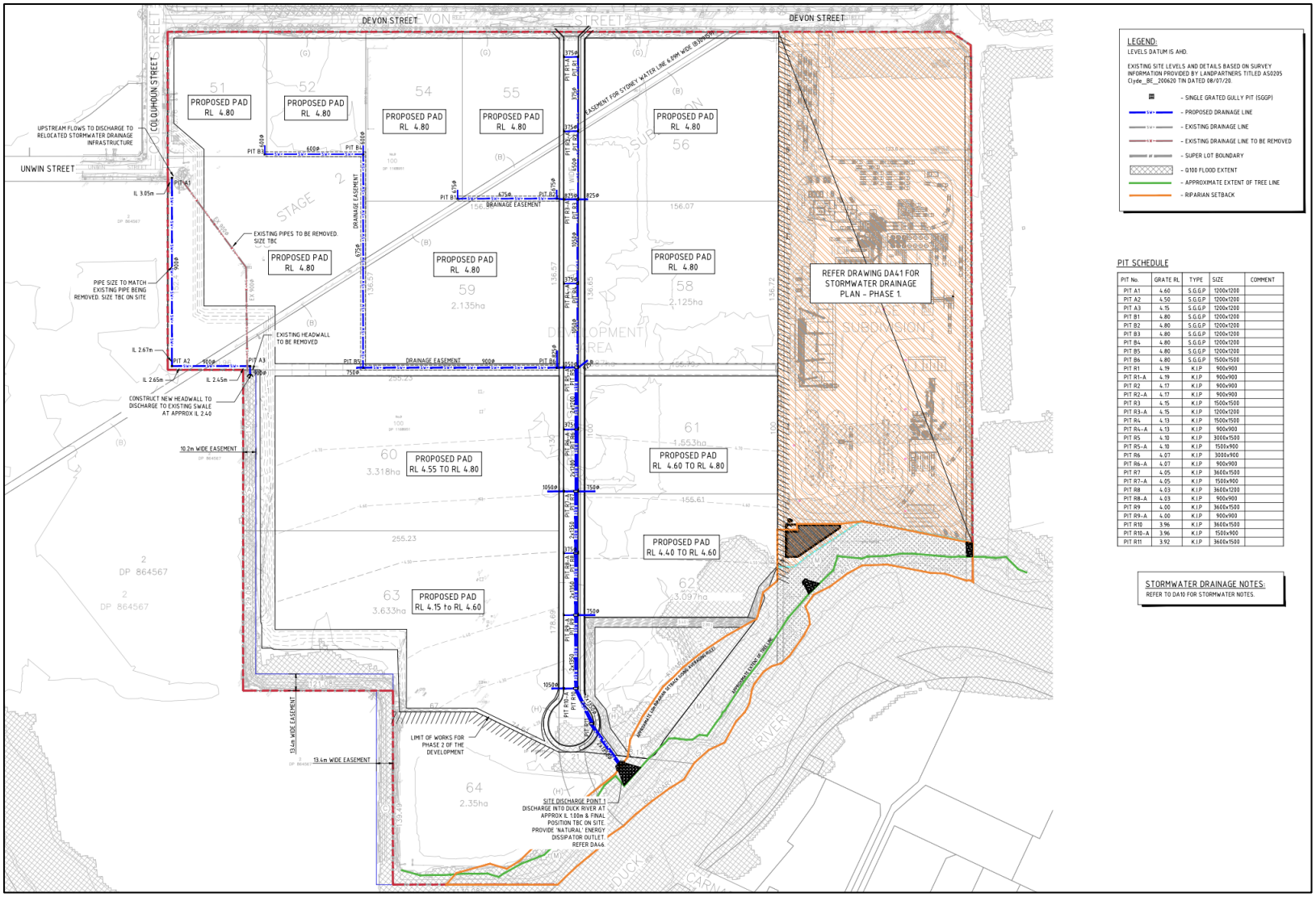


Figure 3. Central Sydney Industrial Estate surface water management plan (from: Element Environment, 2020b).

2.2 Construction Works

This FERP addresses the subdivision and infrastructure construction works to create the Central Sydney Industrial Estate, excluding Lot 6. It does not include details on the construction of the Lot 6 Downer Sustainable Road Resource Centre. Lot 6 will be created as Stage 1 of the subdivision process, while Stages 2 and 3 will generate the other 14 lots.

2.2.1 Central Sydney Industrial Estate

The area of the Central Sydney Industrial Estate is currently being remediated under the Western Area Remediation Project (WARP; SSD-9302) to make it suitable for future industrial and commercial use. Preparation of the other lots besides Lot 6 will commence after the conclusion of the works associated with WARP. Lot 6 (Stage 1) construction will start in the first half of 2021 and will include the installation of services. Subdivision civil works of all the other lots will then commence in the second half of 2021 and will occur while construction of Lot 6 is still in progress.

The civil works will take approximately nine months, and construction is proposed to conclude in December 2021.

Construction works will involve up to 10 items of plant and equipment on site at any time. These include a water cart, dump trucks, excavators, front end loaders, compactors, concrete truck, bulldozer, grader, backhoes, small and medium cranes, concrete pump, kerb and guttering machine, piling rig and concrete crusher.

2.2.2 Construction Hours and People on Site

Construction works will generally occur between 7 am and 6 pm Monday to Friday, and between 8 am and 1 pm on Saturday, although some construction will be required outside of these hours. Construction will take place at night-time and on Sundays only when required. Construction on public holidays will be avoided.

There will be a maximum of 35 construction employees associated with the subdivision civil works on site at any one time (excluding Lot 6 works). Construction of all aspects of the project will generate a peak of 105 heavy and 88 light vehicles per day including construction on Lot 6. Only earth and civil works for the construction of the lots besides Lot 6 will produce a peak of 30 heavy vehicles per day and 35 light vehicles per day (WMAWater, 2020a; 2020b). The number of light vehicles is associated with the number of staff arriving on site.

3| Flood Risks

3.1 Flood Generating Weather

Coastal areas of eastern Australia mostly receive flooding rains from so-called "east coast lows" that develop from time to time over the adjacent Tasman Sea. These are intense depressions off the coast and can produce thunderstorm activity associated with troughs.

Depressions can develop at any time of year, but are most likely when sea surface temperatures are high and the air is humid. Therefore, these events usually occur in the summer months and over the first half of the year.

Flooding can also be a winter-spring phenomenon, associated with unusually frequent or active extra-tropical depressions and fronts. However, some major events have occurred in the summer half-year as systems of tropical origin extend or move south. Flooding over inland areas is usually associated with southward-moving tropical systems, but in the cooler months, it may occur when well-developed cloud bands extend across the interior from the oceans north and northwest of Australia.

Rainfall patterns are also dependent on longer term weather patterns. Flooding is more prevalent in a La Nina year when rainfall is significantly greater than the mean average rainfall. Thunderstorms, which generally occur during the summer, can also result in localised flooding which could impact specifically on the site.

In summary, there are many different weather events which could cause flooding on the site.

3.2 Flood Probabilities

Flood probability can be expressed in more than one way. For example, a flood may be described as having a 100-year Average Recurrence Interval (ARI). This means that over many thousands of years, a flood of this magnitude would occur on average once in 100 years. This does not mean that a flood of this size only occurs once every 100 years. It is possible to have floods of this size in consecutive years or even two in the same year. This happened in several locations in Queensland and Victoria in 2010 and 2011.

Another way of expressing flood probability is in terms of Annual Exceedance Probability (AEP). A 100-year ARI flood has roughly a 1 in 100 AEP. That is, each year and every year it has a 1 in 100 or 1% chance of being reached or exceeded. This is perhaps a more helpful way of thinking about flood probabilities. A flood with a 1% AEP has about a 1 in 2 chance of being reached or exceeded in the average person's lifetime, the same probability of tossing a coin and getting a head. There were four floods of about this size on the Georges River between 1860 and 1889 but there has not been another since. This underlines the randomness of flood frequency.

Bigger floods can and do occur. There were several floods with greater than a 1% AEP experienced in Eastern Australia in early 2011. Some reached levels which have a 1 in 2,000 (0.05%) AEP. A flood with a 1 in 500 (0.2%) AEP has about a 1 in 6 chance of being reached or exceeded in the average person's lifetime, the same as tossing a die and getting a 6.

The largest flood that can occur is referred to as the Probable Maximum Flood (PMF). Although it has a very low probability of occurring in any one year (1 in 10,000 or less), events approaching a PMF have been recorded.

Flooding may occur at any time of year and at any time of day.

3.3 Flooding of the Site

The site can be affected or isolated by three types of flooding:

- Mainstream flooding from the Duck River;
- Mainstream flooding from the Parramatta River;
- Overland local flooding due to intense rainfall.

The above flooding mechanisms can occur independently or concurrently. When occurring concurrently, in most cases they will reach their peak at different times. It is however not uncommon to have overland flooding caused by intense rain just before floodwaters rise from the river.

3.3.1 Available Flood Model Results

VE Property supplied the hydraulic model results for the Duck River mainstream flooding, and local overland flooding. In both cases, the model was run under existing conditions (i.e. with no proposed development in place) and design conditions (i.e. with the proposed development in place). The existing conditions models are not relevant to this report and will not be further discussed. Further details about the flood model results used to inform the emergency plan are provided below:

- **Duck River mainstream model:** This is the TUFLOW hydraulic model produced as a part of the Duck River and Duck Creek Flood Study (WMAWater, 2012). The critical storm duration adopted was the 2-hour event for the flood study. WMAWater (2020a) re-ran the mainstream model incorporating the design conditions accounting for all landworks. For the 1% AEP event and the PMF, the model assumed a concomitant steady 1% AEP event and a PMF in the Parramatta River. As such, the model shows the site being already flooded at the first model timestep, before any contributions from the Duck River. This is considered to be a very conservative scenario as it assumes two concomitant low probability events, in two distinct catchments. While it is likely that the Parramatta River will be flooding to some extent during a PMF from the Duck River, it is extremely unlikely that two PMFs would occur at the same time.
- **Overland flow model:** An overland flow model was produced by WMAWater (2020a) as a part of the flooding assessment included in the site's EIS (Element Environment, 2020a). This is a TUFLOW "Direct Rainfall" or "Rainfall on the Grid" one / two-dimensional hydraulic model. Design conditions that account for the proposed landworks were incorporated into the model. Several storm durations were run from 25 to 360 minutes, and the 120-minute event was adopted as the critical storm duration. All models were run with an assumption of 100% blockage as this is Council's preference for overland flood risk assessments. Importantly, the overland model assumed that all the depressions in the terrain were already filled with water before the beginning of the rainfall. For this reason, this model cannot predict at what point in time the low points along the access roads would cut. However, the rate of rise is such that it can be expected that, in the worst case scenario, all low points along the access roads would cut within minutes from the beginning of the rainfall event.

No flood models for flooding from the Parramatta River alone were provided. However, because the Duck River flood model assumes a steady PMF level from the Parramatta River, we were able to extract the peak depth and hazard for a PMF from the Parramatta River only, without contributions from the Duck River, by exporting the Duck River model at its first time step.

Figures 4 to 11 show the peak depth and hydraulic hazard for the 1% AEP event and PMF of the Duck River (with concomitant steady flooding of the Parramatta River), and overland flooding.

Figures 12 and 13 show the peak depth and hazard of a PMF from the Parramatta River only.

3.3.2 Flood Levels and Depths

Table 2 shows the peak flood levels and depths within the Estate. The available flood model results do not allow extracting peak depth and levels should the Duck River flood without contributions from the Parramatta River, or with a smaller flood event in the Parramatta River.

Table 2. Peak flood depths and levels in Central Sydney Industrial Estate.

Flood Type	Flood Event	Peak Depth (m)	Peak Level (m AHD)
Overland	1% AEP	0.72	5.01
	PMF	0.92	5.20
Mainstream (concurrent peak in Duck River and Parramatta River)	1% AEP	1.53	3.86
	PMF	4.24	6.73
Mainstream (Parramatta River only)	PMF	3.55	5.52
	1% AEP	NA	NA

3.3.3 Frequency of Flooding

(a) Mainstream Flooding

With regard to mainstream flooding, in the 1% AEP event the majority of the site is flood free. There is some flooding on the southern portion of lot 62, and the southeast sections of lots 63 and 64, adjacent to Duck River. This is assuming that a 1% AEP flood would peak at the same time in the Duck River and Parramatta River. Access to the site would be flood-free in this event, provided that there was no concurrent overland flooding.

In case the Duck River and the Parramatta River reached the peak of the PMF event at the same time, which is an extremely unlikely scenario, the site would be isolated and severely flooded.

The NSWSES have confirmed that the intersection between Hassall Street and James Ruse Drive, which is along one of the two access routes to the site, is cut by mainstream flooding from the Parramatta River in the 20% AEP event.

The second access route, south of the site along Unwin Street, Kay Street and Wentworth Street, crosses A'Becketts Creek and Duck Creek and the NSWSES has confirmed that this route would also be cut in the 20% AEP event of the Parramatta River.

(b) Overland Flooding

In the 1% AEP event, under the assumption of full blockage of the stormwater system, the site would experience some shallow flooding. There would be shallow floodwaters along the proposed internal road, as well as in the southern part of lot 62. Access roads outside of the site would be cut at several locations.

In the PMF, the site would be isolated and would experience more extensive flooding.

The model does not allow extracting how often local flooding would cut access to the site, because in all events all the topographic low points were artefactually filled with water before the beginning of the rainfall. However, given the small size of the overland catchment and the frequency of flooding in the last few years, it is reasonable to expect that the site may become isolated by local flooding relatively often.

3.3.4 Flood Hazard

Hydraulic hazard is a function of flood depth and velocity and represents the threats posed by floodwaters to life and property. The Australian Rainfall and Runoff Manual classifies hydraulic hazard in six categories based on the type of impacts that floodwaters may be able to cause. These are shown in Figure 14. The available flood model results indicate that the peak hydraulic hazard on site would be as follows:

- Mainstream flooding (concurrent flood from Duck River and Parramatta River)
  - PMF: H2 to H6 (H6 only directly adjacent to Duck River)
  - 1% AEP Flood: H3 to H4 (only in the southern part of the site)
- Overland flooding
  - PMF: H1 to H4
  - 1% AEP Flood: H1 to H3 (H3 only in the southern part of the site)

For reference, a PMF in the Parramatta River alone would cause a peak hazard at the site of H3 to H5.

The available flood model results do not allow extracting peak hazard should the Duck River flood without contributions from the Parramatta River, or with a smaller flood event in the Parramatta River.

Maps of the peak hydraulic hazard in each event are shown in Figure 5 (mainstream 1% AEP event), Figure 7 (mainstream PMF), Figure 9 (overland 1% AEP event), and Figure 11 (overland PMF).

3.3.5 Flood Duration and Rate of Rise

The available flood models were used to extract hydrographs of level and hydraulic hazard at low points at the site primary construction access point (i.e. the intersection between Unwin Street and Colquhoun Street), James Ruse Drive and Grand Avenue, in the mainstream and overland PMF events. These are shown in Figures 15 to 18. The peak rate of rise is about 300 mm/hour in the mainstream PMF and up to 600 mm/hour in the overland flooding event. The peak of the PMF is reached within 2.5 hours from beginning of the rainfall for the mainstream PMF, and within 30 minutes for overland flooding.

Vehicular traffic is considered blocked when hydraulic hazard exceeds a value of 1. In a PMF of overland flooding this would happen within minutes from the beginning of the rainfall.

The hydrographs show that in a mainstream PMF, the site would remain isolated for about 6 to 8 hours.

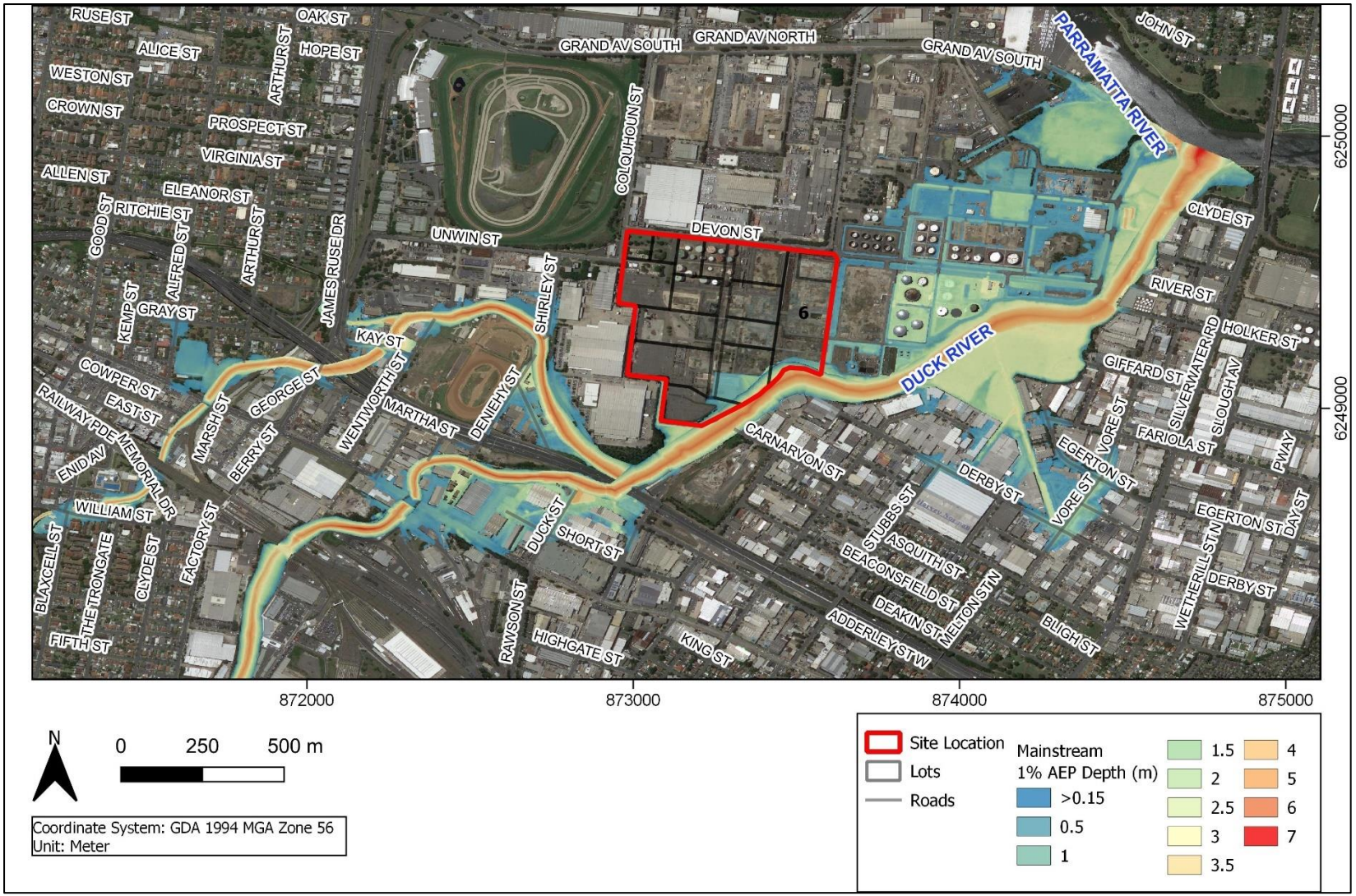


Figure 4. Peak flood depth for the 1% AEP flood on the Duck River (with concomitant steady flooding of the Parramatta River).

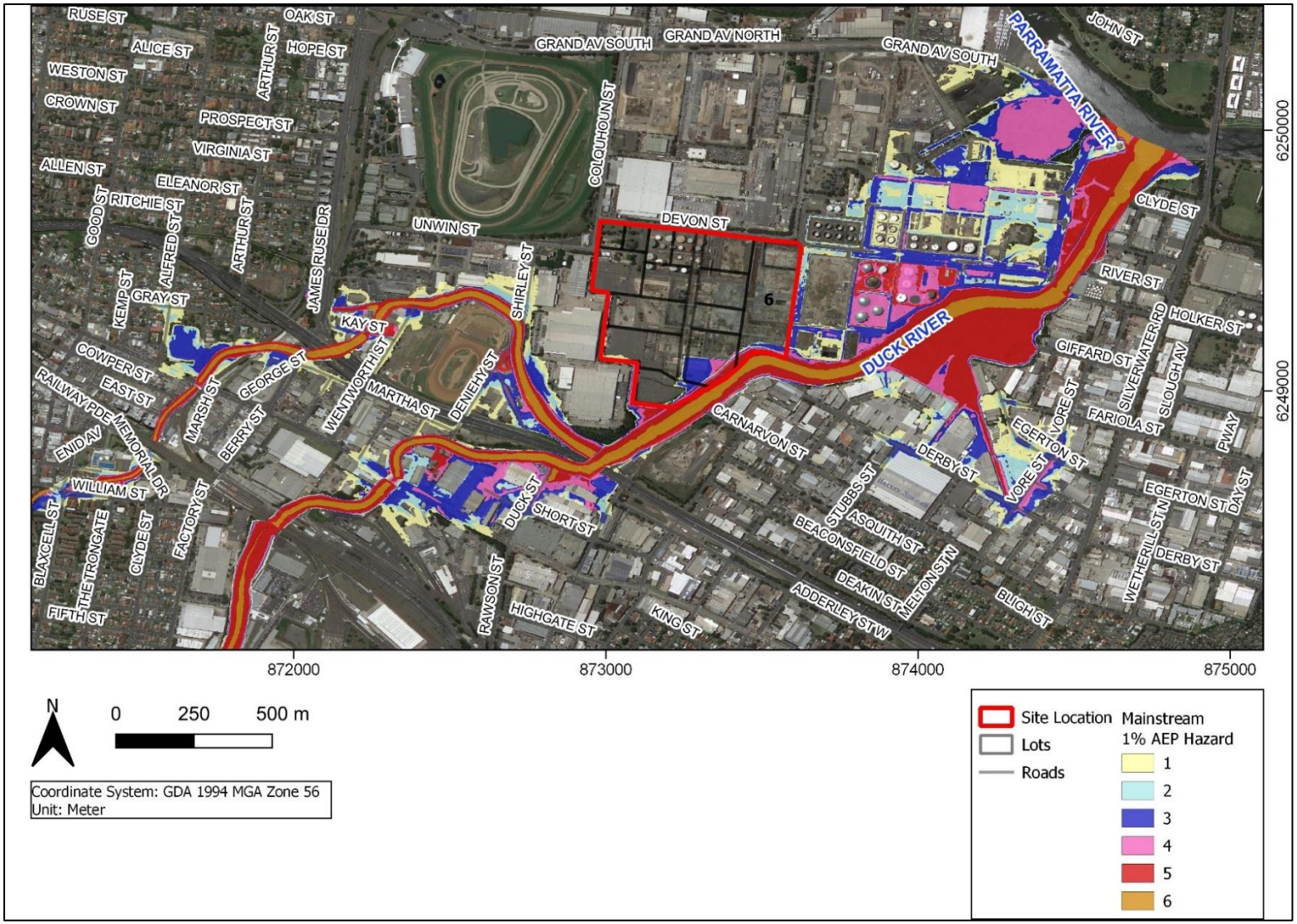


Figure 5. Peak hydraulic hazard for the 1% AEP flood on the Duck River (with concomitant steady flooding of the Parramatta River; no trim of model).

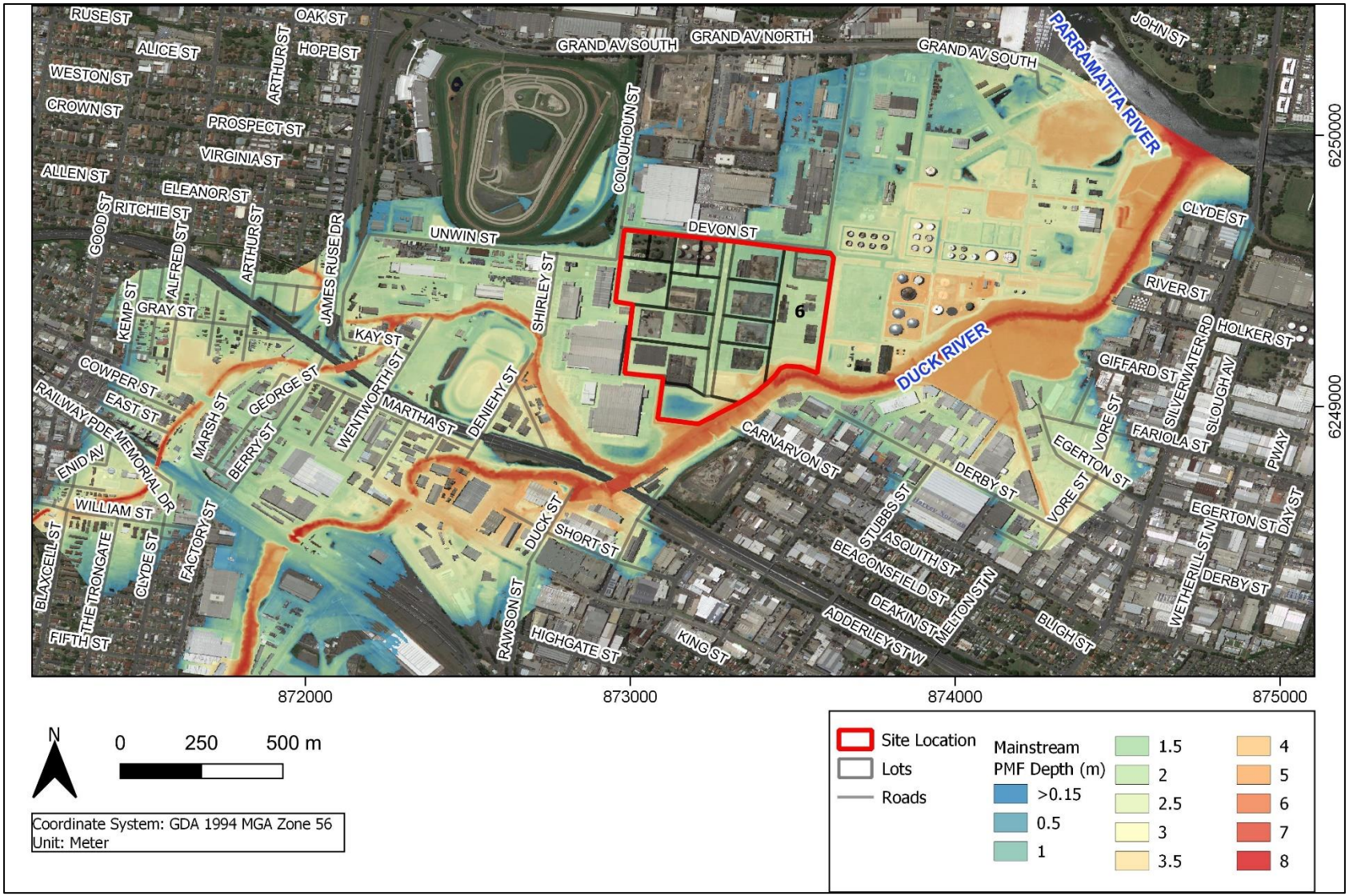


Figure 6. Peak flood depth for the PMF on the Duck River (with concomitant steady flooding of the Parramatta River).

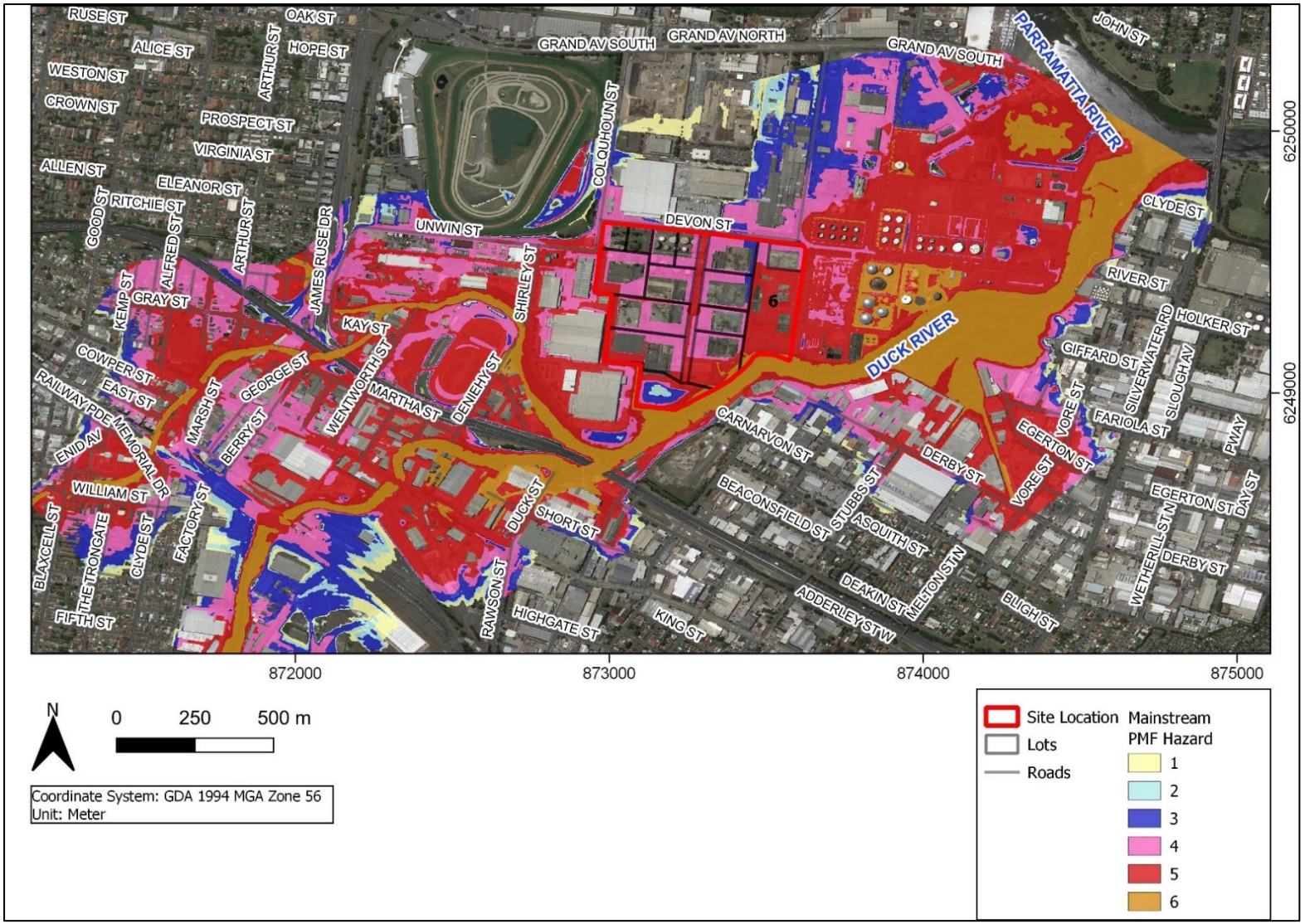


Figure 7. Peak hydraulic hazard for the PMF on the Duck River (with concomitant steady flooding of the Parramatta River; no trim of model).

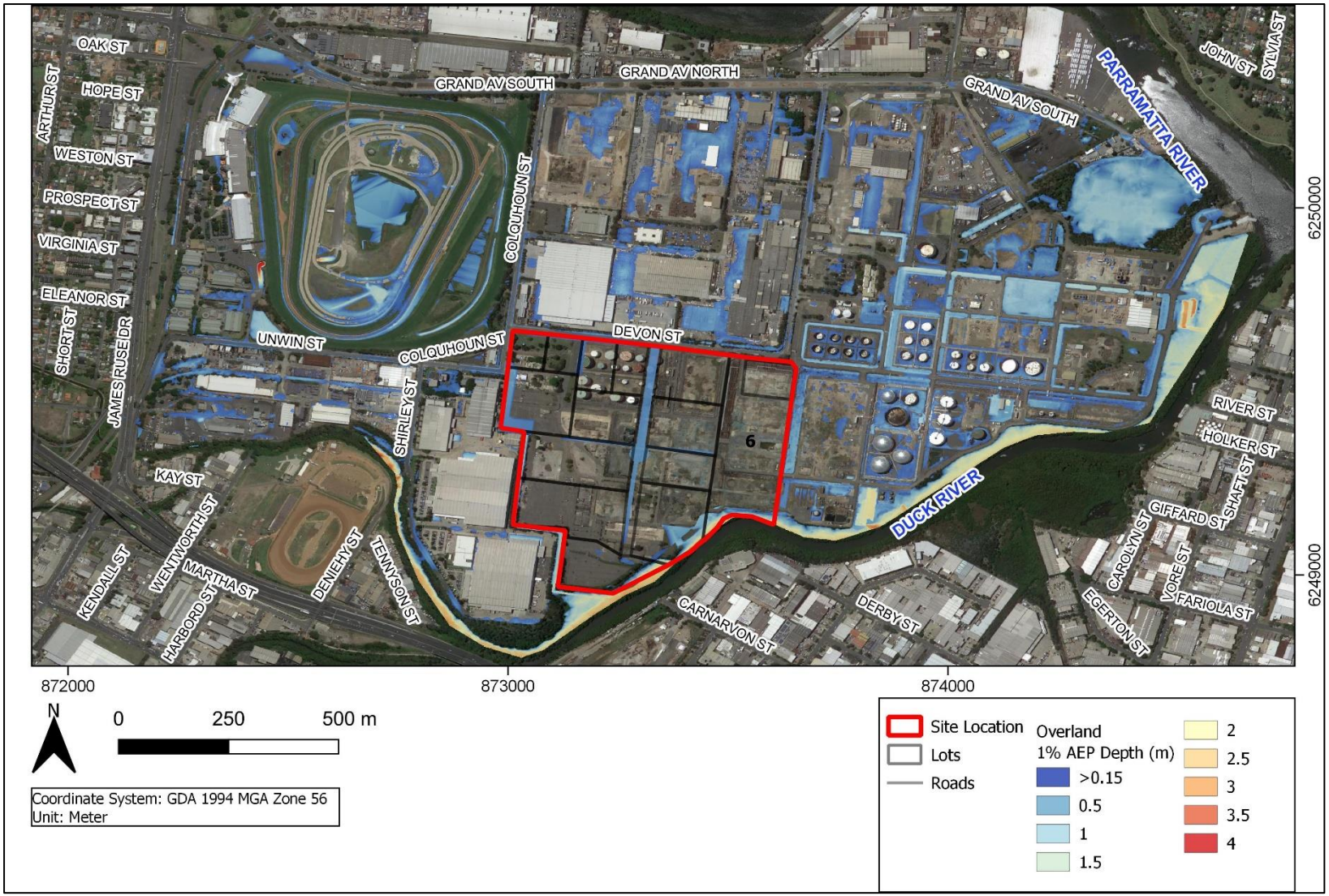


Figure 8. Peak flood depth for the 1% AEP overland flood.

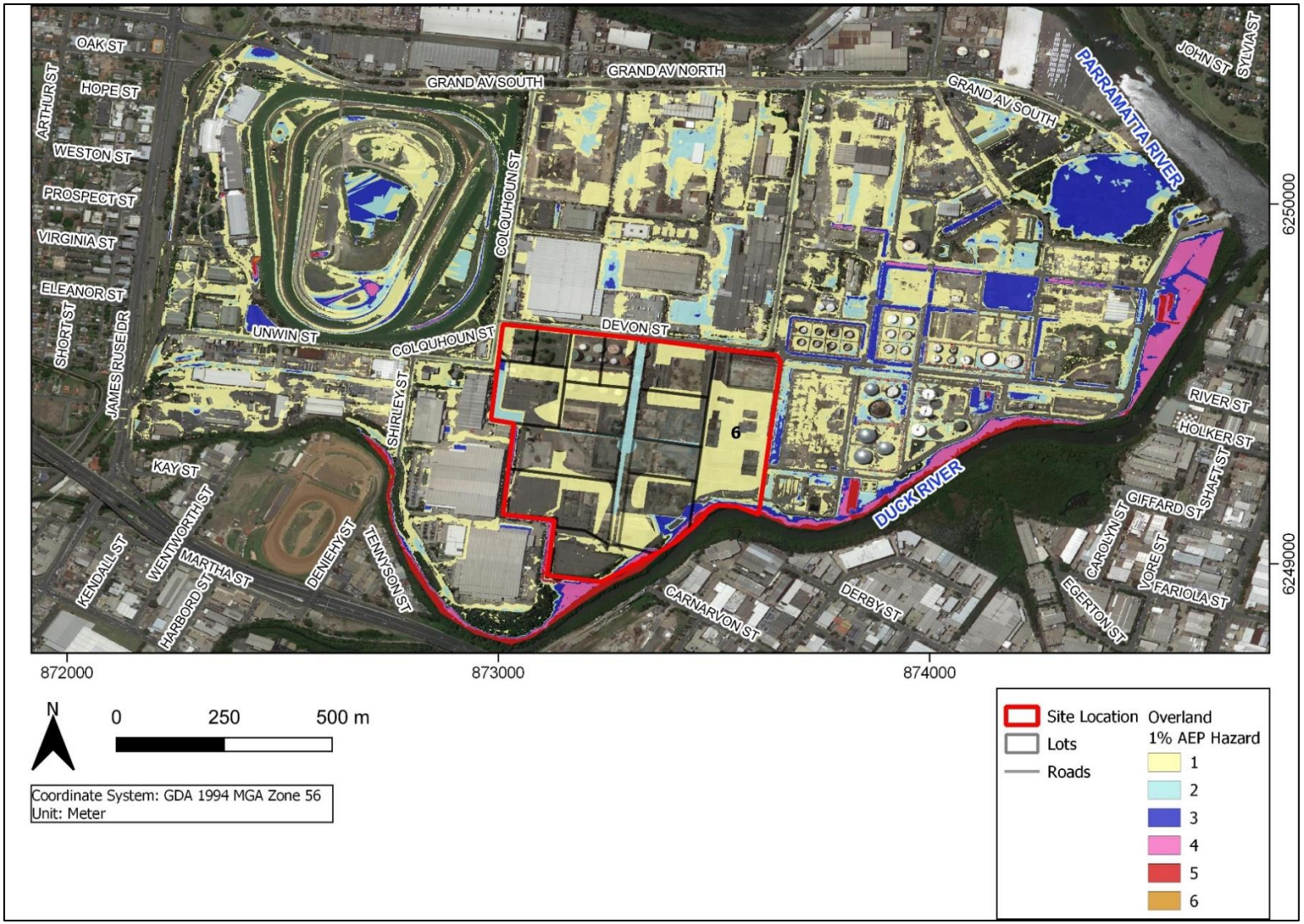


Figure 9. Peak hydraulic hazard for the 1% AEP overland flood (<5 cm trimmed out).

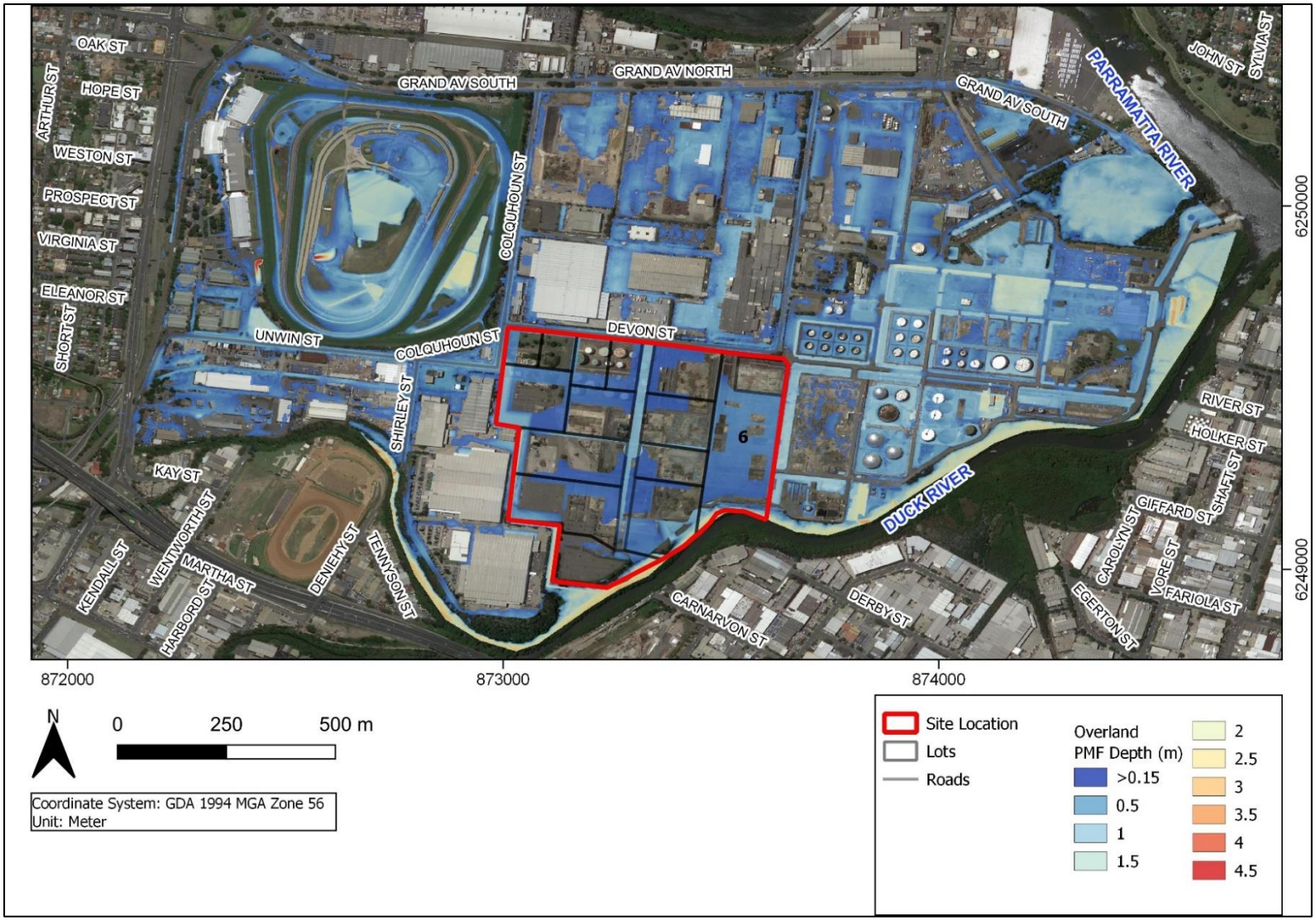


Figure 10. Peak flood depth for the overland PMF.

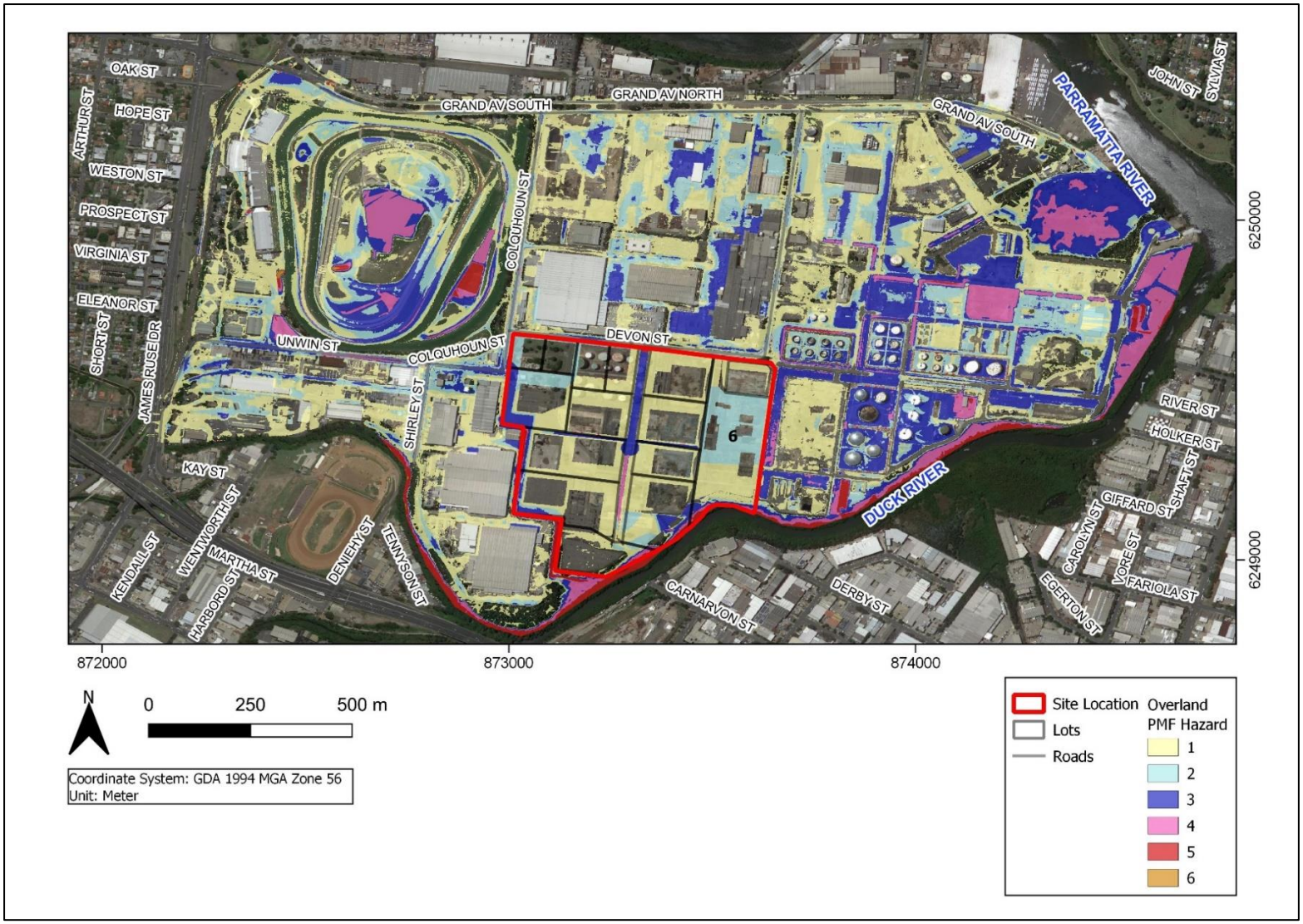


Figure 11. Peak hydraulic hazard for the overland PMF (<5 cm trimmed out).

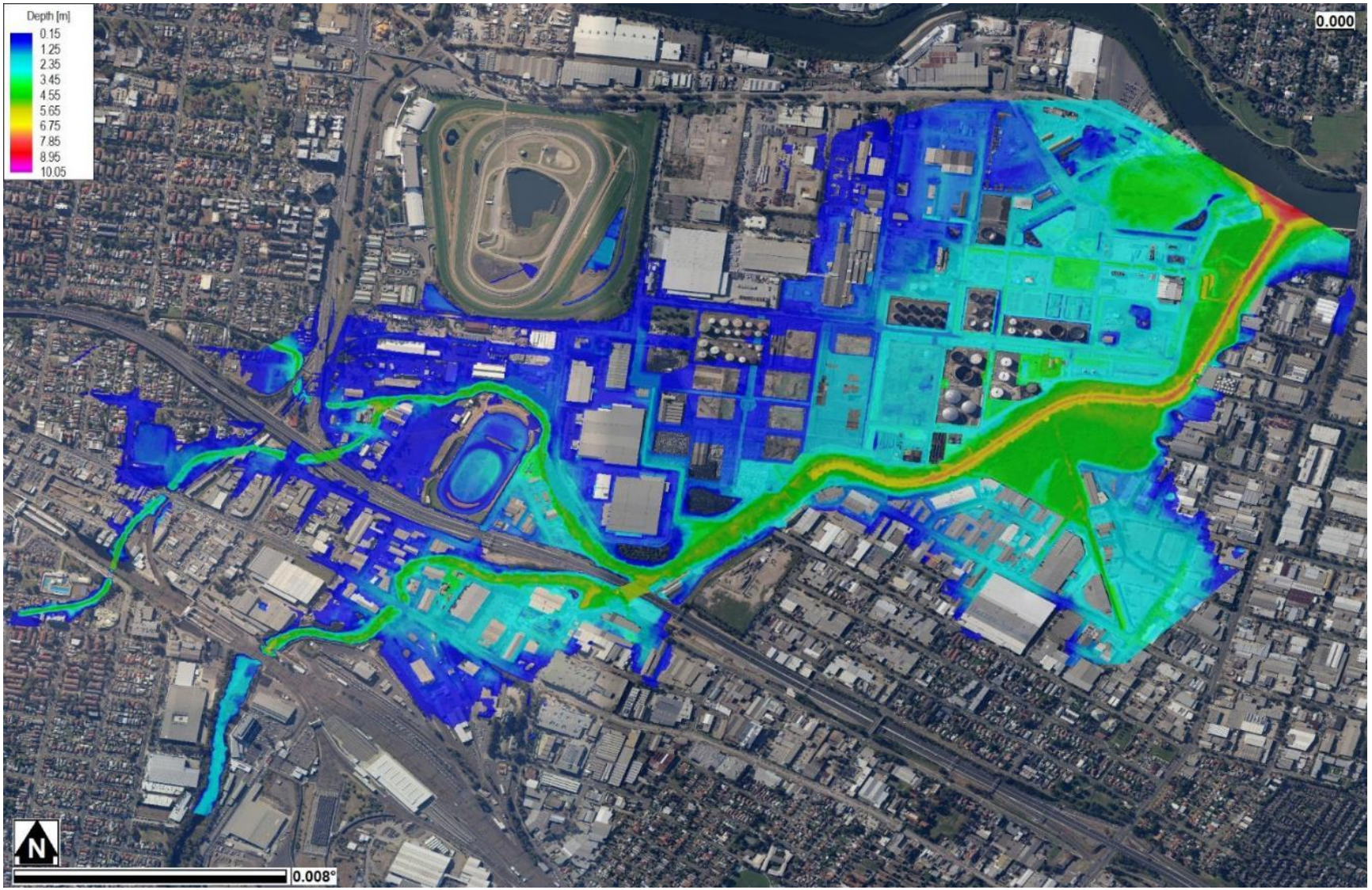


Figure 12. Parramatta River peak PMF depth.

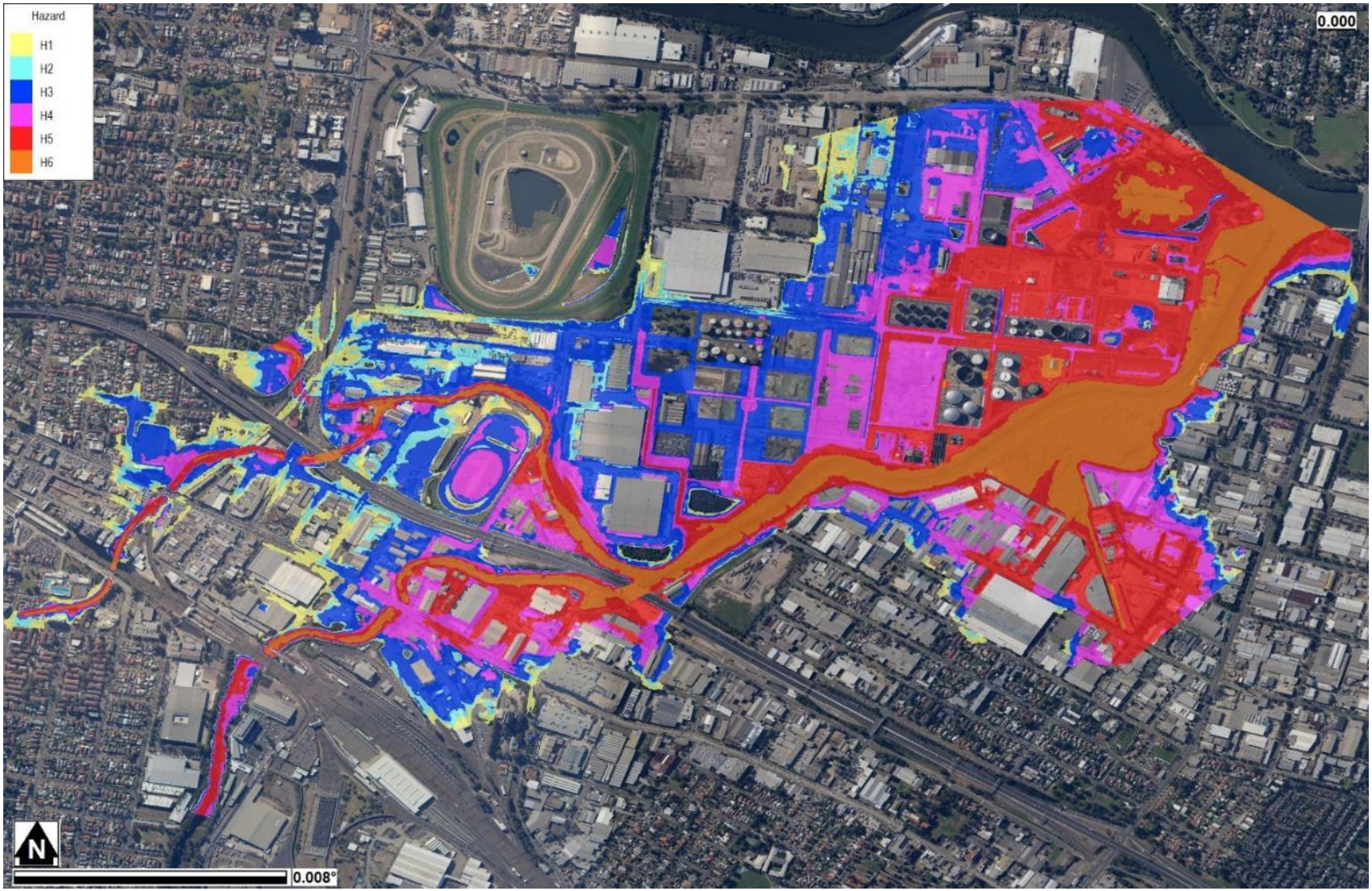


Figure 13. Parramatta River peak PMF hazard.

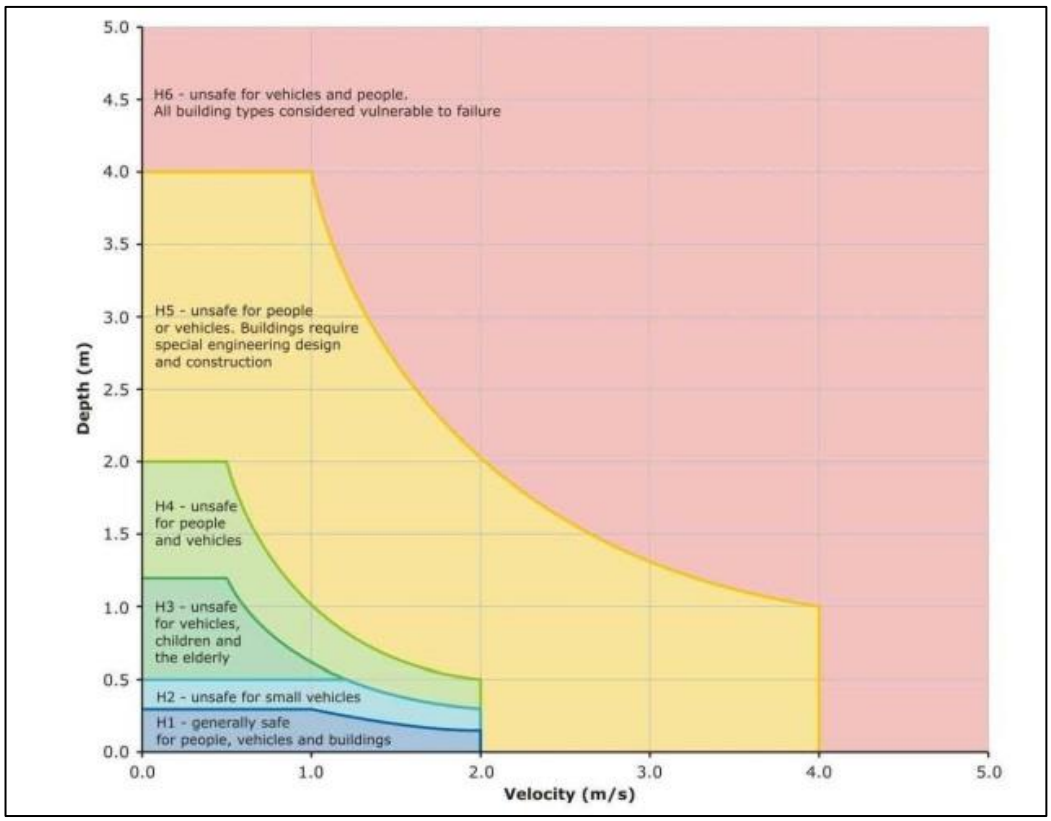


Figure 14. Flood hazard vulnerability curves (source: Smith et al., 2015).

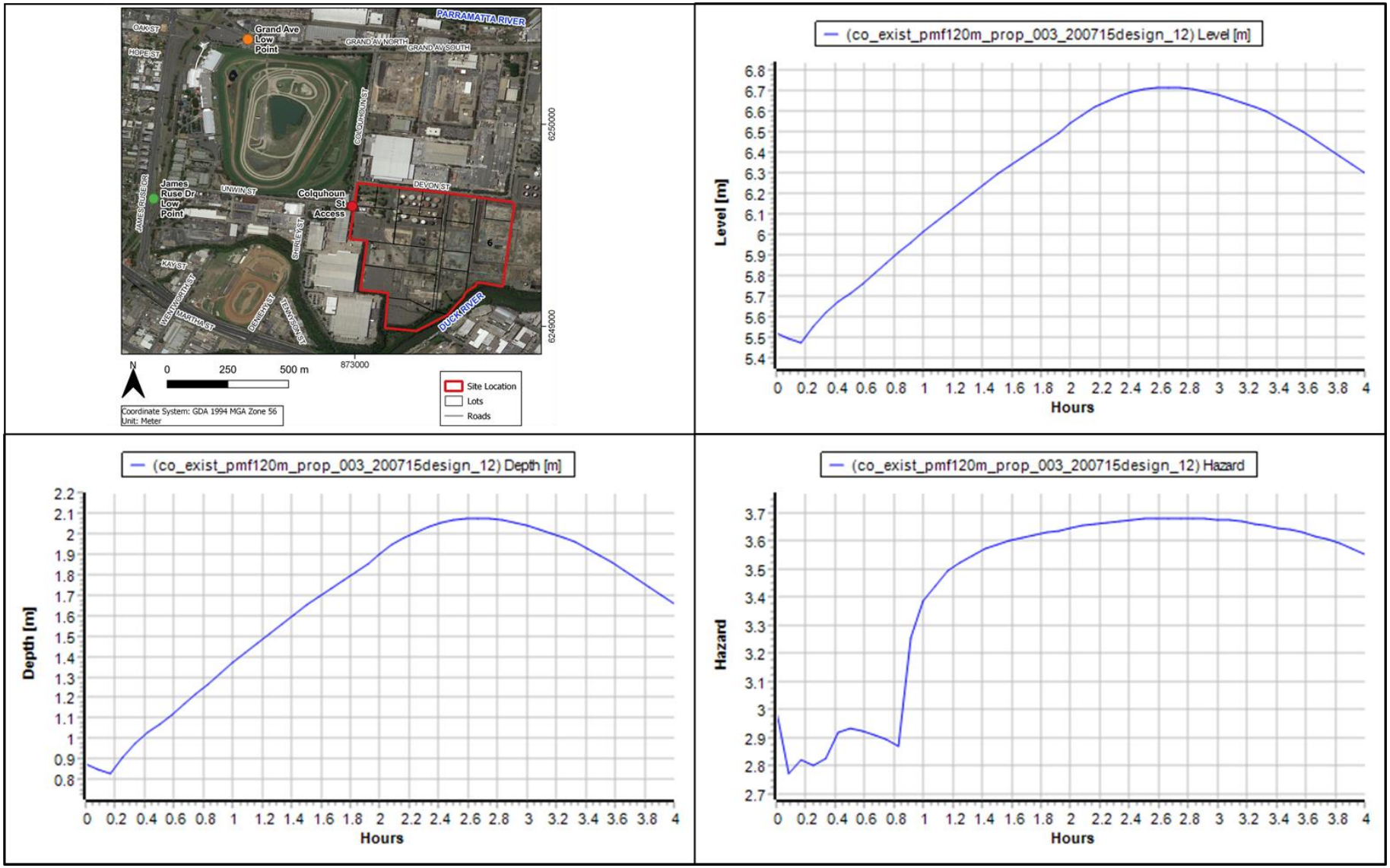


Figure 15. Mainstream PMF Hydrographs at site access point on corner of Unwin and Colquhoun Streets.

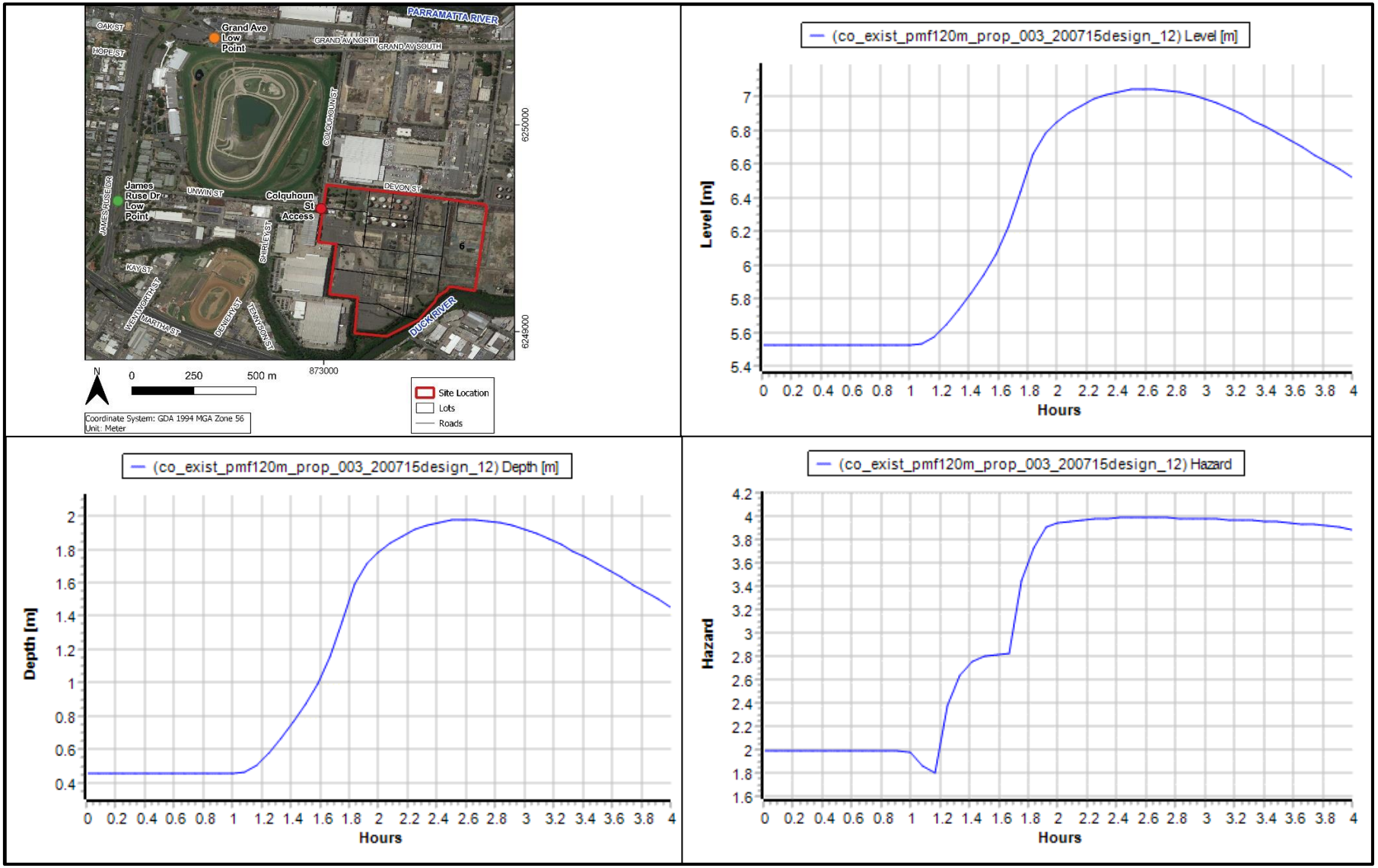


Figure 16. Mainstream PMF Hydrographs at James Ruse Drive Low Point.

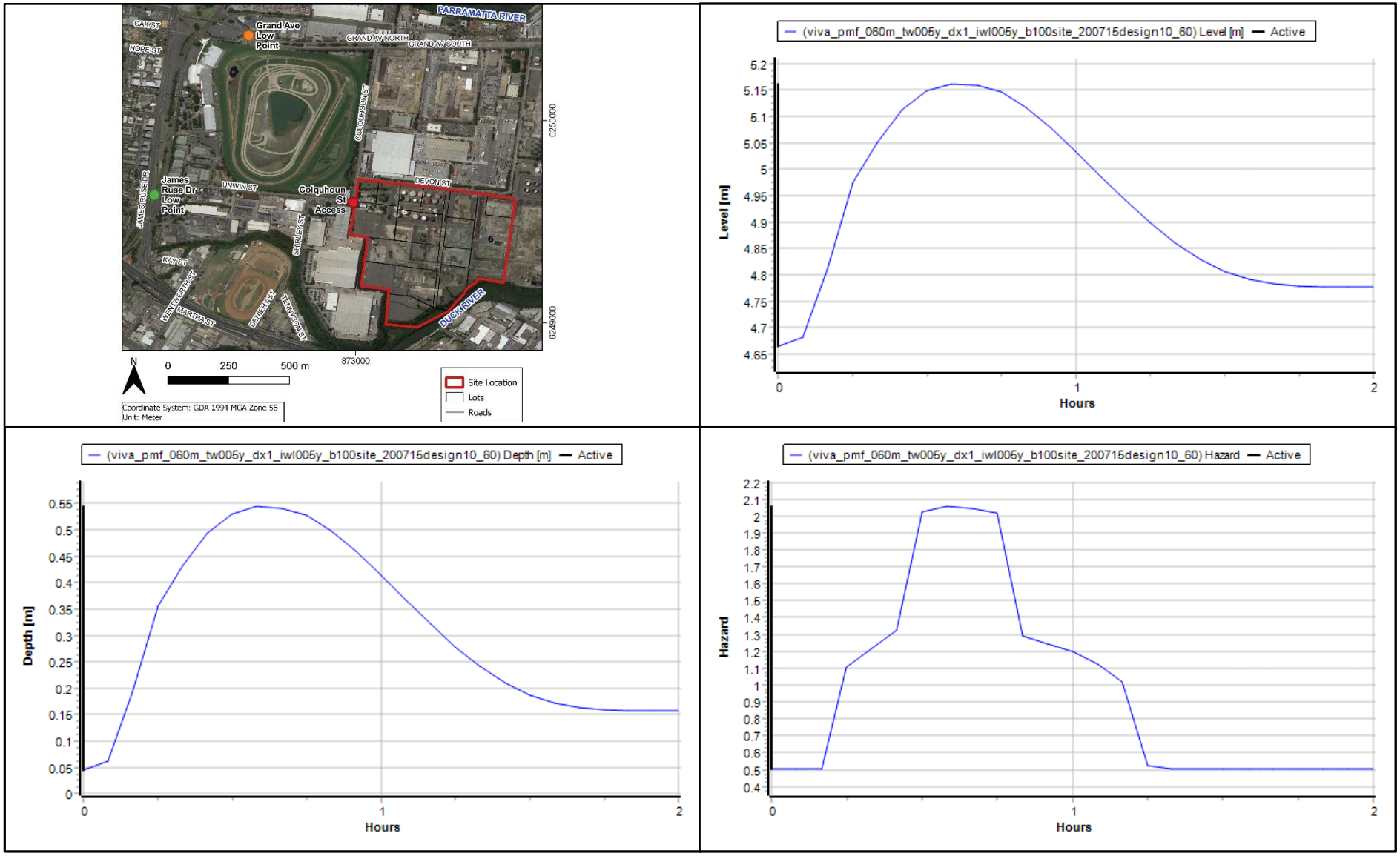


Figure 17. Overland PMF Hydrographs at site access point on corner of Unwin and Colquhoun Streets.

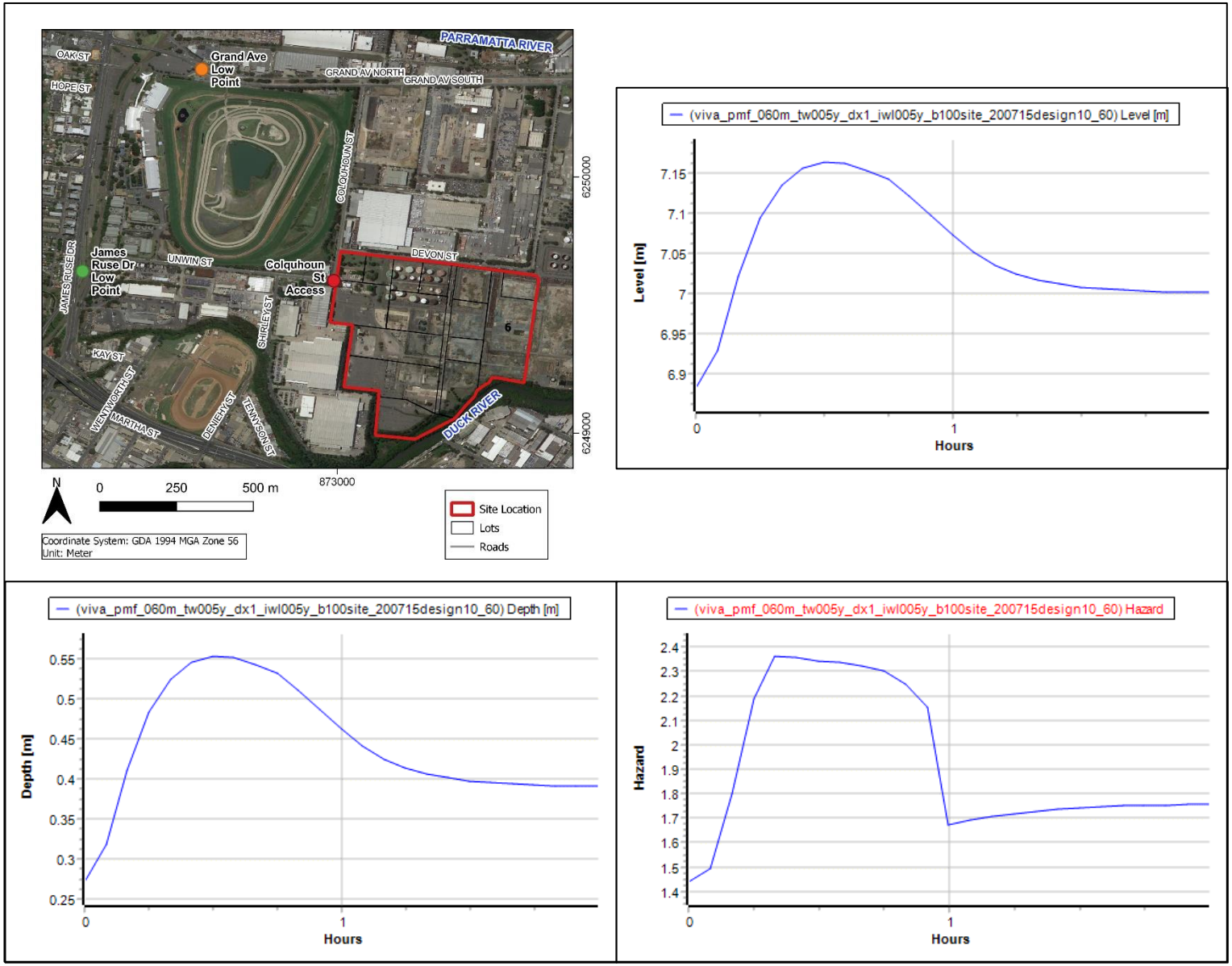


Figure 18. Overland PMF Hydrographs at Grand Avenue Low Point.

4| Flood Forecasts and Warnings

Monitoring the weather forecasts and warnings will be an integral step in managing the flood risk of the site.

4.1 Bureau of Meteorology (BoM)

The Bureau of Meteorology (BoM) has a number of generalised warning products that could provide an indication of an increased flood threat:

- **Severe Weather Warnings:** The BoM issues Severe Weather Warnings whenever severe weather is occurring in an area or is expected to move into an area. The warnings describe the area under threat and the expected hazards. Warnings are issued with varying lead-times, depending on the weather situation, and range from just an hour or two to 24 hours or sometimes more. The key subtype of Severe Weather Warning to be monitored for the site are warnings with reference to flash flooding for the Sydney Metropolitan Area. These are issued directly to the media by the BoM when there is a high probability of flash flooding as a result of intense rainfall. New South Wales weather warnings are issued by the BoM and can be found at the following link: www.bom.gov.au/nsw/warnings/.
- **A Flood Watch for the Parramatta River area:** A Flood Watch is a "heads-up" that flood producing rainfall is forecast and flooding may eventuate. These are usually issued one or two days in advance of the expected flooding and about 25% of the time flooding does not eventuate.

In addition to the above listed warning products, the BoM has forecast rainfall maps which can be used to estimate the amount of rain expected to fall over the next eight and four days, as well as the next 24 hours. This information is available at the following website: http://www.bom.gov.au/jsp/watl/rainfall/pme.jsp

The radar service on the BoM website also shows current rainfall locations and intensities. The radar station to be used for the site would be the Sydney Terrey Hills Radar (http://www.bom.gov.au/products/IDR714.loop.shtml#skip).

4.2 Floodsmart

In addition to the information provided by the BoM, the City of Parramatta Council has put in place a local flood warning system for the Parramatta River which is freely available to anyone subscribing to the service. The system is called "FloodSmart." While FloodSmart does not cover Rosehill, it does cover the Parramatta CBD. As there are no significant inputs to the Parramatta River (i.e. converging rivers) between the CBD and the site location, any flood warnings for the Parramatta CBD would also apply to the site.

FloodSmart can be accessed at the following link:

https://www.cityofparramatta.nsw.gov.au/recreation-environment/floodsmart-parramatta/flood-warning-service

FloodSmart provides flood early warning messages via text, email, or automated voice message. The types of flood warnings provided are summarised in Table 3.

Table 3. FloodSmart warning messages.

Type of Warning Message	Description
MINOR: **High risk areas may experience property flooding**	• Risk to life from fast flowing or deep water near the river or creek • Closure of roads most at risk of flooding • Flooding of land near rivers, creeks, low spots and recreational areas • Water levels may be high for many hours
MODERATE: **High and Medium risk areas may experience property flooding.**	• High risk to life from fast-flowing or deep water near the river or creek • Closure of many bridges and roads • Widespread flooding in areas not necessarily near the river • Water levels may be high for many hours
MAJOR: **High, Medium and Low risk areas may experience property flooding**	• Damage is possible to buildings and infrastructure • Extreme risk to life from fast-lowing deep water even in areas not near the river or creek • Closure of many bridges, roads and transport routes • Widespread deep flooding in many areas not necessarily near the river • Water levels may be high for many hours
NO FURTHER IMPACT	• The local conditions should now be improving: • No further flooding is expected in the next 12 hours • Flood levels will continue to drop However: • There may still be dangerous fast flowing water near the river or creek • Debris and contamination may still cause problems in areas that have been flooded

The site is located between the 1% AEP and PMF levels from the Parramatta River and as such it is in a Low Hazard area with respect to the FloodSmart warning system. Therefore it would only potentially experience flooding when there is a Major Flood Warning for the CBD. However, the evacuation route low point at the intersection between James Ruse Drive and Grand Avenue is a High Hazard area and may be cut by floodwaters following a Minor Flood Warning for the Parramatta River. Similarly, access to the site from the south via Unwin Street and Kay Street goes across A'Becketts Creek and the Duck Creek and it is likely to flood frequently when the Parramatta River level is high.

Therefore, a Minor Flood Warning for Parramatta CBD indicates that the site may be isolated by floodwaters within two hours. It is noted that such warning is not issued for overland flooding events, nor for mainstream events coming down the Duck River alone.

Table 4. Relevant FloodSmart warning messages for the site.

Location at Risk	FloodSmart Hazard Classification	Relevant FloodSmart Flood Warning (Parramatta River only)
Low point at intersection of Grand Avenue and James Ruse Drive	High	Minor; No Further Impact
Low point at intersection of Unwin Street and A'Becketts Creek and Duck Creek	High	Minor; No Further Impact
Central Sydney Industrial Estate	Low	Major; No Further Impact

5 | Emergency Management Considerations

The two main types of responses to a flood emergency are to either:

- Evacuate to an area above the reach of floodwaters in the PMF. This is the NSWSES preferred response, provided that the risks of evacuating are deemed acceptable;
- Take Shelter in Place (SIP) within the site and wait until floodwaters have receded and the emergency has passed. SIP is to be considered an alternative to evacuation only when the risks of evacuating are higher than the risks of SIP. SIP requires flood-free access to a suitable shelter above the PMF level. The shelter must be protected from the weather, be structurally stable in a PMF and have sufficient floor area for all people likely to be on site at any one time.

Both evacuation and SIP are considered as possible flood emergency response strategies in this FERP. This section provides a summary of the flood emergency response analysis (for evacuation and SIP) that was undertaken as part of this FERP to inform the identification of the most suitable response strategy and management actions.

5.1 Consultation with the NSWSES

The flood emergency response strategy for the construction phase of the site presented in this report was established in consultation with the NSWSES during two online meetings held on 21 and 27 January 2021. The meetings were attended by:

- Three representatives from the NSWSES (i.e. Peter Cinque, Shelly Stingmore, and Jacqueline Kenner);
- A representative of VE Property Pty Ltd (Neville Hattingh of Element Environment);
- Molino Stewart's Principals Steven Molino and Dr Filippo Dall'Osso, and Dr Kelsey Sanborn.

A copy of this report was provided by VE Property Pty Ltd to the NSWSES for any additional feedback.

5.2 The Emergency Response Strategy

While the site itself is only severely affected in mainstream and overland events greater than the 1% AEP, all evacuation routes may become cut within minutes after the beginning of a rainfall event by overland flooding or mainstream flooding. Such routes are:

- North-west of the site via Devon Street, Colquhoun Street, Grand Avenue, and then north on James Ruse Drive; or
- South-west of the site via Devon Street, Colquhoun Street, Unwin Street, Kay Street, and then south on Wentworth Street.

While in most flood events floodwaters would not reach the site, in extreme events floodwaters may keep rising after all evacuation routes are cut to affect the site with hazardous floodwaters. Flood depths on the southern part of the site would exceed 4 m in the mainstream PMF and may reach a peak hydraulic hazard of H6, which may pose a risk to the stability of buildings that were not purposely engineered to withstand flood forces. It should be emphasized that this event represents the absolute worst-case scenario of a concurrent PMF peak in the Duck River and Parramatta River catchments. The probability of this is much smaller than a single PMF event, which has a probability of occurrence in the order of 1 in 1,000,000 each year. As such, we consider the probability of a

concurrent PMF events to be negligible for emergency planning purposes. More realistically, in the worst credible scenario of a PMF in the Duck River with a 1% AEP tailwater level in the Parramatta River the site would likely not experience hydraulic hazards in excess of H4 (safe for buildings).

Based on the above considerations it was concluded that both evacuation and Shelter in Place could be effective flood emergency response strategies for the site, in principle. However, during the construction phase, there will be no suitable shelters within the site and early evacuation was deemed to be the only practical alternative.

It was agreed with the NSWSES that the following triggers should be used for a site evacuation:

- A Floodsmart Minor Flood Warning for Parramatta CBD; or
- A Flood Watch for the Parramatta River, followed by a BoM Severe Weather Warning with reference to flash flooding for the Sydney Metropolitan Area.

The above triggers will provide a minimum of one hour of notice before the site may become isolated, however in most instances the notice will be greater. Given the nature of the development (i.e. a construction site) the minimum notice was deemed acceptable, especially in consideration of the following items:

- Everyone on site will be pre-alerted when there is a Flood Watch active for the Parramatta River that evacuation may be required. A Flood Watch is usually issued one to two days in advance;
- There will be people on site less than 50% of the time. This corresponds to the construction working hours provided in Section 2.2.2;
- There will be mobile offices with access to power and internet for continued monitoring of the evacuation triggers;
- Everyone on site will have access to a vehicle and will quickly be able to drive out should an evacuation order be issued;
- There will be no more than 35 people on site at any one time, plus a maximum of 85 people working on lot 6 for the construction of the Downer Sustainable Road Resource Centre, for which a separate FERP was prepared. If they all have individual vehicles, there will be no more than 35 vehicles evacuating the site, and a total of 120 light vehicles evacuating concurrently (if we consider vehicles from lot 6). The NSWSES assumes a minimum evacuation rate of 600 cars per lane per hour. Based on this, it would take about 12 minutes for a total of 120 vehicles to clear the site.
- Regardless of flood risk, the construction site will often be closed in any rainfall event, even in light rain, or when severe thunderstorms are predicted, because most construction activities cannot proceed in bad weather.

6 | Flood Emergency Response Plan

6.1.1 Priorities

This FERP recognises that protection of life is of critical and primary importance. This FERP is principally concerned with the safety and comfort of personnel. All flood emergency responses recommended in this FERP are to recognise the primacy of life and wellbeing over protection of property.

Nonetheless, it is recommended that the site management and staff take all necessary measures outside of this FERP to manage the risks which flooding poses to the site and its property.

The FERP sets emergency management prevention, preparedness and response measures that are relevant to a flood emergency. It does not cover broader emergency management guidance for any type of hazard that could affect the site.

6.2 Responsibilities

The responsibility of successful implementation of the Flood Emergency Response Plan lies with the site management. However, the NSW SES, as the State combat agency for flood events, and the NSW Police Force have the right to and may intervene before, after or during a flood to provide guidance or prescriptive directions.

6.2.1 NSW State Emergency Services (NSWSES)

The NSWSES is the lead combat agency for flooding in NSW. It can command resources from other government organisations including local councils, Transport for NSW and the Police to assist in flood operations under its command.

Under the State Emergency and Rescue Management Act, 1989, the NSWSES has the power to direct any citizen or organisation to take actions in response to flooding. This includes the power to order evacuations.

Any flood response directive issued by the NSWSES or by delegated authority to others acting on its behalf must be followed by site management and staff. This includes any order to evacuate the site or not evacuate the site, irrespective of what decisions have been made by management in accordance with this FERP.

6.2.2 Site Management

A Project Manager will be on site at all times during construction of the Central Sydney Industrial Estate. The Project Manager, or a trained staff member nominated by the Project Manager, will be in charge of monitoring the evacuation triggers and ensuring a successful emergency response exercise.

6.3 What do to Before, During and After a Flood

This section provides the list of actions to be undertaken before, after and during a flood. These are also provided as a checklist in Appendix A.

6.3.1 Before a Flood

TRIGGER FOR ACTION #1: Always

ACTIONS:

- The site Project Manager will make all staff on site aware of the possibility of flooding and the procedures to be followed in a flood.
- The Project Manager will appoint a Flood Warden. This should be a senior staff member who is familiar with this Flood Emergency Response Plan and who is always on site when the site is open. If necessary, to ensure that at least one Flood Warden is always on site, the Project Manager may appoint two or more Flood Wardens.
- An airhorn will be kept on site at all times. This is to be used to alert everyone on site in case of emergency. All staff on site will be trained during their site induction to immediately go to the muster point at the front of the site when the airhorn sounds.
- A set of at least two wireless radio communication transceivers with charged spare batteries will be kept on site at all times. The Flood Warden will make sure that the main and spare batteries are changed at all times.
- A flood warning sign will be kept on the premises. The sign should read a message to this effect:
  The site is temporarily closed due to flood risk. For your own safety, leave the area immediately. You will be notified once it is safe to come back.

- The Project Manager and the Flood Warden will make sure they always have a personal smartphone or tablet handy. The smartphone/ tablet will need to have 3G/4G/5G internet access and at least 12 hours independent power supply.
- Using the above smartphone/ tablet, the Project Manager and the Flood Warden will subscribe to the City of Parramatta Council's Floodsmart warning system for the area of Parramatta CBD, and will make sure that the relevant notifications are given "push" priority (i.e. high-priority) so that these can be read as soon as they are received.
- Using the above smartphone/ tablet, the Project Manager and the Flood Warden will bookmark links to the BoM warning webpage and Floodsmart for easy access.
- Every morning, the site Project Manager will check the Bureau of Meteorology weather forecast and warnings. At the time this report was prepared, the BoM weather forecast and warnings for NSW were available at the following link: New South Wales Warnings Summary (bom.gov.au).
- An emergency contact sheet will be kept on site. A suggested format for these details and other necessary contact details is provided in Appendix B.
- The Project Manager will keep an updated register of the people who are on site at all times. The list will have to include as a minimum name, mobile number, and emergency contact details.
- The Project Manager will maintain an emergency kit including a portable radio and torch with spare batteries and a first aid kit.

6.3.2 When a Flood is Possible

TRIGGER FOR ACTION #2: When there is an active BoM Flood Watch for the Parramatta River

ACTIONS (during working hours):

- The site Project Manager will notify the Flood Warden(s) that there is a risk that the site may flood and the procedures to be followed in a flood.
- The Project Manager and the Flood Warden(s) will notify everyone on site, as well as any workers arriving to the site later in the day, that there is a risk that the site may flood and the procedures to be followed in a flood.
- The Flood Warden will monitor the BoM warning webpage and any notifications from Floodsmart every 30 minutes.
- Everyone on site will ensure they can be ready to evacuate within 30 minutes should an evacuation order be issued by the Project Manager.

ACTIONS (outside working hours):

- The site Project Manager will monitor the BoM warning webpage and any notifications from Floodsmart every two hours, and one last time one hour before any works commence at the site.
- Upon opening of the site, the actions to be undertaken during working hours, listed above, will apply.

6.3.3 During a Flood

TRIGGER FOR ACTION #3:

When there is an active Flood Watch for the Parramatta River and the BoM issues a Severe Weather Warning with risk of flash flooding or local flooding for the Sydney Metropolitan Area,

OR

TRIGGER FOR ACTION #4:

When a Floodsmart Warning for Minor, Moderate or Major Flooding is issued for the Parramatta River.

Note: a Floodsmart flood warning may or may not be preceded by a BoM Flood Watch.

ACTIONS (during working hours):

- The Flood Warden will notify the Project Manager that the site must be immediately evacuated.
- The Flood Warden will take the radio transceiver, the flood warning sign and the register of everyone who is on site and go to the site primary construction access point at the intersection between Unwin Street and Colquhoun Street.
- The Project Manager will issue an evacuation order by sounding the airhorn. As per the site induction training, everyone on site will immediately muster at the site primary access point at the intersection between Unwin Street and Colquhoun Street, where the Project Manager or Flood Warden will notify them of the reason for the evacuation and any evacuation procedures to comply with.
- The Project Manager will sound the airhorn every five minutes until everyone has left the site.

- As each vehicle leaves the site, the Flood Warden will record they have left in the register and will remind all drivers that under no circumstances they should drive through floodwaters.
- The Project Manager will contact the NSWSES and communicate that the site is being evacuated as per the FERP. If the NSWSES cannot be contacted, the Project Manager will proceed with the evacuation plan and contact the NSWSES later.
- Using the radio transceiver, the Flood Warden will let the Project Manager know when everyone has left. The Flood Warden will put the flood warning sign in place and then leave the site.
- The Project Manager will patrol the site on their car for no more than five minutes to ensure that no one is left on the premises. They will then shut off all power supplies, close access to the site and leave.
- Once the Project Manager has evacuated, they will contact everyone due to arrive to the site on that day and communicate that the site is closed due to flood risk until further notice.
- The Project Manager will keep monitoring the BoM weather warnings and any further notifications from Floodsmart every two hours.

ACTIONS (outside working hours):

- The Project Manager will contact everyone expected to go to the site on the following day and communicate that the site will be closed due to flood risk until further notice.
- The Project Manager will keep monitoring the BoM weather warnings and any Floodsmart notifications every two hours.

6.3.4 After a Flood

TRIGGER FOR ACTION #5:

When a Floodsmart notification of "No Further Impact" for Parramatta CBD is received,

OR

If a Floodsmart flood warning for Parramatta CBD was never issued, when the BoM cancels the Severe Weather Warning with risk of flash flooding for the Sydney Metropolitan area.

ACTIONS:

- The Project Manager will inspect the site to check if access roads are clear and if the site was affected by flooding.
- If access roads are clear and the site was not affected, the emergency has passed and the site can re-open.
- If access roads are not clear, the Project Manager will return for an inspection after at least two hours. Under no circumstances should the Project Manager drive through floodwaters.
- If access roads are clear but the site was affected by flooding, the Project Manager will organise access to the site making sure that any precautionary measures recommended by the NSWSES are put in place.
- Extra care will be taken of potential slips on a muddy floor if floodwaters have entered the mobile offices or other structures.
- All flood-affected parts of the premises will be appropriately cleaned and utilities checked by professionals before anyone can return to the site.

- A hazard assessment will be undertaken for the clean-up, safe work methods statements will be prepared and personal protective equipment supplied consistent with the known hazards which can be associated with floods:
  - Slips, trips and falls;
  - Sharp debris;
  - Venomous animals;
  - Contaminated water and sediments.
- Following the re-commencement of the site activities, a de-brief will be held with key management staff and may involve Council flood staff or the NSWSES. The flood event and response, including the use of this FERP and any emergency procedures will be reviewed.
- Changes may be made to the FERP and the requirements for future emergency response should the review identify any improvements which may be made.

7| References

Element Environment, 2020a. Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre State Significant Development Application: Environmental Impact Statement. Prepared for VE Property Pty Ltd and Downer EDI Works Pty Ltd.

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WMAWater, 2020a. Central Sydney Industrial Estate incorporating Downer Sustainable Road Resource Centre Flooding Assessment. Prepared for VE Property Pty Ltd.

WMAWater, 2020b. Central Sydney Industrial Estate incorporating Downer Sustainable Road Resource Centre Review of Flooding Submissions. Prepared for VE Property Pty Ltd.

Appendix A | Action Checklist

Stage	Trigger for Action	Action	Who is responsible	What is needed
Before a flood	Always	The site Project Manager will make all staff on site aware of the possibility of flooding and the procedures to be followed in a flood.	Project Manager	N/A
		The Project Manager will appoint a Flood Warden. This should be a senior staff member who is familiar with this Flood Emergency Response Plan and who is always on site when the site is open. If necessary, to ensure that at least one Flood Warden is always on site, the Project Manager may appoint two or more Flood Wardens.	Project Manager and Flood Warden(s)	N/A
		An airhorn will be kept on site at all times. This is to be used to alert everyone on site in case of emergency. All staff on site will be trained during their site induction to immediately go to the muster point at the front of the site when the airhorn sounds.	Project Manager	Airhorn
		A set of at least two wireless radio communication transceivers with charged spare batteries will be kept on site at all times. The Flood Warden will make sure that the main and spare batteries are changed at all times.	Project Manager	Wireless radios with batteries
		A flood warning sign will be kept on the premises. The sign should read a message to this effect: *The site is temporarily closed due to flood risk. For your own safety, leave the area immediately. You will be notified once it is safe to come back.*	Project Manager	Flood warning sign
		The Project Manager and the Flood Warden will make sure they always have a smartphone or tablet handy. The smartphone/	Project Manager and	Smartphone or tablet, internet

Stage	Trigger for Action	Action	Who is responsible	What is needed
		tablet will need to have 3G/4G/5G internet access and at least 12 hours independent power supply.	Flood Warden(s)	and back-up power
		Using the above smartphone/ tablet, the Project Manager and the Flood Warden will subscribe to the City of Parramatta Council's FloodSmart warning system for the area of Parramatta CBD, and will make sure that the relevant notifications are given "push-up" priority (i.e. high-priority) so that these can be read as soon as they are received.	Project Manager and Flood Warden(s)	Smartphone or tablet and internet
		Using the above smartphone/ tablet, the Project Manager and the Flood Warden will bookmark links to the BoM warning webpage and FloodSmart for easy access.	Project Manager and Flood Warden(s)	Smartphone or tablet and internet
		Every morning, the site Project Manager will check the Bureau of Meteorology weather forecast and warnings. At the time this report was prepared, the BoM weather forecast and warnings for NSW were available at the following link: New South Wales Warnings Summary (bom.gov.au).	Project Manager and Flood Warden(s)	Smartphone or tablet and internet
		An emergency contact sheet will be kept on site. A suggested format for these details and other necessary contact details is provided in Appendix B.	Project Manager	Emergency Contact Sheet
		The Project Manager will keep an updated register of the people who are on site at all times. The list will have to include as a minimum name, mobile number, and emergency contact details.	Project Manager	Register of people on site
		The Project Manager will maintain an emergency kit including a portable radio and torch with spare batteries and a first aid kit.	Project Manager	Emergency kit with radio, torch, batteries, and first aid kit

Stage	Trigger for Action	Action	Who is responsible	What is needed
When a flood is possible	*During working hours* **When there is an active BoM Flood Watch for the Parramatta River**	The site Project Manager will notify the Flood Warden(s) that there is a risk that the site may flood and the procedures to be followed in a flood.	Project Manager and Flood Warden(s)	N/A
		The Project Manager and the Flood Warden(s) will notify everyone on site, as well as any workers arriving to the site later in the day, that there is a risk that the site may flood and the procedures to be followed in a flood.	Project Manager and Flood Warden(s)	Phones
		The Flood Warden will monitor the BoM warning webpage and any notifications from Floodsmart every 30 minutes.	Flood Warden(s)	Smartphone or tablet and internet
		Everyone on site will ensure they can be ready to evacuate within 30 minutes should an evacuation order be issued by the Project Manager.	Everyone on site	N/A
	Outside of working hours **When there is an active BoM Flood Watch for the Parramatta River**	The site Project Manager will monitor the BoM warning webpage and any notifications from FloodSmart every two hours, and one last time one hour before any works commence at the site.	Project Manager	Internet
		Upon opening of the site, the actions to be undertaken during working hours, listed above, will apply.	Project Manager	N/A
During a flood	*During working hours* **When there is an active Flood Watch for the Parramatta River and the BoM issues a Severe Weather Warning with risk of flash flooding or local flooding for the Sydney Metropolitan Area,**	The Flood Warden will notify the Project Manager that the site must be immediately evacuated.	Project Manager and Flood Warden(s)	N/A
		The Flood Warden will take the radio transceiver, the flood warning sign and the register of everyone who is on site and go	Flood Warden(s)	Radio, warning sign and register of people on site

Stage	Trigger for Action	Action	Who is responsible	What is needed
	OR **When a FloodSmart Warning for Minor, Moderate or Major Flooding is issued for the Parramatta River.** *Note: a Floodsmart flood warning may or may not be preceded by a BoM Flood Watch.*	to the site primary construction access point at the intersection between Unwin Street and Colquhoun Street.		
		The Project Manager will issue an evacuation order by sounding the airhorn. As per the site induction training, everyone on site will immediately muster at the site primary access point at the intersection between Unwin Street and Colquhoun Street, where the Project Manager or Flood Warden will notify them of the reason for the evacuation and any evacuation procedures to comply with.	Project Manager	Airhorn
		The Project Manager will sound the airhorn every five minutes until everyone has left the site.	Project Manager	Airhorn
		As each vehicle leaves the site, the Flood Warden will record they have left in the register and will remind all drivers that under no circumstances they should drive through floodwaters.	Flood Warden(s)	Register of people on site
		The Project Manager will contact the NSWSES and communicate that the site is being evacuated as per the FERP. If the NSWSES cannot be contacted, the Project Manager will proceed with the evacuation plan and contact the NSWSES later.	Project Manager	Phones
		Using the radio transceiver, the Flood Warden will let the Project Manager know when everyone has left. The Flood Warden will put the flood warning sign in place and then leave the site.	Flood Warden(s)	Radio
		The Project Manager will patrol the site on their car for no more than five minutes to ensure that no one is left on the premises. They will then shut off all power supplies, close access to the site and leave.	Project Manager	N/A

Stage	Trigger for Action	Action	Who is responsible	What is needed
		Once the Project Manager has evacuated, they will contact everyone due to arrive to the site on that day and communicate that the site is closed due to flood risk until further notice.	Project Manager	Phones
		The Project Manager will keep monitoring the BoM weather warnings and any further notifications from FloodSmart every two hours.	Project Manager	Smartphone or tablet and internet
	Outside of working hours **When there is an active Flood Watch for the Parramatta River and the BoM issues a Severe Weather Warning with risk of flash flooding or local flooding for the Sydney Metropolitan Area, OR** **When a FloodSmart Warning for Minor, Moderate or Major Flooding is issued for the Parramatta River.** *Note: a Floodsmart flood warning may or may not be preceded by a BoM Flood Watch.*	The Project Manager will contact everyone expected to go to the site on the following day and communicate that the site will be closed due to flood risk until further notice.	Project Manager	Phones
		The Project Manager will keep monitoring the BoM weather warnings and any FloodSmart notifications every two hours.	Project Manager	Internet
After a flood	**When a FloodSmart notification of "No Further Impact" for Parramatta CBD is received,** **OR**	The Project Manager will inspect the site to check if access roads are clear and if the site was affected by flooding.	Project Manager	N/A
		If access roads are clear and the site was not affected, the emergency has passed and the site can re-open.	Project Manager	N/A

Stage	Trigger for Action	Action	Who is responsible	What is needed
	If a FloodSmart flood warning was never issued, when the BoM cancels the Severe Weather Warning with risk of flash flooding for the Sydney Metropolitan area.	If access roads are not clear, the Project Manager will return for an inspection after at least two hours. Under no circumstances should the Project Manager drive through floodwaters.	Project Manager	N/A
		If access roads are clear but the site was affected by flooding, the Project Manager will organise access to the site making sure that any precautionary measures recommended by the NSWSES are put in place.	Project Manager	TBC by NSWSES
		Extra care will be taken of potential slips on a muddy floor if floodwaters have entered the mobile offices or other structures.	Everyone on site	N/A
		All flood-affected parts of the premises will be appropriately cleaned and utilities checked by professionals before anyone can return to the site.	Project Manager	Cleaning supplies
		A hazard assessment will be undertaken for the clean-up, safe work methods statements will be prepared and personal protective equipment supplied consistent with the known hazards which can be associated with floods: Slips, trips and falls; Sharp debris; Venomous animals; Contaminated water and sediments.	Project Manager	Hazard assessment/ safe work methods statement
		Following the re-commencement of the site activities, a de-brief will be held with key management staff and may involve Council flood staff or the NSWSES. The flood event and response, including the use of this FERP and any emergency procedures will be reviewed.	Project Manager, Flood Warden(s), Council and NSWSES	FERP
		Changes may be made to the FERP and the requirements for future emergency response should the review identify any improvements which may be made.	Project Manager	FERP

Appendix B | Emergency Contact List

Name	Organisation	Role	Contact Details
	VE Property Pty Ltd/ Contractor	Project Manager	To be completed on appointment of construction contractor
	VE Property Pty Ltd/ Contractor	Flood Warden	To be completed on appointment of construction contractor
	Emergency Services	Fire/ambulance/police	000
	State Emergency Service	SES Local Controller	132 500
	Bureau of Meteorology	NSW Flood Warning Centre	02 9296 1511
	City of Parramatta Council	Customer Service Centre on	02 9806 5050
	Westmead Hospital		02 8890 5555



APPENDIX E

CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT PLAN

Central Sydney Industrial Estate Subdivision (excluding Lot 6) | SSD 10459

CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT PLAN

Prepared for VE Property Pty Ltd | 15 April 2021



element.



Central Sydney Industrial Estate Subdivision (excluding Lot 6)

SSD 10459 | CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT PLAN

Prepared for VE Property Pty Ltd
15 April 2021

PR122

	Prepared by	Reviewed by
Name	Mark Roberts	Neville Hattingh
Company	Element Environment	Element Environment
Position	Senior Environmental Consultant	Director
Project Role	Lead Author	Project Director
Signature		
Date	15 April 2021	15 April 2021

This plan be prepared and reviewed by environmental scientists with between 10 and 18 years experience in assessment and management of environmental and social impacts associated with construction projects, including traffic related impacts and management.

This report has been prepared in accordance with the scope of services set out in the contract between Element Environment Pty Ltd and the client. The report is for the use of the client and no responsibility will be taken for its use by other parties.

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DOCUMENT CONTROL

Revision	Date	Description	Prepared by	Reviewed by
0	18 March 2021	For VEP review	Element Environment	VE Property Pty Ltd
1	1 April 2021	For submission to TfNSW	Element Environment	VE Property Pty Ltd
1	15 April 2021	For submission to DPIE	Element Environment	VE Property Pty Ltd

Contents

1 INTRODUCTION 3

1.1 Overview 3
1.2 Scope 3
1.3 Consultation 4

2 PROJECT SUMMARY 9

2.1 Location 9
2.2 Project summary 9
2.2.1 Lot preparation 10
2.2.2 Access 10
2.2.3 Stormwater management 10
2.2.4 Landscaping 11
2.2.5 Services 11
2.3 Hours of construction, employment, vehicles and plant and equipment 12
2.4 Construction staging 12

3 ROADS AND ACCESS ROUTES 15

3.1 Overview 15
3.2 Roads 15
3.2.1 Major roads 15
3.2.2 Local roads 15
3.3 Access routes 15
3.3.1 Ingress 15
3.3.2 Egress 15

4 TRAFFIC MANAGEMENT 21

5 MONITORING, CONTINGENCIES, TRAINING AND DOCUMENT REVIEW 25

5.1 Monitoring 25
5.2 Contingencies 25
5.3 Training 25
5.4 Document review 25

Tables

Table 1.1 Traffic CoCs 3
Table 1.2 TfNSW's conditions and VEP controls.....4
Table 4.1 Traffic management measures.....21

Figures

Figure 3.1 Access routes.....17

Appendices

APPENDIX A VEHICLE MOVEMENT AND TRAFFIC CONTROL PLANS 27
APPENDIX B DRIVER CODE OF CONDUCT 29



CHAPTER 1

INTRODUCTION

1 INTRODUCTION

1.1 Overview

VE Property Pty Ltd (VEP), will develop the Central Sydney Industrial Estate (CSIE) on land formerly known as the 'Western Area' of the former Shell Oil Refinery at Clyde. Stage 1 (Lot 6 of the subdivision) will be developed as the Downer Sustainable Road Resource Centre, the construction of which is addressed in a separate construction environmental management plan (CEMP) and traffic and pedestrian management plan.

Environmental impacts of the CSIE were assessed in Element (2020) *Central Sydney Industrial Estate incorporating the Sustainable Road Resource Centre – State significant development – environmental impact statement* (the EIS), which was submitted with an application for State significant development (SSD) to the Department of Planning, Industry and Environment (DPIE) on 18 September 2020.

The SSD application was determined and conditions of consent (CoC) provided by DPIE on 31 January 2021. CoC B30 requires VEP to prepare a construction traffic and pedestrian management plan (CTPMP) which must be approved by DPIE prior to the start of construction of the CSIE. This CTPMP has been prepared by Element Environment Pty Ltd to satisfy this condition.

1.2 Scope

This plan has been prepared as required by the CoCs summarised in Table 1.1, including sections of the plan where they are addressed.

Table 1.1 Traffic CoCs

CoA	Description	Plan section
B30	Prior to the commencement of construction, the Applicant must prepare a Construction Traffic and Pedestrian Management Plan (CTPMP) for the development to the satisfaction of the Planning Secretary. The CTPMP must form part of the CEMP required by condition C2 and must:	This plan
B30(a)	be prepared by a suitably qualified and experienced person(s),	Document control page
B30(b)	be prepared in consultation with TfNSW;	1.3
B30(c)	detail the measures that are to be implemented to ensure road safety and network efficiency and pedestrian movements during construction;	4; Appendix A and Appendix B
B30(d)	detail heavy vehicle routes, access and parking arrangements;	3.3; 4 and Appendix B
B30(e)	include a Driver Code of Conduct to: i. minimise the impacts of earthworks and construction on the local and regional road network; ii. minimise conflicts with other road users; iii. minimise road traffic noise; and iv. ensure truck drivers use specified routes;	Appendix B
B30(f)	include a program to monitor the effectiveness of these measures; and	5
B30(g)	if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.	4

1.3 Consultation

Condition B30(b) requires this plan be prepared in consultation with TfNSW. The plan was submitted to TfNSW on 20 March 2021.TfNSW provided preliminary comments on the plan on 23 March 2021. These preliminary comments were addressed and a revised plan submitted to TfNSW on 1 April 2021. TfNSW replied on 9 April 2021 with the following general comments on current and upcoming Parramatta Light Rail (PLR) works:

- Eastbound lane along Grand Ave is closed from Colquhoun St. Traffic using Colquhoun, Devon and Durham streets for property access. Access only via Colquhoun and Devon Streets;
- Early works for Stabling Yard ongoing until end of April therefore no part of the Colquhoun St and Devon, Durham streets are to be closed and access to the Stabling and Maintenance Facility (SaMF) site from Colquhoun Street and Grand Ave must be maintained at all times;
- Parramatta Connect (PCPLR) currently have compounds set up along Grand Ave that are located on the northern side of the Road between Durham and Colquhoun St that will eventually be shifted over to the southern side at some stage this year;
- PCPLR have major works planned around April for the Bridge Lift works along James Ruse Drive and Grand Ave intersection that will require certain road closures in order to complete works. This will also include all the lead up preparation works that will need to occur prior to the lift including night/day closures to complete major pavement works around this intersection. VEP is to stay in contact with the PLR team to ensure there are no impacts to the major bridge lift works from any access routes/closures around Grand Ave; and
- Limited parking is available on Colquhoun Street due to PLR stage 1 works.

VEP will keep in contact with the PLR project team to obtain regular updates on the PLR construction program within the Rosehill/Camellia area, to ensure that construction works and traffic associated with the CSIE subdivision works does not impact on the PLR works. Where possible, VEP will direct construction traffic along the alternative access route from Parramatta Road (refer Section 3.3), until the commencement of construction of the Sydney Metro West project, at which stage the PLR works in the Rosehill/Camellia area as well as the CSIE subdivision works are likely to be complete.

In their 9 April 2021 comments on the CTPMP, TfNSW also requested various conditions are met prior to, or during construction of the project. These conditions and VEP's proposed controls to meet these conditions are included in Table 1.2.

Table 1.2 TfNSW's conditions and VEP controls

Transport for NSW condition	VEP controls
The Applicant is to provide TfNSW (development.sco@transport.nsw.gov.au) with a TCP prior to the commencement of construction of the new public access road off Devon Street that also takes into consideration the TCP included in Downer's CTPMP for Lot 6;	VEP will engage a suitably qualified traffic management company to prepare a Traffic Control Plan (TCP) for the safe management of traffic associated with the construction of the new public access road off Devon Street. The TCP will be prepared prior to the commencement of construction of the new public access road and will take into consideration the TCP included in Downer's CTPMP for Lot 6. A copy of the TCP will be provided to TfNSW.
A copy of the construction program with dates and the builders direct contact details are to be provided to TfNSW and PLR at DA.PLR@transport.nsw.gov.au and development.sco@transport.nsw.gov.au prior to the commencement any of construction activities;	The construction program with dates and VEP's direct contact details will be provided to TfNSW and PLR and development.sco@transport.nsw.gov.au prior to the commencement any of construction activities.

Transport for NSW condition	VEP controls
The Applicant will notify the TfNSW PLR team (DA.PLR@transport.nsw.gov.au) of any works proposed to be carried out outside of PLR construction working hours (7am to 7pm weekdays and 7am to 6pm Saturdays, Sundays and Public Holidays);	Generally, works will be carried out during standard construction hours. However, should there be any works proposed to be carried out outside of PLR construction hours, VEP will notify the TfNSW PLR team.
VE Property will need to establish ongoing coordination with TfNSW (DA.PLR@transport.nsw.gov.au) and Parramatta Connect for activities including but not limited to site access and egress, deliveries of any large structures and any changes to traffic arrangement;	VEP has provided this CTPMP to TfNSW for review and comment, which includes information on proposed construction activities and site access and egress. Deliveries of any large structures and any changes to traffic arrangement will be coordinated with TfNSW and as per Section 4.
All construction vehicles will enter and exit the site in a forward direction;	All construction vehicles will enter and exit the site in a forward direction as per Section 4.
No trucks are to be parked or queued along Grand Ave, Colquhoun and Devon Streets;	No trucks will be parked or queued along Grand Ave, Colquhoun and Devon Streets. Refer to Section 4 and Appendix B.
The Applicant is to consult with the TfNSW PLR team (and with any other contractor(s) nominated by TfNSW) on the placement of signs and any traffic controllers on Grand Avenue and Colquhoun St;	It is unlikely that VEP will need to place signage for the management of construction traffic along Grand Avenue or Colquhoun St. As presented in the Traffic Control Plan in Appendix A, construction traffic management signage is proposed along Devon street. However, VEP will consult with the TfNSW PLR team (and with any other contractor(s) nominated by TfNSW) if they need to place any signs and/or traffic controllers on Grand Avenue and Colquhoun St.
Construction vehicles drivers are to be advised of the designated construction vehicle routes to/ from the site as identified in the subject CTMP and only use those routes, construction vehicles must not circulate on the road network to wait to enter the site;	Designated construction vehicle routes and the requirement to use those routes are outlined in sections 3.3 and Appendix B respectively. Were possible, VEP will schedule construction vehicle deliveries/arrivals to occur during construction hours and at intermittent frequencies to avoid queuing. However, there may be cases when construction vehicles need to circulate if they cannot enter the site immediately on arrival.
The Applicant is to modify construction vehicle routes and access arrangements to/from the site via Grand Avenue if required by TfNSW as a result of changes to the operation of Grand Avenue that will occur throughout the different phases of PLR construction. Updated routes will need to be reflected in the CTMP;	Where possible, VEP will modify construction vehicle routes and the CTPMP if requested by TfNSW to accommodate changes to the operation of Grand Avenue due to the PLR construction works.
Any impact of changes to the operation of Grand Avenue and access arrangements to/from Grand Avenue on the Applicant including but not limited to site access, construction vehicle routes, construction program and updating this CTMP will be at the cost of the Applicant;	Noted.
A Road Occupancy Licence (ROL) should be obtained from Transport Management Centre (TMC) for any works that may impact on traffic flows on Grand Avenue during construction activities. A ROL can be obtained through https://myrta.com/oplinc2/pages/security/oplincLogin.jsf.	A Road Occupancy License will be obtained from the Transport Management Centre for any works that may impact on traffic flows on Grand Avenue during construction activities.



CHAPTER 2

PROJECT SUMMARY

2 PROJECT SUMMARY

2.1 Location

The site address is 9 Devon Street, Rosehill and is part of lot 100 in deposited plan 1168951 and covers 35.068 ha.

The site is in the Parramatta Local Government Area (LGA) and is zoned IN3 Heavy Industrial under the land use table in Part 2 of the LEP.

The site is accessed from James Ruse Drive via Grand Avenue and Colquhoun Street or Grand Avenue, Durham and Devon streets. The site is accessed from Parramatta Road via Wentworth, Kay and Unwin streets.

2.2 Project summary

The project involves the staged subdivision of the Central Sydney Industrial Estate on lands known as the Western Area of the former Shell Oil Refinery at Clyde. Stage 1 (being Lot 6 of the subdivision) will then be developed as the Downer Sustainable Road Resource Centre described in a separate CEMP.

VEP proposes the following:

- Staged subdivision of the site into fourteen lots that will form the Estate.
- Earthworks/filling to bench the lots to form a flat pad in the northern half of the site then gradually grading down towards the Duck River in the southern half of the site.
- Construction of a new public access road running south from an intersection with Devon Street, providing access to those lots that do not front Devon Street, in accordance with council specifications.
- Installation of an inter-allotment stormwater drainage system to provide a single stormwater connection point to each lot of the proposed subdivision. Temporary erosion and sediment controls will also be installed to manage water quantity and quality over the lots until they are sold and developed, when permanent stormwater management infrastructure will be installed within each lot.
- A 40 m average riparian corridor along Duck River.
- Landscaping/planting:
    - Along both sides and around the cul-de-sac of the proposed access road.
    - Within the previously disturbed part of the proposed riparian corridor along Duck River in accordance with a landscape management plan and vegetation management plan.

Provision has been made for a 5 m easement for services along the northern site boundary adjacent Devon Street. The extension of the following key municipal services will likely be required to suit the needs of each of the lots:

- Potable water – potentially construction of a ring main linking the main under Colquhoun Street to the main under Durham Street (subject to separate approval by Sydney Water).
- Wastewater (sewer) – extension of the rising main along Devon Street and minor sideline extension of the gravity sewer along Colquhoun Street (subject to separate approval by Sydney Water).
- Electricity – supply may be required to each lot from the high voltage line along Devon Street (subject to separate approval by Endeavour Energy).

Development of the Estate for new industrial uses (in accordance with current zoning), other than Lot 6, will then be subject to future applications.

2.2.1 Lot preparation

Condition B47 of SSD 9032 requires the rehabilitation of the Western Area to achieve the final landform shown in Appendix 4 of the consent. This application does not seek to modify the approved final landform, but rather, it seeks approval for the development of further earthworks to re-contour the land on the lots.

The lots other than Lot 64 will be benched in two stages (no works are proposed on Lot 64, which will be maintained as is).

Bulk earthworks on the other lots will comprise the construction of a flat pad at reduced level (RL) 4.8 m Australian height datum (AHD) in the northern half. The proposed earthworks will then gradually grade down towards Duck River in the southern half of the site to RL 4.4 m and 4.3 m AHD at the southern ends of lots 63 and 64 respectively.

Cut and fill is likely to be balanced with approximately 33,000 m^3 cut and 33,000 m^3 fill.

There will be an allowance for the importation of up to 30,000 m^3 of virgin excavated natural material (VENM) and/or excavated natural material (ENM) for site presentation.

All lots will be hydroseeded or spread with tackifier after earthworks to prevent wind erosion.

2.2.2 Access

Lots 51-56 will be accessed via new private entry driveways subject to a future development application after the lots are sold. Lots 55 and 56 will have the option of access either off Devon Street or the new public road. Lots 58-64 will be accessed from Devon Street via a new public road with driveways to the new road subject to future development applications after the lots are sold.

The new access road will be connected to Devon Street and will be an industrial road with asphalt surface and kerb and guttering to council standards. It is proposed as a public road. The new access road is shown on civil engineering drawings C013919.01-DA60, DA15 and DA22 and streetscape plan SSD-04 (refer to Appendix 1 of Annex A of the CEMP).

The road reserve of the proposed road will be 21 m wide with a 12 m wide carriageway, 3.65 m wide western verge, and a 5.35 m wide eastern verge including a 3 m wide shared cycle/pedestrian path.

A road easement will be provided from the road to Duck River to allow for the potential road extension and bridge.

2.2.3 Stormwater management

Construction erosion and sediment controls

An erosion and sediment control plan has been included in Annex H of the CEMP.

Initially, a ‘Type D’ sediment basin will be installed on the southern site boundary, which will catch and treat the five day 85th percentile volume during construction. Water will be diverted to the basin via temporary diversion drains inside the site boundary, along the proposed road and the boundaries of some lots.

Type D basins are generally pumped out following rain when suspended solid concentrations of less than 50 mg/L are achieved from flocculation treatments.

Sediment fences will be installed along the site boundary to prevent sediment, not captured in the sediment basin, from migrating offsite.

Post construction pre-operation erosion and sediment controls

Once the lots are prepared, additional temporary Type D sediment basins will be installed in a corner of each lot to treat sediment laden runoff until the lots are developed by eventual owners. Additional temporary diversion drains will be provided to divert water from the lots to the basins. The basins will discharge to pits associated with the permanent drainage network described below.

Other management measures will be:

- Minimising the extent of disturbed areas across the site at any one time.
- Progressive stabilisation of disturbed areas or previously completed earthworks.
- Regular monitoring and implementation of remedial works to maintain the efficiency of all controls.

2.2.4 Landscaping

Areas of the site will be landscaped as described below (also refer to Annex F of the CEMP).

Riparian corridor

There will be an average 40 m wide riparian corridor along the Duck River at the southern site boundary.

Access road reserve

The verges to the proposed road will be planted in accordance with council requirements.

Northern boundary

A 5 m easement along the sites northern and north-western boundaries will be provided for services along Devon and Colquhoun streets.

The existing turf and trees along the Devon and Colquhoun street frontages will be retained where possible, except at the proposed site access road. Provision has also been made for a 5 m landscape setback along the Devon and Colquhoun streets frontage with landscape works/planting subject to future development applications.

2.2.5 Services

The site is serviced with key municipal services as part of its previous use as Clyde Refinery and Terminal. However, the site will require service extensions to the proposed lots.

The following existing services are shown on Drawing C013919.01-DA15 (refer to Appendix 1 of Annex A of the CEMP):

- Potable (drinking) water.
- Recycled Water.
- Wastewater (sewer).
- Electricity.
- Communications.
- Gas.

2.3 Hours of construction, employment, vehicles and plant and equipment

Construction will typically occur between 7am-6pm Monday-Friday and 8am-1pm Saturday. Construction will also take place at night-time and on Sundays in the following circumstances:

- works do not exceed the project noise limits; or
- works agreed to in writing by the Planning Secretary; or
- for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Construction on public holidays will be avoided.

There will be up to 35 construction employees on site at any time.

Daily construction vehicles will comprise approximately:

- Light – 35.
- Heavy – 30.

There will be up to 10 items of plant and equipment on site at any time comprising water cart, dump trucks, excavators, front end loaders, compactors, concrete truck, bulldozer, grader, backhoes, small and medium cranes, concrete pump, kerb and guttering machine, piling rig and concrete crusher.

2.4 Construction staging

As outlined in Section 1.1, Lot 6 of the subdivision will be developed as the Downer Sustainable Road Resource Centre, the construction of which is addressed in a separate CEMP and CTPMP. Downer commenced construction in early March 2021, with construction likely to be completed in 11 months. Construction of Lot 6 has the potential to generate up to 75 heavy vehicles and 53 light vehicles per day.

Preparation of the remainder of the lots within the CSIE will commence after conclusion of the works associated with the Western Area Remediation Project (WARP). Civil works will commence in the second half of 2021 and will take approximately nine months. Installation of services will occur prior to this, likely in the first half of 2021.

During the period where Lot 6 and the remainder of the CSIE are under construction at the same time, it is possible for the combined construction traffic to reach 105 heavy vehicles and 88 light vehicles per day.



CHAPTER 3

MAJOR AND LOCAL ROADS

3 ROADS AND ACCESS ROUTES

3.1 Overview

The current site access is on the corner of Colquhoun and Unwin streets and will be used as the primary construction access. Once the new CSIE public access road intersection with Devon Street has been constructed, this will become a secondary/alternate construction access.

3.2 Roads

3.2.1 Major roads

Parramatta Road and James Ruse Drive are four and six lane (divided) state arterial roads with a speed limit of 60 km/h and 70 km/h respectively. James Ruse Drive has a clearway at all times and Parramatta Road has a clearway between 6 am to 7 pm on weekdays and 8 am to 8 pm weekends.

3.2.2 Local roads

Unwin, Kay, Wentworth, Colquhoun, Devon and Durham streets are local two lane/way roads with a speed limit of 50 km/h, under the care and control of Parramatta City Council. There is parking on both sides, although parking is limited on sections of these streets.

3.3 Access routes

Light and heavy construction vehicles will access/egress the site via the routes described in sections 3.3.1 and 3.3.2. Sufficient parking will be available on site for construction workers (i.e. light vehicles), heavy vehicles delivering materials, plant and equipment to the site during construction and construction plant and equipment that will remain on site for the duration of construction.

3.3.1 Ingress

There are three primary ingress routes for the subdivision construction works (Figure 3.1):

- Grand Avenue, Colquhoun Street.
- Grand Avenue, Durham Street, Devon Street, Colquhoun Street.
- Wentworth Street, Kay Street, Unwin Street, Colquhoun Street.

There are three secondary ingress routes for the subdivision construction works (Figure 3.1):

- Grand Avenue, Colquhoun Street, Devon Street.
- Grand Avenue, Durham Street, Devon Street.
- Wentworth Street, Kay Street, Unwin Street, Colquhoun Street, Devon Street.

3.3.2 Egress

There are three primary egress routes for the subdivision construction works (Figure 3.1):

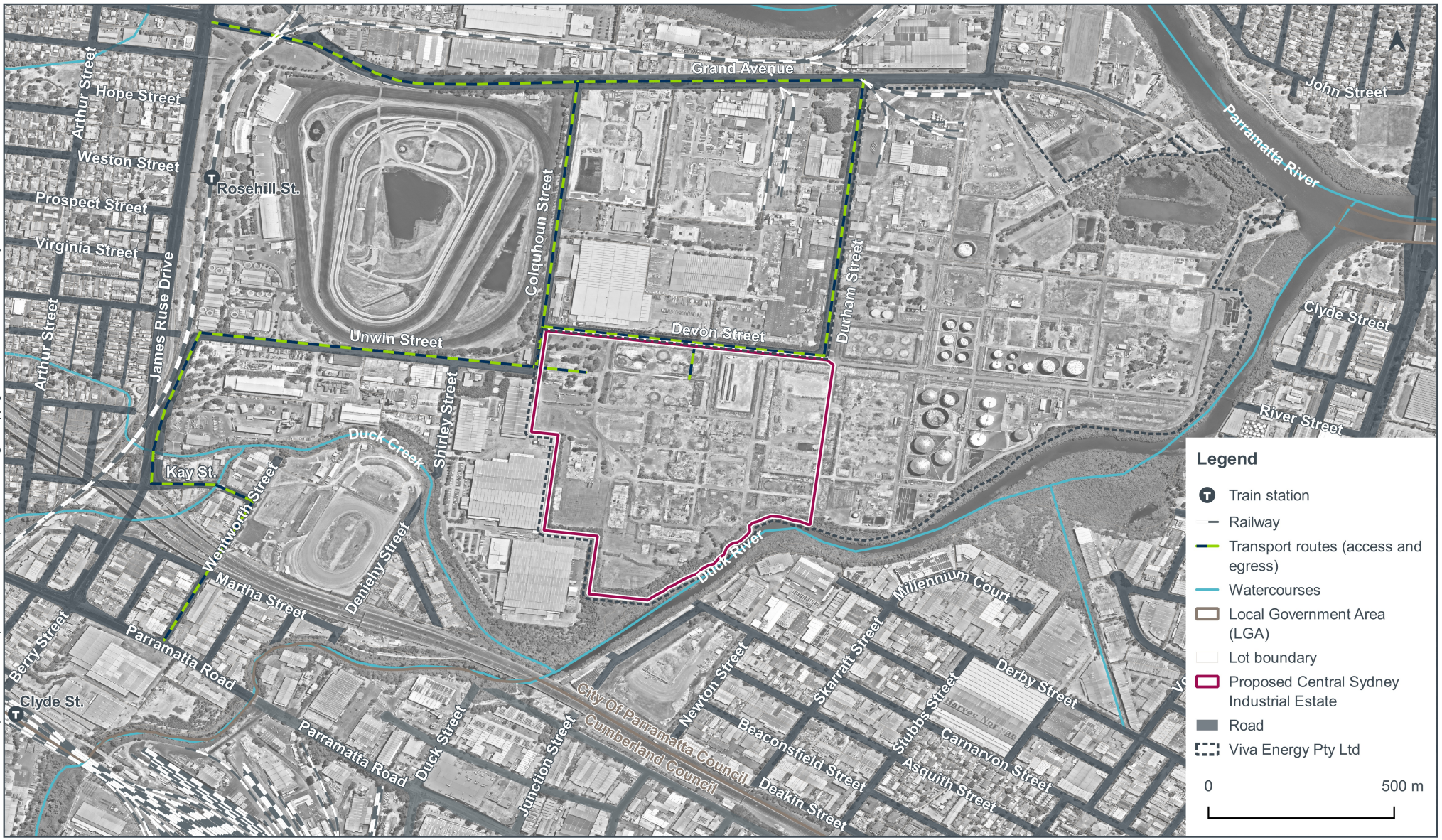
- Colquhoun Street, Grand Avenue.
- Colquhoun Street, Devon Street, Durham Street, Grand Avenue.
- Colquhoun Street, Unwin Street, Kay Street, Wentworth Street.

There are three secondary egress routes for the subdivision construction works (Figure 3.1):

- Devon Street, Colquhoun Street, Grand Avenue.
- Devon Street, Durham Street, Grand Avenue.
- Devon Street, Colquhoun Street, Unwin Street, Kay Street, Wentworth Street.

Figure 3.1
Access routes

Central Sydney Industrial Estate
CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT PLAN



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CHAPTER 4

TRAFFIC MANAGEMENT

4 TRAFFIC MANAGEMENT

The traffic/vehicle manage measures in Table 4.1 will be implemented to ensure road safety, network efficiency and pedestrian movements during construction.

Table 4.1 Traffic management measures

Strategies	Management measures	Timing	Responsibility
Site vehicles	Site vehicles are to enter and exit the site in a forward-facing direction.	During construction	All drivers
	All drivers will be made aware of the routes shown in Section 3.3 prior to commencing work at the site as part of the site induction.	During construction	Site Supervisor All personnel
	Vehicle arrivals will be scheduled in such a manner as to not require queuing on the road network surrounding the site.	During construction	Project Manager Site Supervisor
	All drivers are to follow the drivers code of conduct (Appendix B).	During construction	All drivers
	Mandatory speed limits for all site vehicles will be at 20km/hr.	During construction	All drivers
Road occupancy	The traffic control plans (TCPs) in Appendix A will comply with relevant Australian Standards and RMS *Traffic Control at Worksites Manual* and be implemented during construction.	Pre construction/ during construction	Project Manager Site Supervisor
	Relevant council approvals will be required for the road construction and connection to Devon Street and all the utility connections to the mains located in Devon Street.	Pre construction	Project Manager
Surrounding roads	The general nature of traffic on the local roads in Rosehill and Camellia is that of primarily light and intermittent heavy vehicle traffic with negligible pedestrian or cyclist usage. The primary route used in this industrial area/ zone is Grand Avenue and Colquhoun to Unwin Street leaving Devon and Durham Streets relatively underutilised. There are no bus routes that utilise Devon, Colquhoun, Grand Avenue, Durham or Unwin Streets. Therefore, the project construction traffic is unlikely to interfere with public transport.	–	–
Vehicle entry to site	Vehicles will enter and exit the site in accordance with the vehicle movement plan in Appendix A.	During construction	All drivers
	Site vehicles are to use approved routes only for access to and from the site.	During construction	All drivers
	Construction traffic will be scheduled where possible outside of peak times to minimise impact to existing traffic.		
	Heavy vehicle drivers entering the site will be required to call up on a designated UHF channel to advise of their intent to enter the site. Reminders of this requirement will be done via signage prior to entry to the site located on the verge of Colquhoun and Devon streets. If there is any congestion or queueing at the entry points, then drivers will be directed to travel around the block and enter the site when it is less congested.	During construction	Project Manager Site Supervisor Heavy vehicle drivers
	All drivers will be required to be inducted on the requirements of this plan and the drivers code of conduct.	During construction	Site Supervisor All drivers
	Personal passenger vehicles for management staff working in the site office/compound will be restricted	During construction	Management personnel

Strategies	Management measures	Timing	Responsibility
	from accessing the main site and will only be able to access the office/compound facilities parking located at the site entrance.		
	Light vehicles outfitted with beacon, reverse 'quacker', reflective paint and UHF radio will be able to access the main site. These operators will be site inducted which outlines vehicle management requirements while driving on the site.	During construction	Site Supervisor Light vehicle drivers
Parking	Parking will be provided for construction management staff at the site office/compound.	During construction	Management personnel
	Parking for operators and labourers who are part of the construction team will be provided on the site.	During construction	Construction personnel
Pedestrians	A boundary/security fence will be erected around the perimeter of the site to control pedestrian access to site.	Pre construction	Project Manager Site Supervisor
	Pedestrian access along Devon Street is along the northern side of the street and will be unaffected by the CSIE subdivision construction works.	–	–
Loading and unloading	All vehicles are to be loaded / unloaded within the site at the nominated laydown areas.	During construction	All drivers
Stakeholder consultation strategy	VEP will notify all properties neighbouring the site about the potential disruption to traffic along local transport routes during the construction of the CSIE subdivision works. The notification will be via letterbox drop or by email (where an email address is available from consultation undertaken during the EIS process). The letter/email will include information on: ▪ Duration and hours of construction; ▪ Access and egress routes; ▪ Traffic controls at the secondary entrance to the site to safely manage vehicle movements into and out of the site and through traffic along Devon Street; ▪ Contact details of VEP site personnel. VEP will also notify the Parramatta Light Rail Project, Sydney Metro West Project and any private development along the local construction access/egress routes in Rosehill and Camellia of the above information about the construction phase of the development. As outlined in Section 1.3, in accordance with condition of consent B30(b), VEP has consulted with Transport for NSW (including the Parramatta Light Rail Project).	Pre construction	Project Manager
Reversing	All reversing on site must be with the provision of a spotter and must adhere to 10 m exclusion zones in both directions of travel for any plant/equipment or heavy vehicles or other exclusion zones specific to the construction activity.	During construction	Site Supervisor All drivers
Oversized loads	Prior to the delivery of oversized/abnormal loads (if required), VEP will obtain the relevant permits from and will agree to the necessary traffic management controls (in consultation) with TfNSW. VEP will ensure that the requirement of the permit and agreed traffic controls are implemented during the oversized/abnormal load delivery.	Prior to oversize deliveries	Project Manager Site Supervisor



CHAPTER 5

MONITORING, CONTINGENCIES, TRAINING AND REVIEW

5 MONITORING, CONTINGENCIES, TRAINING AND DOCUMENT REVIEW

5.1 Monitoring

The construction management team will be constantly monitoring construction traffic to ensure compliance with this plan. Traffic will be monitored visually during regular site inspections/walk arounds.

5.2 Contingencies

Queuing of heavy vehicles along Devon, Colquhoun and Unwin streets could disturb traffic if vehicles have to wait to enter the site. The following will be implemented if queuing of heavy vehicles is observed:

- Heavy vehicle queuing within the site – review the construction delivery schedule. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the driver code of conduct.
- Heavy vehicle queuing on public road – review and investigate construction activities. If it is concluded that construction is directly responsible for queuing on public roads, implement additional control measures such as:
  - Put a temporary hold on incoming heavy vehicle deliveries.
  - Instruct queuing vehicles to travel 'around the block' until the congestion at the site entrance dissipates.
  - Review CTPMP and update where necessary.
  - Provide additional training.

5.3 Training

All employees, contractors and staff working on site will be inducted and trained in relation to construction traffic management including:

- Requirements of this plan.
- Relevant requirements of TfNSW.
- Roles and responsibilities for construction traffic management.
- Disciplinary action around non-compliance with this plan.

Further details regarding staff induction and training are in Chapter 4 of the CEMP.

5.4 Document review

This plan forms part of the CEMP and will be reviewed as described in Chapter 7 of the CEMP as follows:

- All project documents are generated, numbered, approved, revised, transmitted, and stored in accordance with the project's document control system.
- The CEMP and associated sub-plans review ensures the suitability, effectiveness, and adequacy of the plan. The CEMP and associated sub-plans are formally reviewed annually (as a minimum) and whenever the plan, risk, and/ or activities change from the scope/ content.
- The review is conducted by a review team comprising the Project Manager (or delegate) and the Environmental Advisor/ Project Environmental Manager (or Safety Manager) and

considers performance against the CEMP and associated sub-plans with respect to incident trends and findings from internal and external audits.

The Project Manager (or delegate) ensures any changes to the CEMP and associated sub-plans as a result of review/ change is communicated to personnel.



APPENDIX A

VEHICLE MOVEMENT AND TRAFFIC CONTROL PLANS



APPENDIX B

DRIVER CODE OF CONDUCT

APPENDIX B: DRIVER CODE OF CONDUCT

Overview

This driver code of conduct applies to all personnel and any other person conducting business for VEP, whether a direct employee of VEP or employed by some other organisation providing a service or product to the project.

We are all members of the general community, so you are expected to comply with all the relevant legal requirements and accepted community standards whilst conducting your business. Whether you are an employee of VEP or operate any service to the company, your behaviour on the road reflects upon the community reputation of the project and in this regard your full compliance with this driver code of conduct is required.

Penalties and disciplinary action

Failure to comply with this driver code of conduct will lead to either the issue of a 'warning notice' or 'disciplinary action' if the offender is an employee of VEP. If the offending party represents another company then 'disciplinary action' may be treated as suspension or cancellation of a service contract or arrangement with that company.

A warning notice may be issued for a number of reasons, which may include (but not limited to) if you:

- Abuse other road users or customers.
- Do not carry out instructions as advised.
- Do not comply with local road and site speed restrictions.
- Do not report incidents, accidents or near misses.
- Use mobile phones and/or hand held devices while driving.
- Do not comply with any of the requirements in this driver code of conduct.

Motor traffic Act

As a driver you are required to know and comply with all road rules pertaining to your vehicle (whether standard passenger car, utility or heavy transport vehicle).

Driving licence

You must hold a current and valid driving licence for the class of vehicle that you operate. Additionally, you must always carry your current driver's licence with you while you are on duty. If your licence is cancelled or suspended, you must inform your supervisor immediately who will in turn inform project management immediately.

Vehicle minimum maintenance and operating condition

All vehicles must be maintained and operated in accordance with the vehicle manufacturers recommended standards (refer to vehicle manufacturer's handbook).

Occupational health and safety

The health and safety of all people employed by (or working for) VEP, and those visiting the project site, is of the utmost importance. As an employee of the project, or supplier or contractor to the project, you are required to adhere to the occupational health and safety legislation.

Generally, this means that you must:

- Carry out your duties in a way which does not adversely affect your own health and safety or that of others.
- Cooperate with measures introduced in the interest of workplace health and safety, in particular follow WHS standard operating procedures.
- Attend all health, safety & environmental training provided.

- Immediately report all matters which may affect workplace health & safety to your supervisor.
- Correctly use any information, training, personal protective equipment and safety devices provided.
- Not intentionally misuse or recklessly interfere with anything that has been provided for health and safety reasons.
- Only do tasks for which you have authorisation and/or have the necessary training, and for which all necessary safety arrangements are in place.

Environment

VEP is committed to protecting the environment and preventing air, water and noise pollution. As the operator of your vehicle, you are subject to environmental regulations relating to vehicle emission and product spill. You must understand and appreciate the seriousness of polluting the environment and the consequences of such events. If you are careless or neglect your responsibilities, you can cause personal injury, loss of life, property damage, damage to the environment, and cause adverse publicity for the project.

Noise control

Using engine brakes can be extremely noisy. If possible, you should not use engine brakes near residences and built-up areas. Generating excessive noise is an offence governed by relevant legislation.

You must also not unnecessarily over-rev your engine when driving and pulling off from a stationary position.

The following noise management measures must be implemented where possible when delivering/offloading materials on site to minimise construction noise:

- Avoid shouting and minimise talking loudly and slamming vehicle doors.
- Avoid metal to metal contact and dropping materials from height.
- Minimise idling of trucks.
- Avoid reversing.

Highway courtesy

The on-going reputation of the project depends very much on the way you drive your vehicle and courtesy that you extend to the community. The road is there to share and therefore, it is a project requirement that you display courtesy and restraint towards other road users.

Speed restrictions

As a competent driver, you must always adjust your driving to the existing conditions. Speeding is the leading behavioural factor in deaths and serious injury on NSW roads. Speeding is not just driving faster than the posted speed limit, it includes driving too fast for the weather, light, traffic and road conditions.

Always follow posted signs as they provide vital clues to road conditions and characteristics. You should always apply the following rules:

- Always reduce your speed in wet conditions.
- Drive cautiously in low visibility.
- Descend hills in the lowest gear to suit the conditions.
- Always observe the special limits that apply for road works etc.

DO NOT exceed the posted maximum speed.

Always comply with school zone time speed limits and reduce speed when approaching a bus stopping/stopped.

Reduce speed from dusk to dawn in areas where nocturnal wildlife may be present. Do not use bright headlights as blinded animals cannot see the vehicle and do not move away from the road.

Specified access routes

All construction vehicles must use the construction vehicle access routes specified in Section 3.3 of the CTPMP.

Site speed limits

The project site has a general speed limit of 20 km/h with 10 km/h limits in designated areas. These limits are to ensure the interaction between personnel and vehicles are managed to minimise the risk of injury to all personnel.

Drivers are required to observe the posted speed limits and other traffic signage at all times. All incidents where drivers do not observe speed limits and other traffic instructions will be logged and investigated and where appropriate, disciplinary action will be taken.

Defensive driving

You should always drive in a manner that will help you to avoid an accident, despite incorrect/inappropriate actions of others or poor driving conditions. Defensive driving requires a high degree of anticipation.

Vehicle braking

One of the most important single skills that a professional and competent driver possesses is bringing a loaded vehicle to a controlled stop both in the city and in open road conditions. You may need to brake heavily but you must also be aware of the possible consequences. As a rule, you should always be aware of traffic conditions 1 to 2 km in front of you. In doing so, you are adjusting your own driving conditions to avoid the need for heavy braking.

Always brake with care, remembering that the truck will react differently according to the weight of the load, weight distribution of the load and road surface condition. You should never, under any conditions, drive a vehicle with faulty or suspect brakes. You must always immediately report the fault to your supervisor to be repaired.

Engine brakes are auxiliary to the main service brakes. In general, the following should be observed regarding engine brakes:

DO NOT use the engine brake on slippery or wet surfaces.

DO NOT use engine brakes in or near residences and built-up areas, as this causes excessive noise and is a public disturbance.

Tailgating

By law, you are required to maintain a gap between yourself and the vehicle directly in front of you, so that heavy braking will not be required. The gap is based on several factors including speed, vehicle weight, traffic congestion and road condition. During wet weather or other adverse conditions, the gap distance should be doubled.

The legal distance for heavy vehicles in areas with limited streetlights is 60 m. A gap of 60 m is approximately the same as:

- The length of four (4) semi-trailer combinations.
- Twelve (12) car lengths.
- Four (4) seconds.

Always remember, appropriate gap distance between other road users is a key defensive driving tool.

Overtaking/passing

Overtaking and passing should be done so only when necessary, where legally allowed and in a careful and safe manner. There is to be no overtaking or passing within residential areas.

Mobile phones

Using a mobile phone while driving is strictly prohibited for all drivers operating a motor vehicle unless a blue tooth hands-free kit is installed and utilized in the vehicles. This will be enforced to all site personnel and delivery partners during the site specific induction process prior to commencing work on the project.

Road hazards

During most journeys that you take, there will be hazards on and near roadways. Always be alert for these hazards and make your adjustments as necessary.

Examples of hazards are:

- Rough/slippery surfaces.
- Flooded roads.
- High winds.
- Fog and smoke haze.
- Sunset and sunrise.
- Narrow or winding roads.
- Low wires or awnings.
- Low bridges, tunnels etc.
- Crossings, rail/people.
- Animals, pedestrians and cyclists.
- Underpasses and trees.

Be aware that your vehicle itself may become a road hazard when it is parked on a roadway, broken down or otherwise. In this circumstance, use portable warning signals, placing them 50-150 m in front of and behind the vehicle, as well as at the side.

If your vehicle becomes bogged on site, make contact with your supervisor or site contact and do not attempt to retrieve your vehicle without approval and appropriate risk controls.

Parking

Avoid the need to park on the local streets by planning your trip to arrive at the site during construction hours and as per VEP's specified delivery scheduled. Construction drivers are encouraged to contact the site prior to their arrival to confirm their time of arrival to avoid the need for queuing and or parking on the local streets.

Reversing

Try to avoid reversing whenever possible. If you cannot avoid it, use extreme caution. If you need to reverse while on the project site:

- Always use a spotter.
- Maintain visual contact with the spotter.
- Maintain clear communications with the spotter.

If you need to reverse when not on the project site:

- Get out of your vehicle and check the rear surrounding area.
- Check clearances at sides, top and bottom.

GEOSCAPES
LANDSCAPE ARCHITECTS

SSD 10459 - Central Sydney Industrial Estate

ESTATE LANDSCAPE MANAGEMENT PLAN (EXCLUDING LOT 6 DOWNER)

Report Ref: **190130_CC_RPT_LAN_LMP02**

Prepared by

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CONTENTS

1.0 Introduction
1.1 Project Background
1.2 This Report and Author
1.3 The Role of this Landscape Management Plan
1.4 Areas to which this Plan Applies
1.5 Landscape Maintenance Responsibility
1.6 Landscape Management Principles
1.7 Report Structure
1.8 Intensity of use

2.0 General Site Conditions
2.1 Soil
2.2 Existing Vegetation

3.0 Proposed Planting Species
3.1 Riparian Planting
3.2 Access Road Streetscape
3.3 Devon Street
3.4 VIVA Industrial Estate Planting

4.0 Landscape Management Activities
4.1 General
4.2 Swamp Oak Floodplain Forest (SWOF) within Riparian Corridor
4.3 Street Tree Planting
4.4 Soil Management
4.5 Fertilising, Composting and Mulching
4.6 Pruning
4.7 Weeding

5.0 Irrigation and Disease Control
5.1 Temporary Irrigation
5.2 Disease, Insect and Feral Animal Control

6.0 Protective Measures
6.1 Protection of Existing Vegetation
6.2 Tree Protection
6.3 Erosion, Contamination and Sedimentation Control

7.0 Monitoring and Reporting

8.0 Appendices
8.1 Appendix A - Approved Central Sydney Industrial Estate Landscape Masterplan
8.2 Appendix B - Maintenance Schedules
8.3 Appendix C - Reference Documents
8.4 Appendix D - Arboricultural Impact Report

1.0 INTRODUCTION

1.1 Project Background

This Landscape Management Plan has been prepared to fulfill DA condition B51, B52 & B53 of the approved SSD 10459 - Central Sydney Industrial Estate located at 9 Devon Street, Rosehill. Condition B51, B52 & B53 state:

B51. Prior to the commencement of construction, the Applicant must prepare a Landscape Management Plan (LMP) to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The LMP must form part of an OEMP in accordance with condition C5. The LMP must:

(a) detail the species to be planted on-site, using only locally native species;
(b) describe the monitoring and maintenance measures to manage revegetation and landscaping works; and
(c) be consistent with the Applicant's Management and Mitigation Measures at Appendix 2.

B52. The Applicant must:

(a) not commence operation until the LMP is approved by the Planning Secretary;
(b) implement the most recent version of the LMP approved by the Planning Secretary; and
(c) maintain the landscaping and vegetation on the site in accordance with the approved LMP required by Condition B51 for the life of the development.

B53. Prior to services installation works commencing within Devon Street, the Applicant is to engage an AQF Level 5 Arborist to prepare a:

(a) Tree Protection Plan and Tree Management Specification to incorporate specific tree protection measures to the street trees located along Devon Street in accordance with AS4970-2009 (Protection of Trees on Development Sites); and
(b)Tree Removal Plan for any trees proposed to be removed. In the event that street trees are required to be removed on Devon Street, replacement street trees are to be provided in consultation with Council.

Condition B53 has been satisfied by an Arboricultural Impact Report complied by Guy Paroissien and is included within Appendix D of this LMP.

This management plan relates solely to the landscaping within the estate, **outside** of the Downer Lot 6 Sustainable Road Resource Centre. For the Downer site refer to the separate LMP01.

1.2 This Report and Author

Geoscapes Pty Ltd has been commissioned by VE Property to produce a Landscape Management Plan (LMP) for the above mentioned development. This LMP has been written by Ben Gluszkowski, the director of Geoscapes and a Registered Landscape Architect.

Geoscapes also prepared the approved SSD (10459) landscape design drawings and landscape design report. These documents detail landscape treatments to the site, and should be read in conjunction with this report.

1.3 The Role of this Landscape Management Plan

The estate will be a staged subdivision into thirteen lots. The approved lot 6 site (Stage 1) will contain the Downer Sustainable Road Resource Centre and is subject to a separate LMP.

Subdivision earthworks will bench the site to create flat pads running down to Duck River. Landscaping will include street trees and grassed verges to a new public access road running south from Devon Street. A small number of street trees along Devon Street are required to be removed to allow for entry to the access road. All other street trees to Devon Street are due to be retained, however, if new services are required, existing street trees may need to be removed and replaced (refer to Arboricultural report). A 5m setback has also been introduced to all lots along Devon Street and planting is subject to a future application.

The southern boundary proposes a riparian corridor in the form of a 40m offset from Duck River using an averaging method. Existing riparian vegetation will be retained and supplemented by new riparian planting to create the riparian zone. This will also extend further across into the Lot 6 Downer Site. Management of the riparian planting within Lot 6 is subject to a separate LMP.

Due to the site being located adjacent to the Duck River corridor, revegetation and visual screening with the use of landscape planting is an important part of the development. The visual appearance and scale of future built form can be reduced with the maintenance of existing vegetation and introduction of new native tree and shrub species. The ongoing management of landscape buffer zones and the riparian corridor is therefore, fundamental in maintaining visual mitigation of the development and habitats at present and into the future. A Vegetation Management Plan or VMP has been prepared by AECOM and was submitted with the development application. This should be referenced where required. Planting numbers and locations have been detailed in the landscape plans following species listed in the VMP.

1.4 Areas to which this Plan Applies

This plan will apply to the following areas within the site boundary, these are:

- Devon Street south
- A 21m wide access road
- The riparian corridor to southern boundary

1.5 Landscape Maintenance Responsibility

The Landscape Contractor awarded the contract, will hold the first level of responsibility for the implementation of the Landscape Management Plan. The on-going, day-to-day implementation, monitoring and reviewing of the LMP will be undertaken by VE Property.

1.6 Landscape Management Principles

The following landscape management principles have been identified as being consistent with the approved SSD Landscape Documentation:

- Minimise environmental impacts that may result from landscape management activities and utilise environmentally sustainable practices. Disturb only the minimum area necessary.
- Control dust with best management principles.
- Mark clearance boundaries prior to commencement of construction to ensure that there is no removal of native vegetation.
- Strengthen, enhance and promote local character with the use of native and endemic planting in all landscape areas and for any replacement plantings.
- Construct, manage and maintain a fully structured riparian corridor following guidelines within the VMP.
- Adopt a low water use, low maintenance approach with the use of native species.
- Provide clear site lines for trucks and vehicular users.
- Provide a safe environment, minimising potential risks to people, buildings and property.
- Best practice landscape maintenance in landscaped areas.
- Target environmental weeds and feral animals through the use of integrated pest management approaches, as per section 5.2 of this LMP.

- Undertake monitoring, auditing and maintenance activities to ensure an effective and a resilient landscaping outcome.

- Appropriately fund, plan and manage landscape maintenance to provide sufficient resource to achieve a long term quality landscape.

1.7 Report Structure

This report is to be read in conjunction with the following documents:

• Landscape Drawings for State Significant Development- SSD 10459 prepared by Geoscapes Landscape Architects, Dwg No's SSD-00 to SSD-17.
• Landscape Design Report for State Significant Development - SSD 10459 prepared by Geoscapes Landscape Architects, Rpt No: LDR01
• Operational Environmental Management Plan (OEMP).
• Construction Environmental Management Plan (CEMP).
• SSD 10459 Development Consent Appendix 2 - Applicant's Management and Mitigation Measures.
• Vegetation Management Plan (VMP), prepared by AECOM 2020

Section 1.0 provides an introduction to the LMP
Section 2.0 describes the general site conditions
Section 3.0 describes the proposed planting species
Section 4.0 describes landscape management activities
Section 5.0 describes irrigation, disease and insect control
Section 6.0 describes protective measures for trees, vegetation and erosion
Section 7.0 monitoring and reporting

The report describes maintenance categories as follows:

1. Specific Landscape types –

• Swamp Oak Floodplain Forest within the Riparian corridor - This revegetation area has a mix of trees, shrubs, native grasses and groundcovers planted in accordance with the VMP and the landscape plans.
• Access road streetscape planting - This is a new 21m wide access road reserve, with turfed verges, street trees and a 3m wide shared footpath.
• Potential future tree planting to Devon Street.

2. All areas of the site – Those maintenance activities that apply to all areas across the site. These activities include but is not limited to:

a. Soil Management
b. Mulching
c. Pruning
d. Weeding
e. Disease and Insect Control

1.8 Intensity of Use

A key factor in the frequency and types of landscape maintenance activities required for particular areas is the intensity of their use.

Riparian Corridor

Planting occurs close to the site boundary in the south and the riparian planting will not generally be susceptible to compaction from pedestrian usage, therefore heavier textured soils can be used if required.

2.0 GENERAL SITE CONDITIONS

2.1 Soil

The site had previous industrial uses and has been remediated. It is recommended that all topsoil be imported for new planting works.

2.2 Existing Vegetation

Within the landscape plans and VMP, an area along the shoreline to Duck River has been identified for retention and protection. Sediment, protection fencing and management activities for this area are described within the VMP and erosion and sediment control plans by Costin Roe.

3.0 PROPOSED PLANTING SPECIES

3.1 Riparian Planting

The riparian area will be planted with trees, shrubs and groundcovers that form part of the Swamp Oak Floodplain Forest community. Approximately 500 canopy and sub-canopy trees are proposed to be planted to fulfill revegetation outcomes within the VMP. A 2.5m wide access track has been proposed for maintenance. All species are listed in the schedule within section 3.4 and the landscape documentation, and they should be read in conjunction with this LMP. The landscape plans document the placement and planting of species listed in the VMP. They are intended to create a fully structured 40m averaged riparian zone.

3.2 Access Road Streetscape

Paperbark trees are to be installed at 8m centres along the new access road. Turf to the verge is proposed to be couch and maintained to a height of 40mm.

3.3 Devon Street

As a result of future works to install underground services by Sydney Water or Endevour Energy, existing street trees are required to be protected in accordance with AS4970-2009 (Protection of Trees on Development Sites). Some trees may be required to be removed and replaced. Any removal and recommended replacements are to follow the Arborist report by Guy Paroissien. This report can be found in Appendix D of this LMP.

3.4 VIVA Industrial Estate Planting

Proposed Access Road Street tree planting								
CODE	BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE WIDTH	POT SIZE	NATIVE	PLANTING DENSITY	QTY*
Trees								
MEL LIN	*Melaleuca linariifolia*	Snow in Summer	10m	4m	75LT	✓	AS SHOWN	144

Riparian Corridor Planting - Swamp Oak Floodplain Forest								
CODE	BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE WIDTH	POT SIZE	NATIVE	PLANTING DENSITY	QTY*
Trees Canopy Species 1 per 300m2								
ALP EXC	*Alphitonia excelsa*	Red Ash	20m	15m	Forestry Tube	✓	AS SHOWN	11
CAS GLA	*Casuarina glauca*	Swamp Oak	20m	15m	Forestry Tube	✓	AS SHOWN	15
GLO FER	*Glochidion ferdinandi*	Cheese Tree	15m	8m	Forestry Tube	✓	AS SHOWN	16
MEL STY	*Melaleuca styphelioides*	Prickly-leaved Paperbark	10m	8m	Forestry Tube	✓	AS SHOWN	11
MEL QUI	*Melaleuca quinquenervia*	Broad-leaved Paperbark	20m	6m	Forestry Tube	✓	AS SHOWN	19
Small Trees / Shrubs 1 per 50m2								
ACM smi	*Acmena smithii*	Lilly Pilly	3-5m	2m	Tube	✓	AS SHOWN	182
CUP ANA	*Cupaniopsis anacardioides*	Tuckeroo	6m	3m	Tube	✓	AS SHOWN	19
CAL SAL	*Callistemon salignus*	Sweet Willow Bottlebrush	8m	5m	Tube	✓	AS SHOWN	15
MEL alt	*Melaleuca alternifolia*	Narrow-leaved Paperbark	7m	3m	Tube	✓	AS SHOWN	95
MEL ERI	*Melaleuca ericifolia*	Swamp Paperbark	9-15m	3m	Tube	✓	AS SHOWN	34
MYO acu	*Myoporum acuminatum*	Waterbush	10m	3m	Tube	✓	AS SHOWN	88
Grasses and Groundcovers 1 per 2.5m² in fully structured vegetation only								
BLE ind	*Blechnum indicum*	Swamp Water-fern	1m	NIL	Forestry Tube	✓	AS SHOWN	467
CAR app	*Carex appressa*	Tall Sedge	1m	1m	Forestry Tube	✓	AS SHOWN	467
DIA cae	*Dianella caerulea*	Blue Flax Lily	0.8m	1.5m	Forestry Tube	✓	AS SHOWN	513
JUN usi	*Juncus usitatus*	Common Rush	1.2m	0.5m	Forestry Tube	✓	AS SHOWN	467
ISO inu	*Isolepis inundata*	Swamp Club-sedge	0.5m	0.5m	Forestry Tube	✓	AS SHOWN	467
LOM lon	*Lomandra longifolia*	Spiny-headed Mat-Rush	0.8m	0.8m	Forestry Tube	✓	AS SHOWN	513
VIO ban	*Viola banksii*	A Violet	0.40m	NIL	Forestry Tube	✓	AS SHOWN	513
Vines 1 per 25m² in fully structured vegetation only								
PAR str	*Parsonsia straminea*	Common Silkpod	0.1m	NIL	Tube	✓	AS SPECIFIED	114
STE dis	*Stephania japonica var. discolor*	Snake Vine	na	NIL	Tube	✓	AS SPECIFIED	113
FLA ind	*Flagellaria indica*	Whip Vine	15m	NIL	Tube	✓	AS SPECIFIED	113

Stormwater Outlet Rip-rap Planting							
BAU jun	*Baumea juncea*	Bare Twig Rush	1m	1m	Tubestock	✓	3/m2
CAR app	*Carex appressa*	Tall Sedge	1m	1m	Tubestock	✓	3/m2
DIA cae	*Dianella caerulea*	Blue Flax Lily	0.8m	1.5m	Tubestock	✓	3/m2
GAH cla	*Gahnia clarkei*	Saw Sedge	1.5m	1.5m	Tubestock	✓	3/m2
IMP inu	*Imperata cylindrica var. major*	Blady Grass	1.2m	0.3m	Tubestock	✓	3/m2
ISO inu	*Isolepis inundata*	Swamp Club-sedge	0.5m	0.5m	Tubestock	✓	3/m2
JUN usi	*Juncus usitatus*	Common Rush	1.2m	0.5m	Tubestock	✓	3/m2
LOM lon	*Lomandra longifolia*	Spiny-headed Mat-Rush	0.8m	0.8m	Tubestock	✓	3/m2
Swale planting							
BAU jun	*Baumea juncea*	Bare Twig Rush	1m	1m	Tubestock	✓	3/m2
CAR app	*Carex appressa*	Tall Sedge	1m	1m	Tubestock	✓	3/m2
DIA cae	*Dianella caerulea*	Blue Flax Lily	0.8m	1.5m	Tubestock	✓	3/m2
GAH cla	*Gahnia clarkei*	Saw Sedge	1.5m	1.5m	Tubestock	✓	3/m2
IMP inu	*Imperata cylindrica var. major*	Blady Grass	1.2m	0.3m	Tubestock	✓	3/m2
ISO inu	*Isolepis inundata*	Swamp Club-sedge	0.5m	0.5m	Tubestock	✓	3/m2
JUN usi	*Juncus usitatus*	Common Rush	1.2m	0.5m	Tubestock	✓	3/m2
LOM lon	*Lomandra longifolia*	Spiny-headed Mat-Rush	0.8m	0.8m	Tubestock	✓	3/m2
*Final plant number to be calculated at CC stage							

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4.0 LANDSCAPE MANAGEMENT ACTIVITIES

4.1 General

All plant species are native or endemic and have been selected from the VMP (for riparian corridor planting) or council planting lists, the landscape plans follow these selections and set out planting with specified densities and spacings. Areas shall be weed free and mulched annually to suppress weed growth and retain moisture content within the soil.

The key differences in the management of native plants are their requirement for low-phosphorous fertilisers and a lower fertiliser rate than exotic species generally. Plants of the Pea group (including Acacias, Daviesia and Pultenaeas) and Casuarinas are also able to fix their own Nitrogen. Natives also have lower water requirements in comparison to exotics and are adapted to the harsher Australian conditions.

For the above reasons native plantings make a more sustainable option in respect of the long term landscape management and should there be failures the original species specified on the landscape plans should always be reused.

4.2 Swamp Oak Floodplain Forest (SWOF) within Riparian Corridor

To protect waterways, loose mulch should not be placed within 10m of the top of bank. Mulch under a covering of biodegradable erosion protection, such as pegged and overlapped open-weave jute mesh, should be used for revegetation areas within 10m of the top of bank.

Any native vegetation requiring removal for development shall be immediately mulched or chipped and stockpiled on site. It can be used in the riparian restoration areas beyond 10m of the top of bank, as determined by the riparian regeneration contractor. In these areas, mulch is to be placed at a depth of 75-100 mm covering any areas of replanting.

Tubestock is used throughout the riparian corridor, therefore a 10-15% failure rate is to be expected through the establishment stage. The contractor is to monitor and replace failed tubestock immediately.

Any further riparian bank stablisation required is to be as documented in the VMP. For full management and construction activities refer to the VMP.

4.3 Street Tree Planting

75L Semi-mature trees are to be planted at 8m centres along the new access road. Ensure that positive drainage is achieved in all tree pits and install agg-line drainage if necessary. The trees should be regularly watered during the establishment stage and checked for damage. Any failures should be replaced with the same sized stock. Verges should be regularly mown.

4.4 Soil Management

As a general rule riparian or areas of native mass planting require a sandy loam to clay loam topsoil mix which is suitable for the planting of grasses, woody and herbaceous perennials and trees. The following mix is suitable for plants that do not have high nutrient requirements and are not susceptible to compaction. Note that if phosphorous sensitive natives are used, the phosphorous levels of all components must be checked for suitability. Additional drainage may be required depending on the situation.

The following table outlines suggested components, that may likely meet the physical requirements of the soil for all landscape areas:

Sandy loam soil or site won topsoil Composted soil conditioner conforming with AS 4454	70-100% by volume 0-30% by volume	e.g. 8 parts washed sand/2 parts sandy loam/1 part AS 4454 compost

(Leake and Haege 2014, p.87)

4.5 Fertilising, Composting and Mulching

Fertilisers, composting and mulching is used to ensure the health and vigor of the riparian and street trees are maintained. Mass planted areas will perform better when the soil conditions are healthy. Building healthy soils is the key to achieving the long term maintenance goals of mass planted landscape areas. Soil health is primarily achieved with regular applications of organic soil conditioners.

Fertilising and composting are not critical maintenance activities except where there are obvious deficiencies, but should be assessed on an annual basis by observation and leaf analysis.

Maintain an adequate level of mulch to all planting and new riparian areas in order to maximise water conservations and to suppress weeds. Do not use organic mulches in the swale. Instead a rock mulch should be used of a size that will not be disturbed by water flows.

4.6 Pruning

Remove dead or dying plant material from mass planted areas on the site as required. This may become necessary as plantings mature, after damage or adverse environmental conditions. Pruning will be carried out on trees and shrubs that require it to remove the dead and damaged branches, to retain natural shape and improve health and vigour. Where die-back of plant material has been identified new plants should be planted as soon as possible, using species originally specified.

4.7 Weeding

For the riparian corridor, a detailed Weed Management Plan is also described within the VMP .

Weeding is often a concern in new areas of revegetation type landscaping. As of 1 July 2017 the NSW Noxious Weeds Act 1994 was repealed and replaced with the NSW Biosecurity Act 2015 and its accompanying Biosecurity Regulations. Under the act, plants are no longer termed "noxious weeds" nor do they have "classes" of weeds. The new legislation provides greater flexibility to respond to, manage and control all weed species. All plants are assessed for their biosecurity risk. This is the risk that the introduction, presence, spread or increase of a plant will have, or may potentially have, an adverse effect on the economy, the environment or the community.

Environmental weeds are non-local plants that can invade and change natural areas and threaten the survival of native plants and animals. After land clearing, environmental weeds are considered to be the next greatest threat to our indigenous biological diversity. Environmental weeds have the potential to readily invade planting bed areas and potentially impact on the adjacent lands.

In addition to the environmental hazard posed by weeds, weeds occurring in mass planted beds, growing from the base of trees and from pavements can be unsightly and presents an untidy appearance.

Appendix 1 of the Greater Sydney Regional Strategic Weed Management Plan 2017-2022 lists all priority weeds for the Greater Sydney region that have prescribed requirements under the NSW Biosecurity Act 2015. It also lists other regional priority weeds and the minimum outcomes that demonstrate compliance with the general biosecurity duty.

NSW WeedWise is a NSW Department of Primary Industry website which profiles over 300 high priority weeds across the State and Greater Sydney Region. It describes the Biosecurity duty required under the Biosecurity Act 2015 for each plant and outlines their methods of control

(including registered herbicide options).

Another guide for the control of weeds on the site is the New South Wales Weed Control Handbook a guide to weed control in non-crop, aquatic and bushland situations NSW DPI management guide, seventh edition.

A copy of the handbook can be downloaded at the link:

https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0017/123317/weed-control-handbook.pdf

To ensure that environmental weeds do not reproduce within or spread into mass planted areas, compete with plantings and spread to other areas such as Duck River. Weeding and weed control is considered to be a critical maintenance action.

Maintenance Action Required	Frequency
Prevent reproduction of weeds by destroying seedlings and established weeds before seed set or other propagules form. Remove by hand in the first instance (where infestations are low). Ensure that the entire weed including all roots is removed. Dispose of the weeds off site.	Monthly or as defined by the VMP
Remove by Herbicide application any weeds which cannot be controlled by hand removal. Herbicide application must occur before weed seed set. Non-target species and areas must be reinstated if damaged by herbicide application.	
Herbicide use to be in accordance with regulation rates and manufacturers recommendations. Herbicide use must comply with the requirements of the Noxious and environmental weed control handbook. a guide to weed control in non-crop, aquatic and bushland situations. NSW Department of Primary Industry Management Guide, Seventh Edition.	
After spraying, lop any dead weeds flush with the ground surface and dispose of the cuttings.	Monthly or as defined by the VMP
Use of bio-degradable herbicide is mandatory	

5.0 IRRIGATION, DISEASE AND INSECT CONTROL

5.1 Temporary Irrigation

It is recommended that the riparian corridor has a temporary irrigation system installed to help establish revegetation works within the first 6 months after planting. The irrigation system is to be designed, supplied and installed by an experienced specialist irrigation contractor, nominated by the Landscape Contractor and approved by the landscape consultant. After selection they will be required to prepare detailed irrigation plans and specifications for approval prior to commencing work. The Landscape Contractor will co-ordinate the irrigation installation to the client / landscape architects approval. Ensure completion of the irrigation system before the commencement of any other landscape works, so as to provide a readily available supply of water to planting areas.

Upon completion of the installation of irrigation works, the Landscape Contractor is to run through the system to ensure that it is operating correctly and instruct the client's representative in the correct operation and maintenance of the system.

The following principles are to apply:

Maintain adequate soil moisture – match supplemental irrigation water needs to climate conditions and available soil water
Water effectively – apply water so that it reaches the root systems with minimal losses
Encourage extension of the root system – apply water to extremity of root system and beyond
Remove competition for water – maintain mulch around the plants

5.2 Disease, Insect and Feral Animal Control

Always consider biological and non-chemical controls in favour of chemical controls in the first instance because the margin for error is far smaller with chemicals. For example most insecticide will also harm beneficial insects as well as the target species. For a comprehensive reference to the identification, diagnosis and control of pests and diseases refer to "What Garden Pest or Disease Is That? Organic and Chemical Solutions for Every Garden Problem" by Judy McMaugh 2000 New Holland.

If feral animals become a problem refer to Greater Sydney Regional Strategic Pest Animal Plan 2018 - 2023.

The plan can be found at the following location:

https://www.lls.nsw.gov.au/__data/assets/pdf_file/0003/820794/greater-sydney-strategic-pest-plan-web.pdf

6.0 PROTECTIVE MEASURES

6.1 Protection of Existing Vegetation

Existing vegetation to the Duck River shoreline is nominated within the VMP and landscape documentation to be protected and retained.

Existing vegetation needs protection during construction and establishment. An existing fence is present along the edge of the existing Duck River riparian vegetation and is likely to remain in place during construction.

As per commitments of the EIS, the existing native vegetation along Duck River is to be demarcated as a no-go zone and is to include appropriate signage. Access to the riparian corridor (outside the existing native vegetation) during construction is to be limited to personnel and equipment required to install the stormwater outfalls and for revegetation works. After the stormwater outfalls and revegetation works are complete, the riparian corridor will be permanently fenced.

6.2 Tree Protection

Trees along Devon Street should be protected and measures must comply with the Australian Standard 4970 – 2009 (Protection of trees on development sites). Refer to Arboricultural report complied by Guy Paroissien in Appendix D.

The relevant Australian Standards are:
• AS 4970 Protection of trees on development sites.
• AS 4687 Temporary fencing and hoardings

6.3 Erosion, Contamination and Sedimentation Control

During construction, all precautions necessary should be undertaken to prevent erosion, contamination, and sedimentation of the site, surrounding areas and drainage systems, including but not limited to the following:

• Construction of temporary drains and catch drains

• Diversion and dispersal of concentrated flows to points where the water can pass through the site without detrimental impacts

• Construction and maintenance of silt traps to prevent discharge of scoured material to downstream areas

• Stabilisation of exposed soil surfaces

• Use of erosion and sediment control measures to collect sediment and to reduce flow velocities

• Construction of sediment fencing and erosion controls as per Landcom's Managaing Urban Stormwater: Soils and Construction 2004.

• Regular monitoring and maintenance of all erosion and sediment control structures throughout the construction and operational phases of the development to ensure their effective function.

Refer to the approved erosion and sediment control plans documented by Costin Roe, drawing numbers C013919.01-DA21 to C013919.01-DA25.

7.0 MONITORING AND REPORTING

General maintenance tasks are described in SSD landscape drawing 'Specifications & Typical Details SSD-16'. A Maintenance Schedule is also included in Appendix B of this report. A log book should be used to record daily/weekly/monthly visits. All maintenance actions should be recorded in the log book.

Regular inspections of all landscape areas should be undertaken initially by the appointed contractor and then following handover. This is to ensure that maintenance is carried out according to the plan. Inspections should include the ongoing protection of revegetation works during its establishment period.

8.0 APPENDICES

8.1 Appendix A - Approved Central Sydney Industrial Estate Landscape Masterplan



8.2 Appendix B - Maintenance Schedule

CATEGORY		TIMEFRAMES / FREQUENCY			
	Daily/Weekly	2 Weekly/Monthly	3 to 6 Months	As Required	Tasks and Specification
1. Weeding and Rubbish Removal		✓			Remove by Herbicide application any weeds which cannot be controlled by hand removal. Herbicide application must occur before weedseed set. Protect plants from overspray and avoid if rain is likely within 12 hour period. Non-target species and areas must be reinstated if damaged by herbicide application. . Dispose of any waste material using appropriate methods and at designated disposal sites. Maintain weeds for a period of 12 months, with more frequent weeding in the summer months. Use of bio-degradable herbicide is mandatory
2. Leaf Litter Removal		✓	✓		Remove leaf litter from pathways
3. Mulching		✓	✓		Reapply mulch to maintain to a depth of 75mm in areas that are deficient. Soil should be aerated before placing mulch. After 12 months, mulching will have broken down and should be topped up to ensure a depth of 75mm.
4. Plant Fertiliser			✓		Only to be applied if plants are noticeably under stress and the plant will benefit from the application of the fertiliser. Apply slow release fertiliser N:P:K ratio– 18:3:10 at manufacturer's recommended rate per plant.
5. Pest & Disease Control		✓		✓	Check for incidence of fungal and insect attack. Avoid use of chemical sprays. Apply appropriate treatment for fungal and insect attack if necessary. Check for damage by animals, seek specialist advice if persistent damage is observed.
6. Pruning, Trimming, Stakes and Ties		✓			Remove deadwood, remove suckering roots from rootball, check ties. Improve plant shape and promote new growth .Adjust ties and stakes as necessary. Stakes can be removed once plants are self-supporting. Identify need for tree structural work and appoint contractor to perform work.
7. Plant Removal & Replacements		✓			Inspect for failed or dying plants requiring replacement and record probable cause. Replant after dead or failed plant removal. Densities, sizes and species to be in accordance with Landscape DWG SSD-17 and relevant drawing sheet no. Water replacement plantings for a minimum of 12 weeks after planting.
8. Urgent Works	✓				To be actioned within 7 days.
9. Watering	✓	✓			Water as necessary every day especially during periods of hot weather. 2 week interval watering should be maintained until planting is fully established. Best practice watering is early morning or late afternoon to reduce evaporation.
10. Mowing		✓	✓	✓	Remove litter before mowing. Cut grass height must not be less than 40mm or greater than 60mm high. Do not remove more than 50% of the grass height at any one time. Clippings to be removed. Spring, summer and autumn mowing to be every 4-5 weeks. Winter to be every 12 weeks.

CATEGORY		TIMEFRAMES / FREQUENCY				
	Daily/Weekly	2 Weekly/Monthly	3 to 6 Months	Annually	As Required	Tasks and Specification
DISSAPATION OUTLETS						
1. Outlet			✓		✓	Check for no evidence of erosion, blockage, damage or standing water. Outlet freely draining. No excessive sediment build-up (i.e. more than 20% of pipe opening blocked with sediment). Refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets, if the erosion is either recurring or severe.
2. Erosion and Scour			✓			Check for no evidence of erosion. Eroded areas should be locally re-profiled or reinforced and re-planted if necessary. Refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets, if the erosion is either recurring or severe.
3. Sediment accumulation			✓			Check for no sediment accumulated in the base of the dissipation outlet. Sediment should be removed from the base if it is impeding the free drainage of stormwater. The removal of accumulated sediment may involve removal and re-establishment of vegetation. Refer to Water by Design (2012) Rectifying Vegetated Stormwater Treatment Assets, if excessive sediment deposition is a recurring issue. Note: the disposal of sediment material must comply with EPA NSW guidelines for the disposal of contaminated soil .

8.3 Appendix C - Reference Documents

The following Australian Standards are referred to in this management plan:

- AS 1319 Safety signs for the occupational environment
- AS 4373 Pruning of amenity trees
- AS 4454 Composts, soil conditioners and mulches
- AS 4687 Temporary fencing and hoardings
- AS 4970 Protection of trees on development sites

The following documents are referred to in this report:

- Landscape Drawings for State Significant Development- SSD 10459 prepared by Geoscapes Landscape Architects, Dwg No's SSD-00 to SSD-17.
- Landscape Design Report for State Significant Development - SSD 10459 prepared by Geoscapes Landscape Architects, Rpt no: LDR01
- Arboricultural Impact Report - Central Sydney Industrial Estate Devon Street Rosehill NSW - Prepared by Guy Paroissien.
- Operational Environmental Management Plan (OEMP).
- Construction Environmental Management Plan (CEMP).
- SSD 10459 Appendix 2 - Applicant's Management and Mitigation Measures.
- Vegetation Management Plan (VMP), prepared by AECOM 2020
- Noxious and environmental weed control handbook. A guide to weed control in non-crop, aquatic and bushland situations. NSW Department of Primary Industry Management Guide, Seventh Edition.
- Soils for Landscape Development. Selection, Specification and Validation. Simon Leake and Elke Haege. CSIRO Publishing 2014.
- What Garden Pest or Disease Is That? Organic and Chemical Solutions for Every Garden Problem. Judy McMaugh 2000 New Holland.

8.4 Appendix D - Arboricultural Impact Report

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ARBORICULTURAL IMPACT REPORT

CENTRAL SYDNEY INDUSTRIAL ESTATE
DEVON STREET
ROSEHILL NSW

1ST FEBRUARY 2021

PREPARED FOR VE PROPERTY PTY LTD
TO ADDRESS CONDITION B53 OF SSD 10459



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CONTENTS

	Page
1. BACKGROUND	3
2. TREES ON SITE	4
3. TREES IDENTIFIED AS A PRIORITY FOR RETENTION	5
4. TREES THAT COULD BE CONSIDERED FOR RETENTION	5
5. TREES THAT SHOULD BE CONSIDERED FOR REMOVAL	9
6. TREES NOT IDENTIFIED FOR REMOVAL OR RETENTION	9
7. POTENTIAL IMPACTS ON TREES	9
8. TREE PROTECTION MEASURES	13
9. USE OF TREES BY WILDLIFE	14
10. CONCLUSION	14
BIBLIOGRAPHY/REFERENCES	17
APPENDIX A: PHOTOGRAPHS	18
APPENDIX B: TREE DATA SUMMARY	22
APPENDIX C: SURVEY PLAN WITH TREE NUMBERS	32

1. BACKGROUND

Landscape Matrix Pty Ltd has been engaged by VE Property Pty Ltd to prepare an Arboricultural Impact Report in respect to 85 trees adjacent to proposed Central Sydney Industrial Estate at Devon Street Rosehill (the site). The trees are potentially impacted by proposed services installation at the site.

This report has been prepared by Guy Paroissien a Director of Landscape Matrix Pty Ltd. The site was inspected on 19th January 2021.

The subject site has recently been the subject of a State Significant Development (SSD) Approval. Condition B53 of SSD 10459 requires the following in respect of the management of existing trees on the Devon Street frontage:

B53. Prior to services installation works commencing within Devon Street, the Applicant is to engage an AQF Level 5 Arborist to prepare a:

(a) Tree Protection Plan and Tree Management Specification to incorporate specific tree protection measures to the street trees located along Devon Street in accordance with AS4970-2009 (Protection of Trees on Development Sites); and

(b) Tree Removal Plan for any trees proposed to be removed. In the event that street trees are required to be removed on Devon Street, replacement street trees are to be provided in consultation with Council.

This report therefore specifically addresses that Condition.

The assessment of the trees was based upon a visual inspection of the trees from ground level using the Visual Tree Assessment (VTA) approach developed by Mattheck & Breloer (1994). The visual inspection included examination of the trees' dimensions, foliage density and foliage health, form, structure, structural condition, overall health and vigour and landscape significance.

The inspection was limited to visual inspection of the trees without dissection, probing or coring. No aerial inspection of the trees was carried out and the assessment did not include any woody tissue testing or root investigation.

The tree heights and canopy spreads were estimated and expressed in metres and the tree diameters at breast height (DBH) were measured with a standard metal tape at approximately 1.4 metres above ground level and are expressed in millimetres.

2. TREES ON SITE

85 trees on the site have been individually assessed in preparing this report. A summary of these trees, their dimensions, condition, Useful Life Expectancy (ULE) and landscape significance is attached in Appendix B.

The tree numbers in Appendix B correspond with the tree numbers marked on the attached Survey Plans prepared by Land Partners dated 8/7/2020 and identified as Drawing Reference SY04707.000.3.2, Sheets 1 and 2. (Appendix C). The design plan that was used for the assessments in this report is attached at Appendix D (Overall Masterplan prepared by Geoscapes Landscape Architects dated 26/11/2020and identified as Drawing Number SSD-01, Revision K).

The trees that have been assessed on the nature strip frontage of site are summarised in table 1 as follows:

Table 1: Summary of species present, number and height range.

SPECIES	**COMMON NAME**	**NUMBER PRESENT**	**HEIGHT RANGE (metres)**
Callistemon viminalis	Weeping Bottlebrush	74	3 to 7 metres
Melaleuca bracteata	Black Tea-tree	1	5 metres
Melaleuca linariifolia	Flax-leaved Paperbark, Budjur	9	4.5 to 6 metres
Melaleuca quinquenervia	Broad-leaved Paperbark	1	5 metres
Total number of trees		**85**	**3 to 28 metres**

None of the trees assessed for this report is listed individually as a threatened species on the Schedules of the NSW *Biodiversity Conservation Act 2016* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

3. TREES IDENTIFIED AS A PRIORITY FOR RETENTION/PROTECTION.

The identification of trees as priorities for retention is based upon a number of factors including; species, dimensions, health, maturity, Useful Life Expectancy (ULE) and landscape significance.

Following assessment of the trees it is considered that none of the trees assessed are of high landscape significance and medium to long life expectancy and should be considered as priorities for retention/protection.

4. TREES THAT SHOULD BE CONSIDERED FOR RETENTION/PROTECTION

The identification of trees for consideration (but not as a priority) for retention is based upon the same factors as those for priority for retention (species, dimensions, health, maturity, ULE and landscape significance).

Following assessment of the trees it is considered the following 19 trees are of moderate or moderate to high landscape significance and medium to long life expectancy and should be considered for retention/protection, if possible:

Table 2: Trees identified for consideration for retention/protection.

TREE NO.	SCIENTIFIC AND COMMON NAME	TPZ	SRZ	COMMENTS
17	*Callistemon viminalis* (Weeping Bottlebrush)	4	2.1	A mature, multi trunked specimen approx. 4 metres in height with a canopy spread of 5 x 6 metres and diameters at breast height (DBH) of up to 180mm (330mm above the root flare). In good health and of moderate landscape significance. Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
44	*Callistemon viminalis* (Weeping Bottlebrush)	5.6	2.4	A mature, multi trunked specimen approx. 4 metres in height with a canopy spread of 6 x 7 metres and DBH of up to 190mm (470mm above the root flare). In good health and of moderate landscape significance. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Recent mechanical damage at 1.2 metres on Sth side.

45	*Callistemon viminalis* (Weeping Bottlebrush)	4.6	2.2	A mature, multi trunked specimen approx. 4 metres in height with a canopy spread of 4.5 metres and DBH of up to 210mm (380mm above the root flare). In good health and of moderate landscape significance. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
46	*Callistemon viminalis* (Weeping Bottlebrush)	3.6	2	A mature, multi trunked specimen approx. 4 metres in height with a canopy spread of 4 metres and DBH of up to 140mm (260 x 340mm above the root flare). In good health and of moderate landscape significance. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
56	*Callistemon viminalis* (Weeping Bottlebrush)	5	2.3	A mature, multi trunked specimen approx. 3.5 metres in height with a canopy spread of 4 metres and DBH of up to 180mm (420mm above the root flare). In good health and of moderate landscape significance. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
60	*Callistemon viminalis* (Weeping Bottlebrush)	4.8	2.3	A mature, multi trunked specimen approx. 4 metres in height with a canopy spread of 4 x 6 metres and DBH of up to 210mm (400mm above the root flare). In good health and of moderate landscape significance. Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
62	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	5.3	2.5	A mature, twin trunked specimen approx. 5 metres in height with a canopy spread of 6 metres and DBH of 270 and 350mm. In good health and of moderate landscape significance. The tree displays fair branch attachment with codominant leaders from 1.2 metres - not considered at risk of failure in the short term. At the time of inspection the tree was of fair vigour and exhibited reduced foliage density and low to moderate levels of dieback.
63	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	5.2	2.3	A mature, twin trunked specimen approx. 5 metres in height with a canopy spread of 6 metres and DBH of 260 and 340mm. In good health and of moderate landscape significance. The tree displays fair branch attachment with codominant leaders from 0.3 metres and multiple leaders from 1.7 metres - not considered at risk of failure in the short term. At the time of inspection the tree was of fair vigour and exhibited low levels of dieback.
65	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	4.1	2.1	A mature, multi trunked specimen approx. 4.5 metres in height with a canopy spread of 4 metres and DBH of up to 200mm (340mm above the root flare). In good health and of moderate landscape significance. Continued next page…

				The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
66	*Melaleuca quinquenervia* (Broad-leaved Paperbark)	4.1	2.3	A mature, twin trunked specimen approx. 5 metres in height with a canopy spread of 5 metres and DBH of 220 and 260mm. In good health and of moderate landscape significance.
67	*Melaleuca bracteata* (Black Tea-tree)	4.8	2.3	A mature, multi trunked specimen approx. 5 metres in height with a canopy spread of 5 x 6 metres and DBH of up to 230mm (380 x 420mm above the root flare). In good health and of moderate landscape significance. Slight canopy bias to the east. The tree displays fair branch attachment with multiple leaders and a past failure on Nth at 3 metres - not considered at risk of failure in the short term. At the time of inspection the tree was of fair vigour and exhibited low to moderate levels of dieback.
68	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	4.9	2.3	A mature, multi trunked specimen approx. 4.5 metres in height with a canopy spread of 5.5 metres and DBH of up to 290mm (410mm above the root flare). In good health and of moderate landscape significance. Distinct trunk lean to the west for 1.6 metres then upright. At the time of inspection the tree exhibited low levels of dieback.
70	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	6.2	2.8	A mature, twin trunked specimen approx. 6 metres in height with a canopy spread of 6 metres and DBH of 350 and 390mm. In good health and of moderate landscape significance. The tree displays fair to poor branch attachment with codominant leaders from ground level and multiple regrowth following past pruning - not considered at risk of failure in the short term.
72	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	6	2.5	A mature, multi trunked specimen approx. 5 metres in height with a canopy spread of 3 x 7 metres and DBH of 120, 200 and 360mm. In good health and of moderate landscape significance. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure in the short term.
74	*Callistemon viminalis* (Weeping Bottlebrush)	6.0	2.5	A mature, multi trunked specimen approx. 5 metres in height with a canopy spread of 5 x 6 metres and DBH of up to 260mm (480 x 520mm above the root flare). In good health and of moderate landscape significance. Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
75	*Callistemon viminalis* (Weeping Bottlebrush)	5.3	2.4	A mature, multi trunked specimen approx. 6 metres in height with a canopy spread of 5 x 6 metres and DBH of up to 170mm (380 x 510mm above the root flare). In good health and of

				moderate landscape significance. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
77	*Callistemon viminalis* (Weeping Bottlebrush)	4.7	2.2	A mature, multi trunked specimen approx. 5 metres in height with a canopy spread of 7 metres and DBH of up to 190mm (390mm above the root flare). In good health and of moderate landscape significance. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
78	*Callistemon viminalis* (Weeping Bottlebrush)	6.5	2.6	A mature, multi trunked specimen approx. 6 metres in height with a canopy spread of 6 metres and DBH of up to 230mm (500 x 580mm above the root flare). In good health and of moderate landscape significance. Slight canopy bias to the SE. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
80	*Callistemon viminalis* (Weeping Bottlebrush)	4.2	2.8	A mature, twin trunked specimen approx. 7 metres in height with a canopy spread of 7 metres and DBH of 200 and 290mm. In good health and of moderate landscape significance. Slight canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.

TPZ = Tree Protection Zone under AS4970-2009, SRZ = Structural Root Zone under AS4970-2009

A number of methods to determine the likely extent of root zones and appropriate setbacks for tree root protection zones for trees on development sites have been developed in the past. The key criteria used in determining setbacks is the tree's trunk diameter at breast height (DBH) in conjunction with other factors including the sensitivity of the species in question to environmental disturbance/change, the age of the tree and the tree's health and vigour at the time.

Harris et al (2004) provide formulae for calculating tree protection zones based on the above criteria and modified from the 1991 British Standard for protection of trees on construction sites (BS 5837:1991). The 2005 version of the British Standard (BS 5837:2005) recommends a radius of 12 times the tree's DBH. For multi trunked trees BS 5837:2005 recommends a setback of 10 times the basal trunk diameter.

The Australian Standard AS 4970-2009 Protection of Trees on Construction Sites also identifies a 'Tree Protection Zone' (TPZ) of 12 times the tree's DBH. AS 4790-2009 also provides a formula for calculating the "Structural Root Zone' of trees on development sites. This is the area required for stability. In regard to palms, other monocots, cycads and tree ferns the Standard identifies the Tree Protection Zone should not be less than 1 metre outside the crown projection. (Australian Standards Association 2009)

The tree protection zones identified above have been calculated using the Australian Standard 'AS 4970 Protection of trees on construction sites' and are the identified setback from the trees where disturbance (e.g. soil level changes, compaction, excavation etc.) should be minimised to reduce potential impacts on the long-term health of the trees. Preferably, no more than 10% of the tree protection zone should be disturbed with compensation made by extension of other areas of the TPZ to compensate for the area(s) disturbed.

Where greater than 10% of the tree protection zone is potentially disturbed the tree's viability needs to be investigated and demonstrated by the project arborist. The structural root zone is the area required for stability and where disturbance of any sort should be avoided.

5. TREES THAT SHOULD BE CONSIDERED FOR REMOVAL

Following assessment of the trees on the site it is considered that none of the trees assessed should be considered for immediate removal due to poor/declining health or condition and/or inappropriate species.

6. TREES NOT IDENTIFIED FOR REMOVAL OR RETENTION

The following 66 trees have not been identified as being of specific design consideration:

- Tree numbers 1 to 16, 18 to 43, 47-55, 57-59, 61, 64, 69, 71, 79, 81-85..

These trees are generally in good health/condition and do perform some landscape function of low or low to moderate significance. However, these trees individually are not considered significant enough to warrant specific design consideration.

7. POTENTIAL IMPACTS ON TREES

The potential impacts of the proposal have been assessed using the following plans:

- Overall Masterplan prepared by Geoscapes Landscape Architects dated 26/11/2020and identified as Drawing Number SSD-01, Revision K.

Trees requiring removal or proposed to be removed to facilitate the proposed works.

To facilitate construction of the proposed road works, entry driveways, utilities relocation and drainage upgrades the following 13 trees would require removal due to their location within or immediately next to the proposed road works, entry driveways, utilities relocation and drainage upgrades (taking into account the extent of TPZ encroachment).

These trees shown here as being removed are as part of the approved SSD plans, and therefore will be removed.

Table 3: Trees requiring removal to facilitate construction of the proposed works.

TREE NO.	SCIENTIFIC AND COMMON NAME	COMMENTS
43	*Callistemon viminalis* (Weeping Bottlebrush)	Within the proposed access road into the site and will require removal.
44	*Callistemon viminalis* (Weeping Bottlebrush)	Within the proposed access road into the site and will require removal.
45	*Callistemon viminalis* (Weeping Bottlebrush)	Within the proposed access road into the site and will require removal.
46	*Callistemon viminalis* (Weeping Bottlebrush)	Within the proposed access road into the site and will require removal.
64	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	Within the proposed access road into the proposed Stage 1, Lot 6 Downer Sustainable Road Resource Centre and will require removal.
65	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	Within the proposed access road into the proposed Stage 1, Lot 6 Downer Sustainable Road Resource Centre and will require removal.
66	*Melaleuca quinquenervia* (Broad-leaved Paperbark)	Within the proposed access road into the proposed Stage 1, Lot 6 Downer Sustainable Road Resource Centre and will require removal.
67	*Melaleuca bracteata* (Black Tea-tree)	Within the proposed access road into the proposed Stage 1, Lot 6 Downer Sustainable Road Resource Centre and will require removal.
68	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	Within the proposed access road into the proposed Stage 1, Lot 6 Downer Sustainable Road Resource Centre and will require removal.
82	*Callistemon viminalis* (Weeping Bottlebrush)	Identified to be removed as part of the works.

83	*Callistemon viminalis* (Weeping Bottlebrush)	Identified to be removed as part of the works.
84	*Callistemon viminalis* (Weeping Bottlebrush)	Identified to be removed as part of the works.
85	*Callistemon viminalis* (Weeping Bottlebrush)	Identified to be removed as part of the works.

Trees potentially impacted by the proposed footpath and services works
The remaining 66 trees assessed are potentially impacted by services works. These trees are:
Tree numbers 1- 42, 47 to 63 and 69 to 81.

Other tree removals
In addition to the nominated tree removals noted in the SSD and itemised above, there is potential that other trees may require removal. Should this be required the following steps will be undertaken:

- The reason for the additional removals will be identified;
- Alternatives to removal will be considered;
- Replacement plantings will be included in the landscape planting works;
- The Council's tree management officer(s) will be consulted in the process.

Proposed installation of new water service and other services
Sewer and electrical services are proposed to be installed inside the property within the first 5 metres. The existing boundary wall (with fencing above) will remain and this will reduce any potential impacts on the trees' TPZ areas.

Services work for a new water line and other service extensions has the potential to impact on the street trees shown to be retained.

The existing nature strip area in which the trees are located is approximately 3 metres in width with the trees generally located within a metre of the northern (kerb) side of the nature strip.

Under *AS4970-2009 Protection of trees on development sites* the trees have TPZs of up to 6.5 metres (average of 4.1 metres) and SRZs of up to 2.8 metres (average of 2.1 metres).

The proposed installation of a new water supply service and associated 600mm wide trench and other services works will involve excavation within both the TPZs and SRZs of the trees and will impact a high to significant area of the trees' identified TPZ areas.

It is considered the actual impacts will be greater than a calculated percentage of nominal TPZ as the existing kerb, gutter and road is likely to have resulted in more root growth in the area impacted. In addition, there is high potential for impact on structural roots and the trees' structural integrity (stability).

The following options are available to assist in minimising these potential impacts:

- Thrust boring/directional drilling
- Water jet vacuum excavation

Thrust boring the services installation at a depth of 600mm (or greater) will minimise any potential impacts of the services installation. The bore pit locations will need to be determined in consultation with the project arborist to minimise impacts to trees proposed to be retained. In this regard it is noted there are several gaps in the row of street trees that would provide suitable locations for the bore pit locations.

The use of a water jet vacuum to undertake the trenching for services installation is also an option that would assist in minimising impacts - this would involve the trench being excavated using the water jet vacuum and then the services being carefully installed below the exposed roots.

Of the two options it is considered the option of thrust boring is preferred as it will minimise disturbance to the soil profile and avoids the need for excavation, contractor access to install the utilities and access to backfill the trench in close proximity to all of the trees.

8. TREE PROTECTION MEASURES

The following tree protection measures are recommended to assist in minimising potential impacts that may arise during the works (including the implementation of landscape works on the site).

A. Measures to be implemented prior to the commencement of any works on the site.

1. Trees to be retained are to be clearly identified by signage as protected trees (to be located on the existing site boundary fence..

2. The installation of tree protection fencing to protect the trees during works is limited by their location adjacent to the kerb – installation of fencing along the kerb would require pruning on the northern side of their crowns in addition to previous pruning for vehicular access and upper crown pruning for OH wire clearance. In light of this it is recommended the existing chain wire fence along the site boundary be retained during the life of demolition/construction works to provide protection from works within the site.

3. Where access is required on the nature strip for installation of services then those specific trees can be protected by a combination of trunk and ground protection in accordance with Figure 4 of AS4970-2009 – the identification of these specific trees and the protection measures would need to be finalised on site with the project arborist when the specific locations of services installation have been identified.

4. The existing tree protection fence along the site boundary is to be retained for the life of demolition/construction works to provide protection from works within the site.

B. Measures to be implemented and maintained during the life of construction works on the site.

5. Any excavation within the identified TPZ of trees to be retained shall be carried out by hand to minimize disturbance to tree roots. Roots greater than 25mm are not to be damaged or severed without prior assessment by a minimum level 5 AQF arborist to determine likely level of impact and the restorative actions required to minimise the impacts of root damage.

6. Tree roots between 10mm and 25mm diameter, severed during excavation, shall be cleanly severed using sterilised hand tools (i.e. secateurs or a pruning saw) – all root pruning work shall be done, or directly supervised, by a minimum level 5 AQF arborist.

7. The following activities/actions are prohibited from the tree protection zones:

- Soil cut or fill including excavation and trenching (except where required for approved works and under the supervision of an AQF level 5 arborist)

- Soil cultivation, disturbance or compaction (except where required for approved works and under the supervision of an AQF level 5 arborist)
- Stockpiling storage or mixing of materials
- The parking, storing, washing and repairing of tools, equipment and machinery
- The disposal of liquids and refueling
- The disposal of building materials
- The sitting of offices or sheds
- Any action leading to the impact on tree health or structure

8. Canopy pruning of trees identified for protection which is necessary to accommodate approved building works shall be undertaken in accordance with Australian Standard 4373-2007 'Pruning of Amenity Trees'.

9. USE OF TREES BY WILDLIFE

During the inspection on 19th January 2021 the trees on the site were checked for signs of use by wildlife. Few of the trees showed signs of usage by wildlife such as scratch marks or the presence of scats consistent with usage by Common Brushtail Possum (*Trichosurus vulpecula*) or Common Ringtail Possum (*Pseudocheirus peregrinus*).

It is probable that a number of the trees would be used by native fauna at various times for food, shelter and roosting purposes and the retention and replacement of trees on and adjoining the site will retain this opportunity.

The following bird species were noted on site (or heard in the immediate vicinity of the site) during the inspection on 19th January 2021: Noisy Miner (*Manorina melanocephala*) and Rainbow Lorikeet (*Trichoglossus haematodus*).

10. CONCLUSIONS/RECOMMENDATIONS

Of the 85 trees adjacent to the proposed works at 9 Devon Street Rosehill that have been assessed none of the trees were identified as having high landscape significance and as a priority for retention. However, 19 trees have been identified as worthy of specific consideration for retention/protection if possible.

None of the trees assessed for this report were identified as recommended for removal regardless of any development proposal.

The remaining 66 trees are identified in section 6 of the report as not requiring specific design consideration (i.e. are either of low landscape significance or short life expectancy).

To facilitate construction of the proposed development works the following 13 trees will require removal or are proposed to be removed as part of the works:
Tree # 43 *Callistemon viminalis* (Weeping Bottlebrush)
Tree # 44 *Callistemon viminalis* (Weeping Bottlebrush)
Tree # 45 *Callistemon viminalis* (Weeping Bottlebrush)
Tree # 46 *Callistemon viminalis* (Weeping Bottlebrush)
Tree # 64 *Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)
Tree # 65 *Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)
Tree # 66 *Melaleuca quinquenervia* (Broad-leaved Paperbark)
Tree # 67 *Melaleuca bracteata* (Black Tea-tree)
Tree # 68 *Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)
Tree # 82 *Callistemon viminalis* (Weeping Bottlebrush)
Tree # 83 *Callistemon viminalis* (Weeping Bottlebrush)
Tree # 84 *Callistemon viminalis* (Weeping Bottlebrush)
Tree # 85 *Callistemon viminalis* (Weeping Bottlebrush)

Trees potentially impacted by the proposed footpath and water services works
The remaining 66 trees assessed for the report are in the vicinity of the proposed footpath and water services works and have the potential to be impacted by these proposed works.

These trees are:
Tree numbers 1- 42, 47 to 63 and 69 to 81.

Other tree removals
In addition to the nominated tree removals noted in the SSD and itemised above, there is potential that other trees may require removal. Should this be required the following steps will be undertaken:

- The reason for the additional removals will be identified;
- Alternatives to removal will be considered;
- Replacement plantings will be included in the landscape planting works;
- The Council's tree management officer(s) will be consulted in the process.

Proposed installation of new water service and other services
Sewer and electrical services are proposed to be installed inside the property within the first 5 metres. The existing boundary wall (with fencing above) will remain and this will reduce any potential impacts on the trees' TPZ areas.

Services work for a new water line and other service extensions has the potential to impact on the street trees shown to be retained.

The existing nature strip area in which the trees are located is approximately 3 metres in width with the trees generally located within a metre of the northern (kerb) side of the nature strip.

Under *AS4970-2009 Protection of trees on development sites* the trees have TPZs of up to 6.5 metres (average of 4.1 metres) and SRZs of up to 2.8 metres (average of 2.1 metres).

The proposed installation of a new water supply service and associated 600mm wide trench and other services works will involve excavation within both the TPZs and SRZs of the trees and will impact a high to significant area of the trees' identified TPZ areas.

It is considered the actual impacts will be greater than a calculated percentage of nominal TPZ as the existing kerb, gutter and road is likely to have resulted in more root growth in the area impacted. In addition, there is high potential for impact on structural roots and the trees' structural integrity (stability).

The following options are available to assist in minimising these potential impacts:

- Thrust boring/directional drilling
- Water jet vacuum excavation

Thrust boring the services installation at a depth of 600mm (or greater) will minimise any potential impacts of the services installation. The bore pit locations will need to be determined in consultation with the project arborist to minimise impacts to trees proposed to be retained. In this regard it is noted there are several gaps in the row of street trees that would provide suitable locations for the bore pit locations.

The use of a water jet vacuum to undertake the trenching for services installation is also an option that would assist in minimising impacts - this would involve the trench being excavated using the water jet vacuum and then the services being carefully installed below the exposed roots.

Of the two options it is considered the option of thrust boring is preferred as it will minimise disturbance to the soil profile and avoids the need for excavation, contractor access to install the utilities and access to backfill the trench in close proximity to all of the trees.

Generic tree protection measures are identified in section 8 of this report to minimise potential impacts to the trees to be retained.



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1st February 2021

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APPENDIX A



Photograph 1: Illustrating the location and context of the trees along Devon Street.



Photograph 2: Illustrating the location of the trees within the nature strip area.



Photograph 3: Illustrating past mechanical damage from vehicle impacts.



Photograph 4: Illustrating a recent branch tear from vehicle impact.



Photograph 5: Illustrating a recent branch tear from vehicle impact.



Photograph 6: Illustrating the multiple leaders from near ground level in many of the trees



Photograph 7: Illustrating the multiple regrowth following past pruning for OH wires.



Photograph 8: Illustrating the multiple regrowth following past pruning for OH wires.

APPENDIX B - TREE DATA SUMMARY - 9 DEVON STREET ROSEHILL

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
1	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 140 (290 above root flare)	290	290	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2.5 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
2	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 140 (330 above root flare)	330	330	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
3	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 140 (360 above root flare)	360	360	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
4	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3	190	190	350	Good foliage condition	Mature	Single trunk	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre, central leader reduced to 0.4m	Appears stable	Sound branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low landscape significance	3	Originally multi stemmed - now reduced to one stem.
5	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 180 (240 x 460 above root flare)	330	330	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2.2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair to poor branch attachment	Good health	Good vigour	<5%	Decay in basal trunk	3 Short (5 to 15 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair to poor branch attachment with codominant leaders from ground level with some evidence of poor attachment and evidence of decay in the basal trunk - at increased risk of failure.
6	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3	Up to 190 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2.2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
7	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5	Up to 120 (310 above root flare)	310	310	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
8	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 220 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
9	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5 x 4	Up to 220 (370 above root flare)	370	370	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair to poor branch attachment	Good health	Fair vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair to poor branch attachment with multiple leaders and evidence of past failure of a leader at 0.8 metres. At the time of inspection the tree was of fair vigour and exhibited reduced foliage density.
10	*Callistemon viminalis* (Weeping Bottlebrush)	4	4	Up to 170 (360 above root flare)	360	360	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2.2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
11	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5	Up to 140 (340 x 420 above root flare)	380	380	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
12	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 130 (340 above root flare)	340	340	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
13	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5 x 4	Up to 130 (300 above root flare)	300	300	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
14	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5	Up to 130 (280 x 380 above root flare)	330	330	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
15	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 140 (310 above root flare)	310	310	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Past mechanical damage to branch on north side.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
16	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4 x 5	Up to 180 (340 x 420 above root flare)	390	390	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
17	*Callistemon viminalis* (Weeping Bottlebrush)	4	5 x 6	Up to 180 (330 above root flare)	330	330	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
18	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5 x 4.5	Up to 130 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.5 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
19	*Callistemon viminalis* (Weeping Bottlebrush)	4.5	4	Up to 140 (340 above root flare)	340	340	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the SW	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
20	*Callistemon viminalis* (Weeping Bottlebrush)	4	4 x 5	Up to 170 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
21	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 150 (290 above root flare)	290	290	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
22	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 120 (270 above root flare)	270	270	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
23	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	2.5 x 4	Up to 120 (260 above root flare)	260	260	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
24	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 100 (250 x 290 above root flare)	270	270	Good foliage condition	Mature	Single trunk	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.5 metres, upper branches pruned for OH wires in centre, central leader reduced to 0.3m on Nth	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Past mechanical damage on south at 1 metre.
25	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 110 (300 above root flare)	300	300	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
26	*Callistemon viminalis* (Weeping Bottlebrush)	4	3 x 4	Up to 130 (280 above root flare)	280	280	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.5 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
27	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3	Up to 100 (280 above root flare)	280	280	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
28	*Callistemon viminalis* (Weeping Bottlebrush)	4	2.5	120, 150	190	340	Good foliage condition	Mature	Twin trunked	Upright trunk	Majority of canopy to the east	Lower limbs pruned in past to 1.4 metres, central leader removed in past at 1.2 metres	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low landscape significance	3	Canopy bias due to past pruning. The tree's form has been compromised by severe past pruning.
29	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 130 (280 above root flare)	280	280	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
30	*Callistemon viminalis* (Weeping Bottlebrush)	4	4	Up to 130 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
31	*Callistemon viminalis* (Weeping Bottlebrush)	4	3 x 4	Up to 120 (340 above root flare)	340	340	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.5 metres	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	Mistletoe present in central crown	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Mistletoe present in central crown.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
32	*Callistemon viminalis* (Weeping Bottlebrush)	4	4	Up to 140 (360 above root flare)	360	360	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Past mechanical damage on Nth side at 1.2 to 2.2 metres.
33	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4 x 5	Up to 150 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
34	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4 x 5	Up to 140 (290 above root flare)	290	290	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Recent branch failure due to impact from vehicle.
35	*Callistemon viminalis* (Weeping Bottlebrush)	4	4	Up to 160 (290 above root flare)	290	290	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Recent mechanical damage to leader on NW from vehicle impact.
36	*Callistemon viminalis* (Weeping Bottlebrush)	4.5	1 x 2.5	180	180	290	Good foliage condition	Mature	Single trunk	Upright trunk	Majority of canopy to the east	Lower limbs pruned in past to 1 metre, central leader removed at 2.5 metres in past	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple regrowth following severe past pruning - not considered at risk of failure. The tree's form has been compromised by severe past pruning.
37	*Callistemon viminalis* (Weeping Bottlebrush)	4	4	Up to 150 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 3 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
38	*Callistemon viminalis* (Weeping Bottlebrush)	4		Up to 140 (440 above root flare)	440	440	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
39	*Callistemon viminalis* (Weeping Bottlebrush)	4	3.5	Up to 150 (330 above root flare)	330	330	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
40	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4.5	Up to 130 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
41	*Callistemon viminalis* (Weeping Bottlebrush)	4	3	Up to 140 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
42	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5	Up to 170 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair to poor branch attachment	Good health	Fair vigour	5%	No visual evidence of significant pest or disease	3 Short (5 to 15 years)	Low landscape significance	3	The tree displays fair to poor branch attachment with multiple leaders and a past failure on the south side at 3 metres - not considered at risk of failure. At the time of inspection the tree was of fair vigour and exhibited reduced foliage density and low levels of dieback.
43	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 75 (230 above root flare)	230	230	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the west	Lower limbs pruned in past to 1.2 metres	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low landscape significance	3	The tree's past canopy development has been suppressed. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
44	*Callistemon viminalis* (Weeping Bottlebrush)	4	6 x 7	Up to 190 (470 above root flare)	470	470	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2.4 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. Recent mechanical damage at 1.2 metres on Sth side.
45	*Callistemon viminalis* (Weeping Bottlebrush)	4	4.5	Up to 210 (380 above root flare)	380	380	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
46	*Callistemon viminalis* (Weeping Bottlebrush)	4	4	Up to 190 (260 x 340 above root flare)	300	300	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
47	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5	Up to 140 (370 above root flare)	370	370	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Moderate health	Poor vigour	30%	No visual evidence of significant pest or disease	3 Short (5 to 15 years)	Low landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. At the time of inspection the tree was of moderate health and poor vigour and exhibited high levels of dieback and epicormic growth.
48	*Callistemon viminalis* (Weeping Bottlebrush)	4	4 x 3.5	Up to 130 (310 above root flare)	310	310	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
49	*Callistemon viminalis* (Weeping Bottlebrush)	4	4 x 5	Up to 140 (340 above root flare)	340	340	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
50	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 130 (380 above root flare)	380	380	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
51	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 160 (340 above root flare)	340	340	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
52	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 240 (340 x 480 above root flare)	410	410	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
53	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 180 (310 above root flare)	310	310	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
54	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3	Up to 110 (220 above root flare)	220	220	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
55	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 150 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
56	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	4	Up to 180 (420 above root flare)	420	420	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
57	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	2 x 3.5	Up to 110 (270 above root flare)	270	270	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
58	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3	Up to 85 (290 above root flare)	290	290	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
59	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3.5	Up to 110 (320 above root flare)	320	320	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.5 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
60	*Callistemon viminalis* (Weeping Bottlebrush)	4	4 x 6	Up to 210 (400 above root flare)	400	400	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
61	*Callistemon viminalis* (Weeping Bottlebrush)	3	2	130	130	160	Good foliage condition	Semi Mature	Single trunk	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.6 metres	Appears stable	Sound branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	Low landscape significance	3	
62	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	5	6	270, 350	440	490	Fair foliage condition	Mature	Twin trunked	Upright trunk	Balanced canopy area	Upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Fair vigour	10%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with codominant leaders from 1.2 metres - not considered at risk of failure in the short term. At the time of inspection the tree was of fair vigour and exhibited reduced foliage density and low to moderate levels of dieback.
63	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	5	6	260, 340	430	430	Good foliage condition	Mature	Twin trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 3 metres	Appears stable	Fair branch attachment	Good health	Fair vigour	5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with codominant leaders from 0.3 metres and multiple leaders from 1.7 metres - not considered at risk of failure in the short term. At the time of inspection the tree was of fair vigour and exhibited low levels of dieback.
64	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	4.5	3	290	290	360	Good foliage condition	Mature	Single trunk	Upright trunk	Majority of canopy to the west	Lower limbs pruned in past to 1.1 metres	Appears stable	Poor branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	3 Short (5 to 15 years)	Low to moderate landscape significance	3	Canopy bias due to past failure of codominant leader at 1.6 metres. The tree displays poor branch attachment with past failure of a codominant leader at 1.6 metres.
65	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	4.5	4	Up to 200 (340 above the root flare)	340	340	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
66	*Melaleuca quinquenervia* (Broad-leaved Paperbark)	5	5	220, 260	340	410	Good foliage condition	Mature	Twin trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	
67	*Melaleuca bracteata* (Black Tea-tree)	5	5 x 6	Up to 230 (380 x 420 above the root flare)	400	400	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the east	Lower limbs pruned in past to 2 metres	Appears stable	Fair branch attachment	Good health	Fair vigour	5 to 10%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	Slight canopy bias to the east. The tree displays fair branch attachment with multiple leaders and a past failure on Nth at 3 metres - not considered at risk of failure in the short term. At the time of inspection the tree was of fair vigour and exhibited low to moderate levels of dieback.
68	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	4.5	5	Up to 390 (410 above the root flare)	410	410	Good foliage condition	Mature	Multi trunked	Distinct trunk lean to the west	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	Distinct trunk lean to the west for 1.6 metres then upright. At the time of inspection the tree exhibited low levels of dieback.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
69	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	4.5	4	Up to 270 (410 above the root flare)	410	410	Good foliage condition	Mature	Multi trunked	Slight trunk lean to the west	All canopy to the west	Lower limbs pruned in past to 3 metres	Appears stable	Fair branch attachment	Good health	Fair vigour	5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree's past canopy development has been significantly suppressed. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure in the short term.
70	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	6	6	350, 390	520	650	Good foliage condition	Mature	Twin trunked	Upright trunk	Balanced canopy area	Upper branches pruned for OH wires in centre	Appears stable	Fair to poor branch attachment	Good health	Good vigour	5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair to poor branch attachment with codominant leaders from ground level and multiple regrowth following past pruning - not considered at risk of failure in the short term.
71	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	4.5	4 x 5	210, 340	400	440	Good foliage condition	Mature	Twin trunked	Upright trunk	Majority of canopy to the east	Lower limbs pruned in past to 3 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree's past canopy development has been suppressed. The tree displays fair branch attachment with codominant leaders from ground level and multiple regrowth following past pruning - not considered at risk of failure.
72	*Melaleuca linariifolia* (Flax-leaved Paperbark, Budjur)	5	3 x 7	170, 300, 360	500	520	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure in the short term.
73	*Callistemon viminalis* (Weeping Bottlebrush)	4	3 x 4	190, 200	280	310	Good foliage condition	Mature	Twin trunked	Upright trunk	Majority of canopy to the east	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair to poor branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree displays fair branch attachment with multiple leaders with some evidence of poor attachment - not considered at risk of failure in the short term.
74	*Callistemon viminalis* (Weeping Bottlebrush)	5	5 x 6	Up to 260 (480 x 520 above the root flare)	500	500	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the east	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre and west	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
75	*Callistemon viminalis* (Weeping Bottlebrush)	6	5 x 6	Up to 170 (380 x 510 above the root flare)	445	445	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
76	*Callistemon viminalis* (Weeping Bottlebrush)	5.5	4 x 6	Up to 180 (380 above the root flare)	380	380	Good foliage condition	Mature	Multi trunked	Slight trunk lean to the SW	Majority of canopy to the SW	Lower limbs pruned in past to 2 metres, upper branches pruned for OH wires in centre and east	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree's past canopy development has been suppressed. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
77	*Callistemon viminalis* (Weeping Bottlebrush)	5	7	Up to 190 (390 above the root flare)	390	390	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre and east	Appears stable	Fair branch attachment	Good health	Good vigour	5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	ULE	Landscape Significance	Retention Value*	Comments
78	*Callistemon viminalis* (Weeping Bottlebrush)	6	6	Up to 280 (500 x 580 above the root flare)	540	540	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the SE	Lower limbs pruned in past to 2 metres	Appears stable	Fair branch attachment	Good health	Good vigour	5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	Moderate landscape significance	2	Slight canopy bias to the SE. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
79	*Callistemon viminalis* (Weeping Bottlebrush)	6	2 x 4	Up to 110 (4310 above the root flare)	310	310	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy on an E x W axis	Lower limbs pruned in past to 1.5 metres	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low landscape significance	3	The tree's past canopy development has been significantly suppressed.
80	*Callistemon viminalis* (Weeping Bottlebrush)	7	7	200, 290	350	675	Good foliage condition	Mature	Twin trunked	Upright trunk	Majority of canopy to the south	Lower limbs pruned in past to 1.6 metres including removal of large diameter leaders	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	Moderate landscape significance	2	Slight canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
81	*Callistemon viminalis* (Weeping Bottlebrush)	6	4	Up to 130 (430 above the root flare)	430	430	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the north	Lower limbs pruned in past to 1.8 metres	Appears stable	Fair branch attachment	Good health	Fair vigour	5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	The tree's past canopy development has been suppressed. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. At the time of inspection the tree was of fair vigour and exhibited moderate levels of dieback (mostly shaded/internal dieback). Ringtail Possum drey in upper crown.
82	*Callistemon viminalis* (Weeping Bottlebrush)	4.5	4	Up to 170 (380 above the root flare)	380	380	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the north	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	Low to moderate landscape significance	3	The tree's past canopy development has been suppressed. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
83	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	2	Up to 80 (380 above the root flare)	380	380	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the north	Lower limbs and leaders pruned in past to 2 metres, upper branches pruned for OH wires in centre	Appears stable	Fair branch attachment	Moderate health	Poor vigour	<5%	No visual evidence of significant pest or disease	3 Short (5 to 15 years)	Low landscape significance	3	The tree displays fair branch attachment with multiple leaders - not considered at risk of failure. At the time of inspection the tree was of moderate health and poor vigour and exhibited significantly reduced foliage size and density and low levels of dieback.
84	*Callistemon viminalis* (Weeping Bottlebrush)	3.5	3 x 4	Up to 120 (260 above the root flare)	260	260	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the north	Lower limbs pruned in past to 1.8 metres, upper branches pruned for OH wires in centre and south	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
85	*Callistemon viminalis* (Weeping Bottlebrush)	4	4 x 6	Up to 160 (360 above the root flare)	360	360	Good foliage condition	Mature	Multi trunked	Upright trunk	Majority of canopy to the north	Lower limbs pruned in past to 1.7 metres, upper branches pruned for OH wires in centre and south	Appears stable	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Low to moderate landscape significance	3	Canopy bias due to past pruning. The tree displays fair branch attachment with multiple leaders - not considered at risk of failure.
ca = approximate diameter at breast height (DBH) estimated from nearest property boundary or fence where trees were located on adjoining properties																						
* Retention Values: 1 - High (Priority for retention); 2 - Moderate (Consider for retention); 3 - Low or short ULE (Not warranting specific design consideration) and 4 - Remove (very short ULE, structurally unsound, weed species etc.)																						

M.G.A

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A Dial Before You Dig enquiry must be lodged at least two business days prior to starting any excavation or work site project.

DEVON STREET

COLQUHOUN STREET

UNWIN STREET

BOX CULVERT

BUILDING

BRICK WALL

CONCRETE WALL

No.9
100
DP 1168951

2
DP 864567

T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 T13 T14 T15 T16 T17 T18 T19 T20 T21 T22 T23 T24 T25 T26 T27 T28 T29 T30 T31 T32 T33 T34 T35 T36 T37 T38 T39 T40 T41 T42 T43 T44 T45

LEGEND:
BXC–BOX CULVERT
GPIT–GRATED PIT
INV–INVERT LEVEL
OBV–OBVERT LEVEL
VC–VEHICLE CROSSING

6 0 12 24 42 60
SCALE 1:600

THERE ARE LAYERS WITHIN THIS CAD PLAN THAT HAVE BEEN TURNED OFF FOR CLARITY PURPOSES

(B)EASEMENT 6.095 WIDE (B309159)

1 2 3 4 5

(B)

vv

T1, T2 etc = tree numbers as per report by Landscape Matrix

X = removed in past - now a stump

ADJOINS SHEET 3

ADJOINS SHEET 2

CLIENT

CLYDE REFINERY DEVELOPMENT

PROJECT

DETAIL SURVEY
OF
LOT 100 IN
DP1168951
9 DEVON STREET ROSEHILL

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.

Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.

Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

TREE DETAIL
HEIGHT (m) ie 12 = 12m
TRUNK (m) ie 0.5 = 450mm DIAMETER
SPREAD (m) ie 12 = 2m SPREAD
TREE SYMBOLS ARE A TRUE REPRESENTATION OF THE SPREAD ie SYMBOL SIZE 2 (0 - 7 VALUE) = 2m SPREAD
2m DIAMETER SPREAD

2	GKO	08/07/2020	CONTOURS UPDATED
1	GKO	02/09/2019	INITIAL ISSUE

SYM	CODE	DESCRIPTION
	BIN	BIN
	BM	BENCH MARK
	BO	BOLLARD
	DJM	DRAINAGE MANHOLE
	EFP	ELEC FUSE BOX
	ELP	ELEC GARDEN LIGHT
	EL	ELEC GREEN PILLAR
	LP	ELEC LIGHT POLE
	EP	ELECT SINGLE PIT
	SPL	ELEC STAY POLE
	PP	ELEC POWER POLE
	ELP	ELEC POLE/LIGHT
	TRANS	ELE POLE/TRANSFORM
	FD	FUEL DIP
	GM	GAS MAIN
	GMR	GAS METER
	GAS	GAS VALVE
	AG	GATE
	GUL	GULLY PIT
	HYD	HYDRANT
	BOR	BOREHOLE

SYM	CODE	DESCRIPTION
	OFM	OPTICAL FIBRE MARKER
	OFP	OPTICAL FIBRE PIT
	TM	PALM TREE
	SE	SEAT
	TS	SHRUB
	TCA	TELSTRA PIT
	SLH	SEWER LAMP HOLE
	SMH	SEWER MANHOLE
	SVP	SEWER VENT PIPE
	SI	SIGN
	BUS	BUS STOP SIGN
	T	TREE
	SGL	TRAFFIC LIGHT
	SCL	TRAFFIC CONTROLLER
	SJX	TRAFFIC JUNCTION BOX
	US	UNKNOWN SERVICE
	WAV	WATER AIR VALVE
	WMR	WATER METER
	WEP	WATER PUMP
	WSV	WATER STOP VALVE
	WTP	WATER TAP

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

DRAINAGE PIPE U/G
DRAIN
ELECT. CABLE U/G
ELEC. CABLE A/G
GAS PIPE
FENCE LINE
SEWERAGE PIPE
TELSTRA CABLE
WATER PIPE

LANDPARTNERS
built environment consultants

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Level 2, 23-29 South Street
Rydalmere NSW 2116
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Dundas NSW 2117

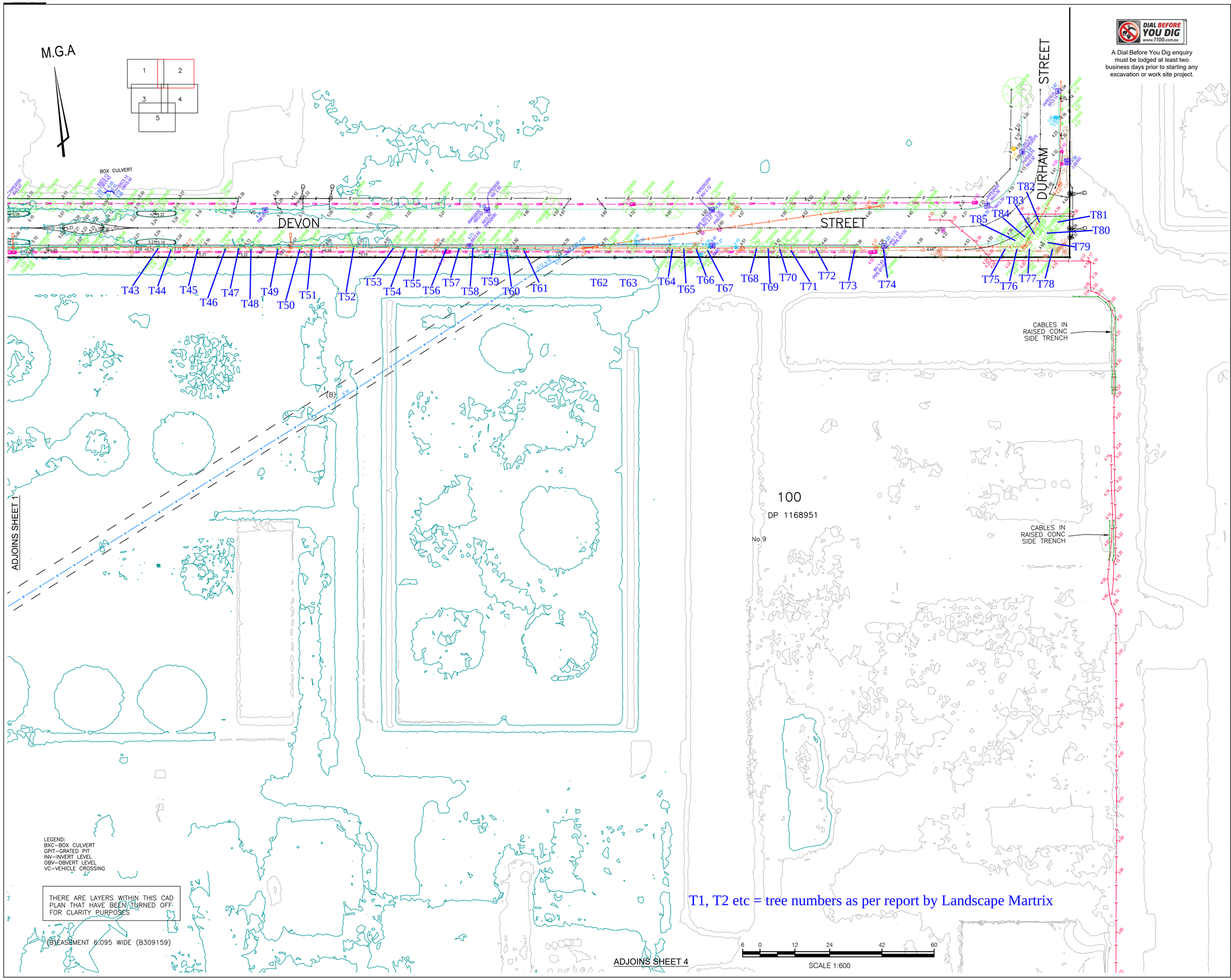
t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: CITY OF PARRAMATTA
HEIGHT ORIGIN: SSM76263 RL 4.42	SCALE: 1:600 (A1)
MERIDIAN: 56	CONTOUR INTERVAL: Major:5m Minor:1m
CO-ORD SYSTEM: MGA	SURVEYOR: BB DATE OF SURVEY: 12/08/2019
CCAD FILE: 74707 CLYDE DETAIL	DRAWN: SF DATE: 8/07/2020
AUTOCAD FILE: SY074707.000.3.2	CHECKED: BB DATE: 8/07/2020
ARCHIVE FILE:	APPROVED: GKO DATE: 8/07/2020
PLAN NUMBER: SY074707.000.3.2	SHEET 1 OF 5

PD PM

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CLIENT

CLYDE REFINERY DEVELOPMENT

PROJECT

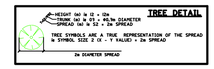
DETAIL SURVEY
OF
LOT 100 IN DP1168951
9 DEVON STREET ROSEHILL

NOTES

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2	GKO	08/07/2020	CONTOURS UPDATED
1	GKO	02/09/2019	INITIAL ISSUE

SYM	CODE	DESCRIPTION
	BIN	BIN
	BM	BENCH MARK
	BO	BOLLARD
	DJM	DRAINAGE MANHOLE
	EFP	ELEC FUSE BOX
	ELP	ELEC GARDEN LIGHT
	EL	ELEC GREEN PILLAR
	LP	ELEC LIGHT POLE
	EP	ELECT SINGLE PIT
	SPL	ELEC STAY POLE
	PP	ELEC POWER POLE
	ELP	ELEC POLE/LIGHT
	TRANS	ELE POLE/TRANSFORM
	FD	FUEL DIP
	GM	GAS MAIN
	GMR	GAS METER
	GAS	GAS VALVE
	AG	GATE
	GUL	GULLY PIT
	HYD	HYDRANT
	BOR	BOREHOLE

SYM	CODE	DESCRIPTION
	OFM	OPTICAL FIBRE MARKER
	OFP	OPTICAL FIBRE PIT
	TM	PALM TREE
	SE	SEAT
	TS	SHRUB
	TCA	TELSTRA PIT
	SLH	SEWER LAMP HOLE
	SMH	SEWER MANHOLE
	SVP	SEWER VENT PIPE
	SI	SIGN
	BUS	BUS STOP SIGN
	T	TREE
	SGL	TRAFFIC LIGHT
	SCL	TRAFFIC CONTROLLER
	SJX	TRAFFIC JUNCTION BOX
	US	UNKNOWN SERVICE
	WAV	WATER AIR VALVE
	WMR	WATER METER
	WEP	WATER PUMP
	WSV	WATER STOP VALVE
	WTP	WATER TAP

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

DRAINAGE PIPE U/G
DRAIN
ELECT. CABLE U/G
ELEC. CABLE A/G
GAS PIPE
FENCE LINE
SEWERAGE PIPE
TELSTRA CABLE
WATER PIPE

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ISO 9001:2008
FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: CITY OF PARRAMATTA
HEIGHT ORIGIN: SSM76263 RL 4.42	SCALE: 1:600 (A1)
MERIDIAN: 56	CONTOUR INTERVAL: Major:5m Minor:1m
CO-ORD SYSTEM: MGA	SURVEYOR: BB — DATE OF SURVEY: 12/08/2019
CCAD FILE: 74707 CLYDE DETAIL	DRAWN: SF — DATE: 8/07/2020
AUTOCAD FILE: SY074707.000.3.2	CHECKED: BB — DATE: 8/07/2020
ARCHIVE FILE:	APPROVED: GKO — DATE: 8/07/2020
PLAN NUMBER: SY074707.000.3.2	SHEET 2 OF 5

PD:PM

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APPENDIX G

CONTINGENCY MANAGEMENT PLAN

ANNEX G – CONTINGENCY MANAGEMENT PLAN

Item	Trigger/ response	Condition		
		Green	Amber	Red
Noise impacts at sensitive receivers	Trigger	Noise levels do not exceed applicable NMLs.	Noise levels exceed applicable NMLs.	Noise levels exceed highly noise affected criteria (75 dBA).
	Response	Ongoing best practice management measures to minimise noise emissions.	Implement all feasible and reasonable mitigation and management measures to minimise noise impacts.	Implement all feasible and reasonable mitigation and management measures to ensure noise levels are below highly noise affected criteria. If noise levels cannot be kept below applicable limits then a different construction method or equipment will be utilised or respite periods will be implemented by restricting the hours that the very noisy activities can occur.
Visible dust leaving the site	Trigger	No visible dust leaving the site during daily inspections.	Visible dust leaving the site during daily inspections.	There is visible dust leaving the site multiple times during a day OR from multiple locations within the site.
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures, where appropriate. Implement additional remedial measures, such as deploying additional water trucks etc.	Investigate dust generating activities, and if necessary, temporarily halt them.
Queuing	Trigger	No queuing identified	Queuing identified within site.	Queuing identified on the public road.
	Response	No response required. Continue monitoring program.	Review the construction delivery schedule. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the driver code of conduct.	Review and investigate construction activities. If it is concluded that construction activities are directly responsible for queuing on public roads, implement additional control measures such as: ▪ Put a temporary hold on incoming heavy vehicle deliveries. ▪ Review CTMP and update where necessary. ▪ Provide additional training.

Item	Trigger/ response	Condition		
		Green	Amber	Red
Erosion	Trigger	No evidence of erosion.	Minor gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.	Significant gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.
	Response	Continue CEMP and ESCP implementation.	A suitably trained person to inspect the site. Review of erosion and sediment structures. Remediate as appropriate. Revise ESCP if required.	A suitably trained person to inspect the site. Review of erosion and sediment structures. Remediate as soon as practical. Revise ESCP if required.
Water management structures	Trigger	Water management structures have been designed, constructed and managed in accordance with the Blue Book and the ESCP.	Inspections indicate that water management structures illustrate minor non-compliance with the Blue Book and the ESCP.	Inspections indicate a failure of the water management structures.
	Response	Continue CEMP and ESCP implementation.	A suitably trained person to inspect the site. Review of water management structures. Remediate as appropriate. Revise ESCP if required.	A suitably trained person to inspect the site. Remediate as soon as practical. Review of engineering design and revise ESCP.
Heritage	Trigger	No unknown heritage items uncovered.	Potential heritage item uncovered.	Potential heritage item uncovered causing significant delays to project.
	Response	Continue CEMP implementation.	Stop work and implement the unexpected finds protocol in Section 3.2.	Stop work and implement the unexpected finds protocol in Section 3.2. Heritage item to be salvaged and removed from site by a qualified archaeologist, if requested by Heritage NSW.
Unexpected Contamination	Trigger	No unexpected contamination uncovered during earthworks.	Areas of possible unexpected contamination uncovered.	Areas of unexpected contamination uncovered.
	Response	Continue CEMP implementation.	Stop work immediately and implement the unexpected contamination finds procedure (Annex B).	Stop work immediately and implement the unexpected contamination finds procedure (Annex B).



APPENDIX H

CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN

PROPOSED CENTRAL SYDNEY INDUSTRIAL ESTATE INCORPORATING NEW DOWNER SUSTAINABLE ROAD RESOURCE CENTRE.

9 DEVON STREET, CLYDE NSW 2142

PART LOT 100 DP1168951

CIVIL PACKAGE - SSD 10459

DRAWING LIST:

DRAWING NO.	DRAWING TITLE
C013919.01-DA10	DRAWING LIST & GENERAL NOTES
C013919.01-DA15	SERVICES ARRANGEMENT PLAN
C013919.01-DA21	EROSION AND SEDIMENT CONTROL PLAN- PHASE 1
C013919.01-DA22	EROSION AND SEDIMENT CONTROL PLAN- PHASE 2
C013919.01-DA23	EROSION AND SEDIMENT CONTROL PLAN- FINAL STAGE
C013919.01-DA25	EROSION AND SEDIMENT CONTROL DETAILS
C013919.01-DA31	BULK EARTHWORKS PLAN - PHASE 1
C013919.00-DA32	BULK EARTHWORKS PLAN - PHASE 2
C013919.00-DA35	BULK EARTHWORKS SECTIONS
C013919.00-DA41	STORMWATER DRAINAGE PLAN - PHASE 1
C013919.00-DA42	STORMWATER DRAINAGE PLAN - PHASE 2
C013919.00-DA45	STORMWATER DRAINAGE DETAILS - SHEET 1
C013919.00-DA46	STORMWATER DRAINAGE DETAILS - SHEET 2
C013919.00-DA51	FINISHED LEVELS PLAN - PHASE 1
C013919.00-DA60	PROPOSED PUBLIC ACCESS ROAD & TYPICAL SECTION



LOCALITY PLAN
NOT TO SCALE

ELECTRONIC INFORMATION NOTES:

1. THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
2. THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
3. THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
4. THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.

GENERAL NOTES:

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

G2 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.

G3 ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL SETOUT. REFER TO THE ARCHITECT'S DRAWINGS FOR ALL DIMENSIONAL SETOUT INFORMATION.

G4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.

G5 UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.

G6 ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE PROGRESS OF THE JOB.

G7 ALL SERVICES ARE BASED ON 'DIAL BEFORE YOU DIG' INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL SERVICES ARE IDENTIFIED PRIOR TO THE COMMENCEMENT OF ANY WORKS.

SITE PREPARATION NOTES:

1. ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT.
2. EXISTING LEVELS ARE BASED ON INFORMATION PROVIDED BY LANDPARTNERS TITLED AS0205 Clyde_BE_200620 TIN DATED 08/07/20.
3. STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED.
4. COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +0mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND +0mm/-20mm ELSEWHERE.
5. PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION.
6. AREAS TO RECEIVE FILL (THAT ARE NOT ON BENCHED BATTERS) AND AREAS IN CUT SHALL BE PROOF ROLLED TO IDENTIFY ANY SOFT HEAVING MATERIAL. SOFT MATERIAL SHALL BE BOXED OUT AND REMOVED PRIOR TO FILL PLACEMENT. PROOF ROLLING TO BE INSPECTED BY A GEOTECHNICAL ENGINEER OR THE EARTHWORKS DESIGNER.
7. SITE WON FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
8. IMPORTED FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
9. ALL ENGINEERED FILL PARTICLES SHALL BE ABLE TO BE INCORPORATED WITHIN A SINGLE LAYER. FURTHER, LESS THAN 30% OF PARTICLES SHALL BE RETAINED ON THE 37.5 MM SIEVE. ENGINEERED FILL SHALL BE ABLE TO BE TESTED IN ACCORDANCE WITH THE STANDARD COMPACTION METHOD (AS1289.5.4.1) OR HILF TEST METHOD (AS1289.5.7.1). THESE METHODS REQUIRE LESS THAN 20% RETAINED ON THE 37.5 MM SIEVE, WHERE BETWEEN 20% AND 30% OF PARTICLES ARE RETAINED ON THE 37.5 MM SIEVE THE ABOVE TEST METHODS SHALL STILL BE ADOPTED AND TEST REPORTS ANNOTATED APPROPRIATELY. THESE REQUIREMENTS SHOULD BE MET BY THE MATERIAL AFTER PLACEMENT AND COMPACTION
10. ALL THE EARTHWORKS UNDERTAKEN AND THE SUBGRADE CONDITION IN THE CUT AREAS (IN THE STATED PERIOD) ARE DOCUMENTED IN THE REPORTS AND HAVE BEEN UNDERTAKEN IN ACCORDANCE WITH THE SPECIFICATION.
11. PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
12. EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
13. MATCH EXISTING LEVELS AT BATTER INTERFACE.
14. CONTRACTOR TO MATCH EXISTING LEVELS AT THE INTERFACE OF EARTHWORKS AND EXISTING SURFACE AT BATTER LOCATIONS OR WHERE NO RETAINING WALLS ARE PRESENT. ANY DISCREPANCY BETWEEN DESIGN AND EXISTING LEVELS TO BE REFERRED TO THE ENGINEER FOR DIRECTION OR ADJUSTMENTS TO DESIGN LEVELS.
15. DURING EARTHWORKS THE CONTRACTOR IS TO ENSURE ALL AREAS ARE FREE DRAINING & WILL NOT RETAIN WATER DURING RAINFALL. PROVIDE TEMPORARY MEASURES AS REQUIRED TO ENSURE FREE FLOWING RUNOFF THROUGH MANAGED DRAINAGE PATHS, DIVERSION DRAINS OR OTHER SUITABLE DISPOSAL METHOD AS AGREED DURING THE WORKS. REFER ANY CONCERNS TO THE ENGINEER. REFER TO EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES.

STORMWATER DRAINAGE NOTES:

1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3:2003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
2. THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS C013730.00-C51 TO C53.
4. PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 (WITH HS2 SUPPORT) REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. ALL PIPES UP TO AND INCLUDING Ø300 TO BE uPVC GRADE SN8 UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c 25 MPA. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
10. IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
11. PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
12. CONCRETE PIPES UNDER, OR WITHIN THE ZONE OF INFLUENCE OF PAVED AREAS SHALL BE LAID USING HS2 TYPE SUPPORT, AS A MINIMUM, IN ACCORDANCE WITH AS 3725. AGGREGATE BACKFILL SHALL NOT BE USED FOR PIPE BEDDING AND OR HAUNCH/SIDE SUPPORT.
13. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
14. ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
15. ALL PIPE GRADES 1 IN 200 MINIMUM UNO.
16. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
17. MIN. 600 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
18. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY', THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' U.N.O.
19. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
20. DOWN PIPES (DP) TO BE AS PER HYDRAULIC ENGINEERS DETAILS WITH CONNECTOR TO MATCH DP SIZE U.N.O. ON PLAN. PROVIDE CLEANING EYE AT GROUND LEVEL.
21. PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

EROSION CONTROL NOTES :

ALL CONTROL WORK INCLUDING DIVERSION BANKS AND CATCH DRAINS, V-DRAINS AND SILT FENCES SHALL BE COMPLETED DIRECTLY FOLLOWING THE COMPLETION OF THE EARTHWORKS.

1. SILT FENCES AND SILT FENCE RETURNS SHALL BE ERECTED CONVEX TO THE CONTOUR TO POND WATER.
2. HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
3. ALL TEMPORARY EARTH BERMS, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
4. CLEAR WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ON GOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
6. ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING. TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION.
7. ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE END OF THE DEFECTS LIABILITY PERIOD.
8. ALL EARTHWORKS AREAS SHALL BE ROLLED ON A REGULAR BASIS TO SEAL THE EARTHWORKS.
9. ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAYS EARTHWORKS. THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200MM.
10. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
11. AFTER REVEGETATION OF THE SITE IS COMPLETE AND THE SITE IS STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SILT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.
12. ALL TOPSOIL STOCKPILES ARE TO BE SUITABLY COVERED TO THE SATISFACTION OF THE SITE MANAGER TO PREVENT WIND AND WATER EROSION.
13. ANY AREA THAT IS NOT APPROVED BY THE CONTRACT ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED AND SIGN POSTED, FENCED OFF OR OTHERWISE APPROPRIATELY PROTECTED AGAINST ANY SUCH DISTURBANCE.
14. ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS APPROVED FOR SUCH USE BY THE SITE MANAGER. A 6m BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH. ALL STOCKPILES SHALL BE ADEQUATELY PROTECTED FROM EROSION AND CONTAMINATION OF THE SURROUNDING AREA BY USE OF THE MEASURES APPROVED IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
15. ACCESS AND EXIT AREAS SHALL INCLUDE SHAKE-DOWN OR OTHER METHODS APPROVED BY THE SITE MANAGER FOR THE REMOVAL OF SOIL MATERIALS FORM MOTOR VEHICLES.
16. THE CONTRACTOR IS TO ENSURE RUNOFF FROM ALL AREAS WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION, INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF POLLUTANTS BEFORE IT IS EITHER DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
17. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROWNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SWMP.

NSW GOVERNMENT | Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: SSD-10459

Granted on: 31 January 2021

Signed: JF Sheet No: 5 of 44

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR INFORMATION	12.08.20	C
REVISED AS CLOUDED	21.07.20	B
ISSUED FOR INFORMATION	08.07.20	A

ARCHITECT | CLIENT

PROJECT: SUSTAINABLE ROAD RESOURCE CENTRE (PHASE 1)
9 DEVON STREET, CLYDE NSW

DESIGNED XC | DRAWN HU | DATE MAY 20 | CHECKED | SCALE A0 AS SHOWN | CAD REF: C013919.01-DA10

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Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: DRAWING LIST & GENERAL NOTES

DRAWING NO. C013919.01-DA10 | ISSUE C

STABILISED CONSTRUCTION ENTRY (ALTERNATE). REFER TO DETAIL ON DA25

PROVIDE SILT FENCE

PROVIDE SILT FENCE

STABILISED CONSTRUCTION ENTRY. REFER TO DETAIL ON DA25

CLEAN WATER FROM UPSTREAM CATCHMENT

PROVIDE DIVERSION DRAIN TO SEDIMENT BASIN

PROVIDE DIVERSION DRAIN TO SEDIMENT BASIN

PROVIDE DIVERSION DRAIN TO SEDIMENT BASIN

EASEMENT FOR SYDNEY WATER LINE 6.09M WIDE (B3091959)

PROVIDE TEMPORARY BUND BETWEEN DIRTY WATER AND CLEAN WATER DIVERSION DRAIN. TYPICAL

PROVIDE DIVERSION DRAIN TO SEDIMENT BASIN

PROVIDE SILT FENCE

PROVIDE EARTH BUND TO DIVERT DIRTY WATER TO SEDIMENT BASIN AND TO SEPARATE PHASE 1 & 2 OF THE DEVELOPMENT.

REFER DRAWING DA21 FOR EROSION AND SEDIMENT CONTROL PLAN - PHASE 1.

PROVIDE CLEAN WATER DIVERSION DRAIN

LIMIT OF WORKS FOR PHASE 2 OF THE DEVELOPMENT

KEEP EXISTING HEADWALL AND CLEAN WATER DRAIN TO DISCHARGE INTO EXISTING SWALE

PROVIDE SILT FENCE

PROVIDE DIVERSION DRAIN TO SEDIMENT BASIN

SEDIMENT BASIN (PHASE 2):

CATCHMENT AREA	= 25.3ha
REQUIRED BASIN VOLUME	= 8039m³
BASE DIMENSIONS (L X W)	= 120m x 40m
TOP DIMENSIONS (L X W)	= 129m x 49m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 8315m³

EXISTING GRASSED SWALE REMAINS IN PLACE.

PROVIDE SILT FENCE

CLEAN WATER DISCHARGE TO DUCK RIVER VIA PUMPED SYSTEM

LIMIT OF WORKS FOR PHASE 2 OF THE DEVELOPMENT

NO LAND DISTURBED. EXISTING GRASS AND PAVEMENT TO REMAIN IN PLACE TO MINIMISE SEDIMENT RUNOFF.

EXISTING GRASSED SWALE REMAINS IN PLACE.

APPROXIMATE TOP BRAKEN VETIVER (HIGH) AFFORESTED REED

APPROXIMATE EXTENT OF TREE LINE

DUCK RIVER

DEVELOPMENT AREA 35.087ha

PROPOSED ROAD 21 WIDE

SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C013919.01-DA25.
SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK'. CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY (33.1mm).

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:
1. ASSUME TYPE D SOIL (CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)

LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS. TYPICAL (N.S.O.?.)

- SILT FENCE ONLY
- SITE BOUNDARY
- DIVERSION DRAIN
- CLEAN WATER DIVERSION DRAIN
- OVERLAND FLOW DIRECTION
- APPROXIMATE EXTENT OF TREE LINE
- RIPARIAN SETBACK

EROSION & SEDIMENT CONTROL NOTE:

REFER TO DA10 FOR EROSION & SEDIMENT CONTROL NOTES

EROSION & SEDIMENT CONTROL PLAN - PHASE 2
SCALE 1:1000

NSW GOVERNMENT | Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: SSD-10459

Granted on: 31 January 2021

Signed: JF Sheet No: 8 of 44

FOR INFORMATION

10m 0 10 20 30 40 50 60 70 80 90 100m
SCALE 1:1000 AT A0 SHEET SIZE

AMENDMENTS	DATE	ISSUE
REVISED PER NEW SITE PLAN	30.11.20	F
REVISED PER CLIENT COMMENTS	20.11.20	E
REVISED PER NEW SITE PLAN	16.11.20	D
ISSUED FOR INFORMATION	12.08.20	C
REVISED AS CLOUDED	21.07.20	B
ISSUED FOR INFORMATION	08.07.20	A

ARCHITECT

CLIENT

PROJECT: SUSTAINABLE ROAD RESOURCE CENTRE (PHASE 1)
9 DEVON STREET, CLYDE NSW

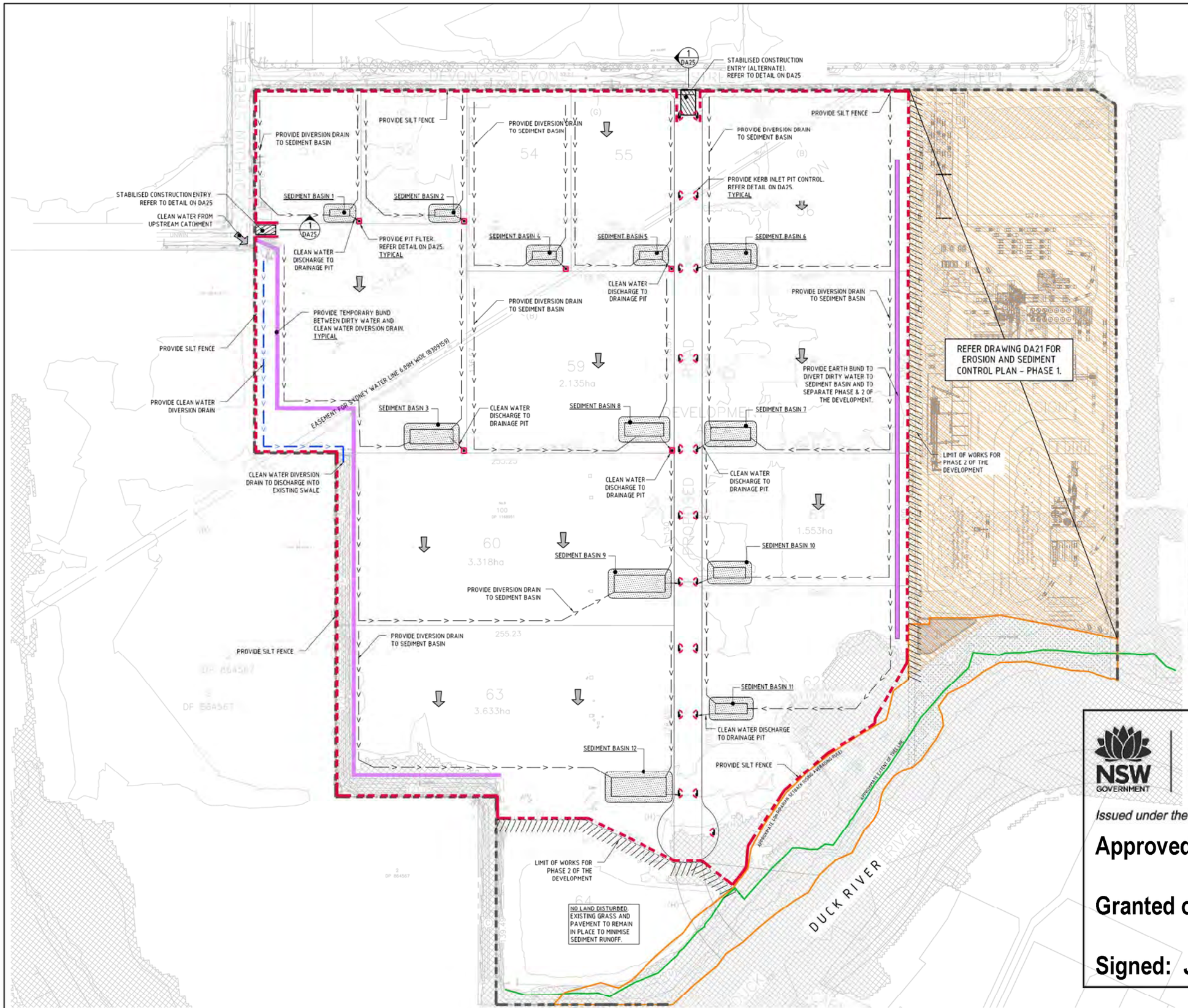
DESIGNED XC | DRAWN HU | DATE MAY 20 | CHECKED | SIZE A0 | SCALE AS SHOWN | CAD REF: C013919.01-DA22

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DRAWING TITLE: EROSION & SEDIMENT CONTROL PLAN - PHASE 2

DRAWING No. C013919.01-DA22 | ISSUE F



EROSION & SEDIMENT CONTROL PLAN – FINAL STAGE
SCALE 1:1000

SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C013919.01-DA25.
SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION; MANAGING URBAN STORMWATER-THE BLUE BOOK'. CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY (33.1mm).

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:
1. ASSUME TYPE D SOIL (CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)

LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS. TYPICAL (N.S.O.P.)

- SILT FENCE ONLY
- SITE BOUNDARY
- DIVERSION DRAIN
- CLEAN WATER DIVERSION DRAIN
- OVERLAND FLOW DIRECTION
- APPROXIMATE EXTENT OF TREE LINE
- RIPARIAN SETBACK

EROSION & SEDIMENT CONTROL NOTE:

REFER TO DA10 FOR EROSION & SEDIMENT CONTROL NOTES

SEDIMENT BASIN SCHEDULE

BASIN No.	CATCHMENT AREA (Ha.)	REQUIRED BASIN VOLUME	BASE DIMENSIONS (LxW)	TOP DIMENSIONS (LxW)	MAX SLIDE SLOPE	DEPTH	PROVIDED BASIN VOLUME
SEDIMENT BASIN 1	0.77	244m³	15mX5m	24mX14m	1V:3H	1.5m	285m³
SEDIMENT BASIN 2	0.77	244m³	15mX5m	24mX14m	1V:3H	1.5m	285m³
SEDIMENT BASIN 3	2.76	876m³	33mX11m	42mX20m	1V:3H	1.5m	878m³
SEDIMENT BASIN 4	1.03	327m³	18mX6m	27mX15m	1V:3H	1.5m	361m³
SEDIMENT BASIN 5	1.03	327m³	18mX6m	27mX15m	1V:3H	1.5m	361m³
SEDIMENT BASIN 6	2.06	654m³	30mX10m	39mX19m	1V:3H	1.5m	756m³
SEDIMENT BASIN 7	2.13	675m³	30mX10m	39mX19m	1V:3H	1.5m	756m³
SEDIMENT BASIN 8	2.14	678m³	30mX10m	39mX19m	1V:3H	1.5m	756m³
SEDIMENT BASIN 9	3.32	1054m³	39mX13m	48mX22m	1V:3H	1.5m	1147m³
SEDIMENT BASIN 10	1.55	493m³	24mX8m	33mX17m	1V:3H	1.5m	541m³
SEDIMENT BASIN 11	1.50	477m³	24mX8m	33mX17m	1V:3H	1.5m	541m³
SEDIMENT BASIN 12	3.63	1154m³	42mX14m	51mX23m	1V:3H	1.5m	1296m³

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Approved Application No: SSD-10459

Granted on: 31 January 2021

Signed: JF Sheet No: 9 of 44

FOR INFORMATION

10m 0 10 20 30 40 50 60 70 80 90 100m
SCALE 1:1000 AT A0 SHEET SIZE

AMENDMENTS	DATE	ISSUE
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ARCHITECT

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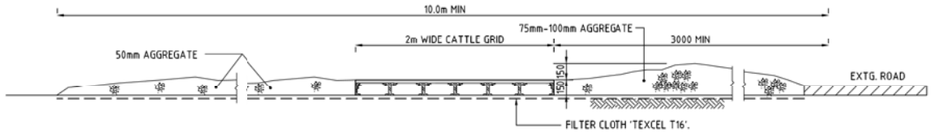
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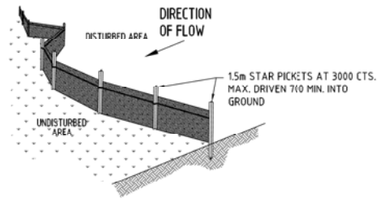
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DRAWING TITLE: EROSION & SEDIMENT CONTROL PLAN – FINAL STAGE

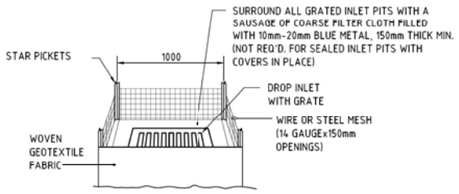
DRAWING No.: C013919.01-DA23 | ISSUE: F



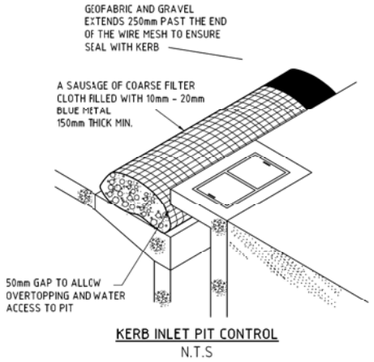
SECTION 1:20 (1 / DA25) : STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'



TYPICAL SILT FENCE DETAIL
N.T.S.
PROVIDE 1m RETURNS AT 30m INTERVALS.
TYPICAL

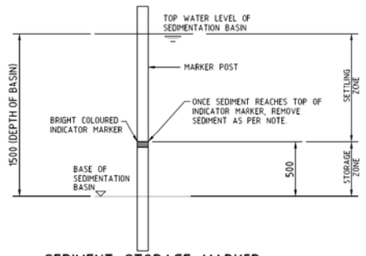


GRATED INLET PIT FILTER DETAIL
N.T.S

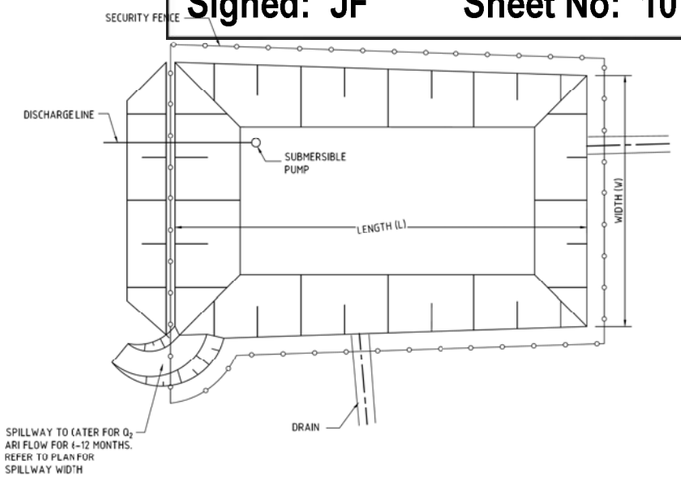


KERB INLET PIT CONTROL
N.T.S

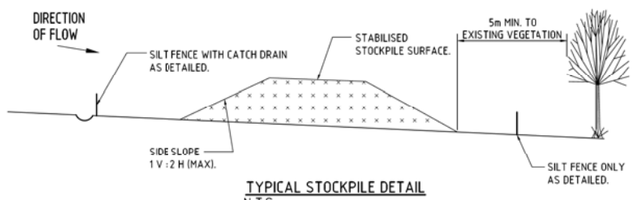
NOTE: ADOPT ABOVE DETAILS AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE & TO PITS ON THE ROAD ADJACENT TO SITE BOUNDARY.



SEDIMENT STORAGE MARKER
SCALE 1:20



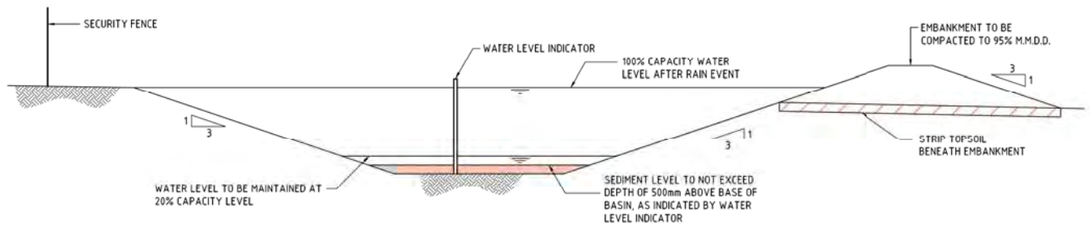
TYPICAL SEDIMENT CONTROL POND PLAN
SCALE 1:250



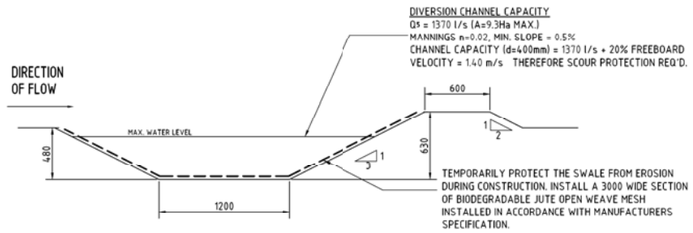
TYPICAL STOCKPILE DETAIL
N.T.S.

STOCKPILE NOTES

1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1 V: 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/Ha.
5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.



TYPICAL SEDIMENT CONTROL BASIN SECTION
SCALE 1:50



DIVERSION DRAIN SECTION
SCALE 1:20

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A0 SHEET SIZE

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SHEET SIZE

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SHEET SIZE

FOR INFORMATION

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Approved Application No: SSD-10459

Granted on: 31 January 2021

Signed: JF Sheet No: 10 of 44

AMENDMENTS	DATE	ISSUE
ISSUED FOR INFORMATION	12.08.20	B
ISSUED FOR INFORMATION	08.07.20	A

ARCHITECT

CLIENT

PROJECT: SUSTAINABLE ROAD RESOURCE CENTRE (PHASE 1)
9 DEVON STREET, CLYDE, NSW

DESIGNED XC | DRAWN HU | DATE MAY.20 | CHECKED | SIZE A0 | SCALE AS SHOWN | CAD #REF: C013919.01-DA25

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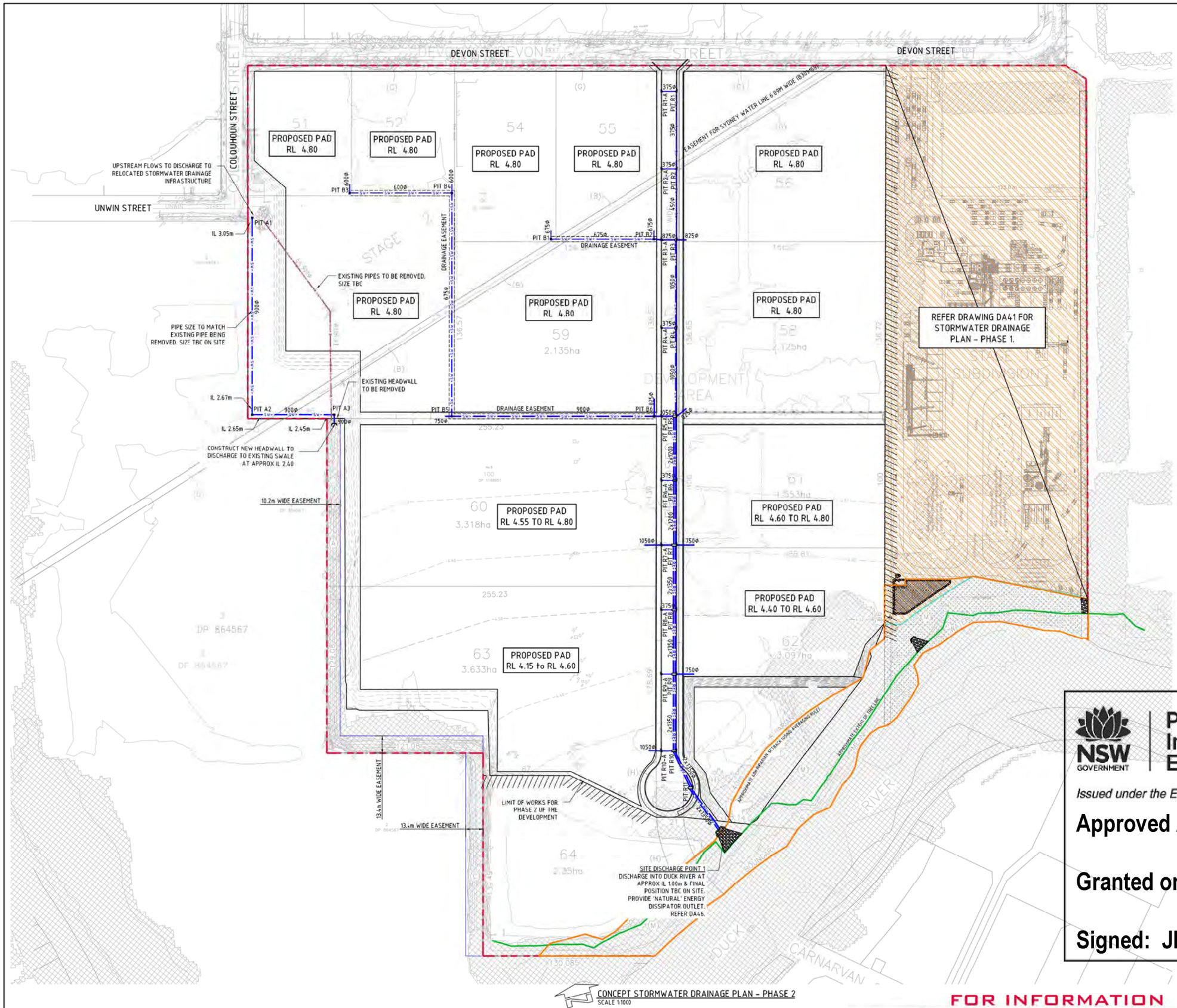
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DRAWING TITLE: EROSION AND SEDIMENT CONTROL DETAILS

DRAWING No: C013919.01- DA25

ISSUE: B



LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LANDPARTNERS TITLED AS0205 Clyde_BE_240620 TIN DATED 08/07/20.

- SINGLE GRATED GULLY PIT (SGGP)
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- EXISTING DRAINAGE LINE TO BE REMOVED
- SUPER LOT BOUNDARY
- Q100 FLOOD EXTENT
- APPROXIMATE EXTENT OF TREE LINE
- RIPARIAN SETBACK

PIT SCHEDULE

PIT No.	GRATE RL	TYPE	SIZE	COMMENT
PIT A1	4.60	S.G.G.P	1200x1200	
PIT A2	4.50	S.G.G.P	1200x1200	
PIT A3	4.15	S.G.G.P	1200x1200	
PIT B1	4.80	S.G.G.P	1200x1200	
PIT B2	4.80	S.G.G.P	1200x1200	
PIT B3	4.80	S.G.G.P	1200x1200	
PIT B4	4.80	S.G.G.P	1200x1200	
PIT B5	4.80	S.G.G.P	1200x1200	
PIT B6	4.80	S.G.G.P	1500x1500	
PIT R1	4.19	K.I.P	900x900	
PIT R1-A	4.19	K.I.P	900x900	
PIT R2	4.17	K.I.P	900x900	
PIT R2-A	4.17	K.I.P	900x900	
PIT R3	4.15	K.I.P	1500x1500	
PIT R3-A	4.15	K.I.P	1200x1200	
PIT R4	4.13	K.I.P	1500x1500	
PIT R4-A	4.13	K.I.P	900x900	
PIT R5	4.10	K.I.P	3000x1500	
PIT R5-A	4.10	K.I.P	1500x900	
PIT R6	4.07	K.I.P	3000x900	
PIT R6-A	4.07	K.I.P	900x900	
PIT R7	4.05	K.I.P	3600x1500	
PIT R7-A	4.05	K.I.P	1500x900	
PIT R8	4.03	K.I.P	3600x1200	
PIT R8-A	4.03	K.I.P	900x900	
PIT R9	4.00	K.I.P	3600x1500	
PIT R9-A	4.00	K.I.P	900x900	
PIT R10	3.96	K.I.P	3600x1500	
PIT R10-A	3.96	K.I.P	1500x900	
PIT R11	3.92	K.I.P	3600x1500	

STORMWATER DRAINAGE NOTES:

REFER TO DA10 FOR STORMWATER NOTES.

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Signed: JF Sheet No: 15 of 44

CONCEPT STORMWATER DRAINAGE PLAN – PHASE 2
SCALE 1:1000

10m 0 10 20 30 40 50 60 70 80 90 100m
SCALE 1:1000 AT A0 SHEET SIZE

FOR INFORMATION

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REVISED PER CLIENT COMMENTS	20.11.20	G

ARCHITECT

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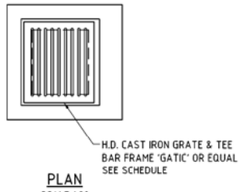
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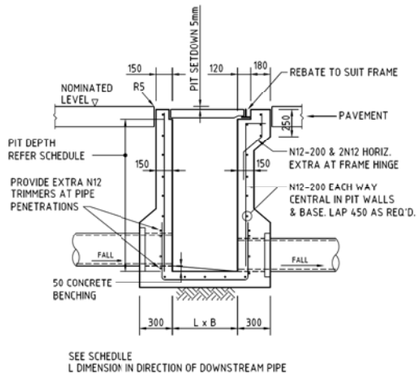
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DRAWING TITLE: CONCEPT STORMWATER DRAINAGE PLAN – PHASE 2

DRAWING No.: C013919.01-DA42 | ISSUE: H

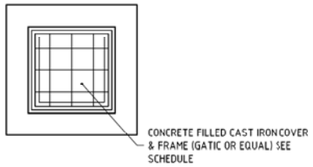


PLAN
SCALE 1:20

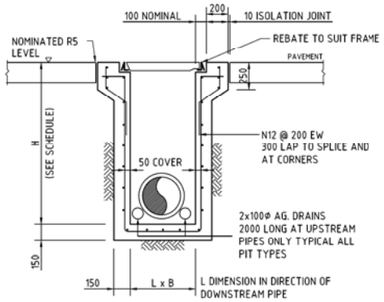


SECTION
SCALE 1:20

SINGLE GRATED GULLY PIT - SGGP

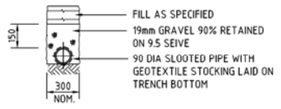


PLAN
1:20

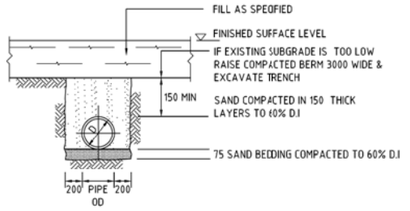


SECTION
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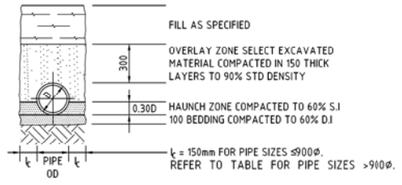
SEALED JUNCTION PIT - SJP



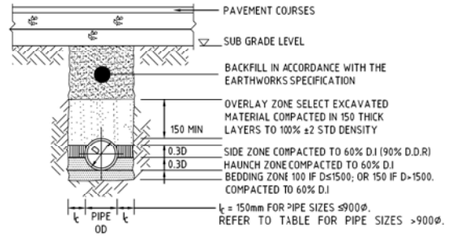
SUPPORT TO AG. DRAIN



SUPPORT TO uPVC PIPES



TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS



TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT

D≤ 1350, MAX FILL = 4.0m
D> 1350, MAX FILL = 3.0m

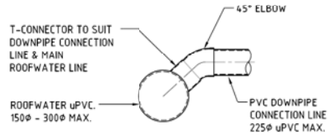
BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
19	100
2.36	100 TO 50
0.60	90 TO 20
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
75	110
9.5	110 TO 50
2.36	110 TO 30
0.60	50 TO 15
0.075	25 TO 0

SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725

SIDE ZONE WIDTH	
PIPE SIZE	t (mm)
≤900Φ	150
1050Φ	175
1200Φ	200
1350Φ	225
1500Φ	250
1650Φ	275
1800Φ	300

REFER TO ENGINEER FOR TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800Φ

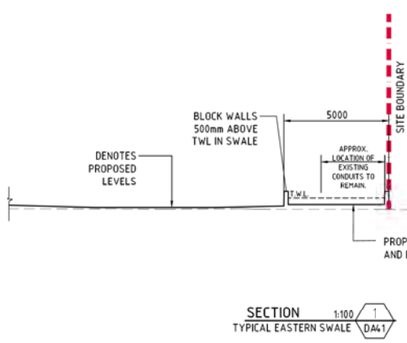


DOWN PIPE CONNECTION TO uPVC PIPE

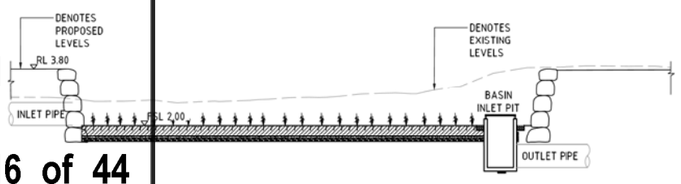
1. PROPRIETARY T-PIECE CONNECTORS SHALL BE USED TO WHERE DIRECT CONNECTIONS ARE REQUIRED TO uPVC PIPES .
2. ALL JOINTS TO BE SEALED WITH SOLVENT WELDED JOINTS.
3. THE PVC PIPE SHALL NOT PROTUDE BEYOND THE INNER SURFACE OF THE STORMWATER PIPE.

DOWNPIPE CONNECTION DETAILS

SCALE 1:20



SECTION 1:100 1 DA41
TYPICAL EASTERN SWALE



SECTION 1:100 2 DA41
BIO-RETENTION BASIN

PIPE LAYING DETAILS

SCALE 1:20

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Approved Application No: SSD-10459

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Signed: JF **Sheet No: 16 of 44**

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SHEET SIZE

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AMENDMENTS	DATE	ISSUE

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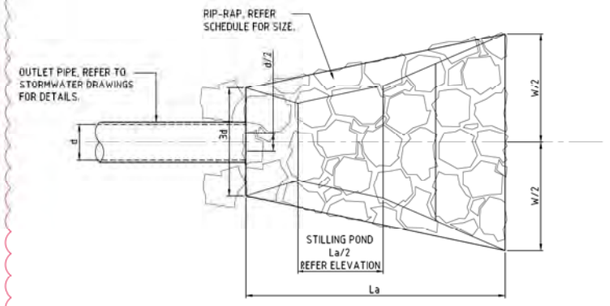
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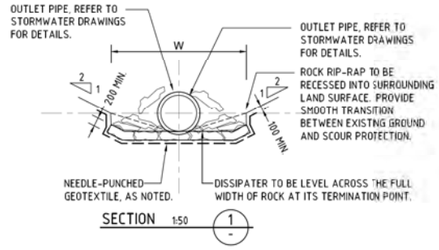
Costin Roe Consulting
PRECISION | COMMUNICATION | ACCOUNTABILITY

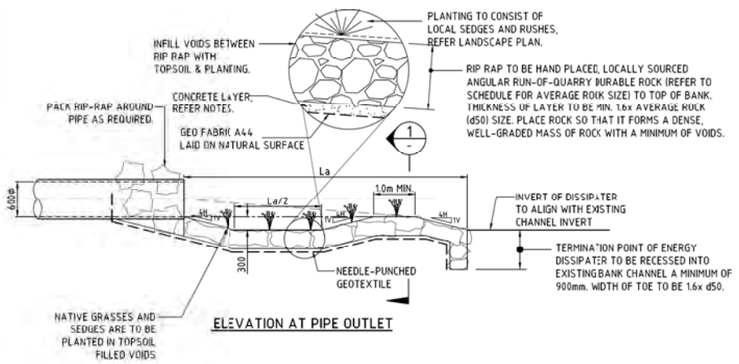
DRAWING TITLE
CONCEPT STORMWATER DRAINAGE DETAILS - SHEET 1

DRAWING No. C013919.01-DA45 | ISSUE B



PLAN VIEW AT PIPE OUTLET





ELEVATION AT PIPE OUTLET

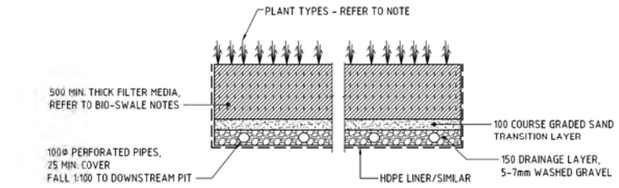
DISSIPATER NOTES:

1. ALIGN STRUCTURE EVENLY WITH BANK.
2. LOCATE STRUCTURE AT INVERT LEVEL OF STREAM AND POINT IN A DOWNSTREAM DIRECTION.
3. PIPE TO REST ON, AND BE PACKED IN, BY RIP-RAP (SIZE AS NOTED)
4. DISCHARGE INTO STREAM WHERE BEDROCK IS PRESENT. OTHERWISE SCOUR PROTECT AS REQUIRED.
5. SCOUR PROTECT THE OPPOSITE BANK AS REQUIRED. SCOUR PROTECTION TO BE PROVIDED WHERE OPPOSITE BANK IS WITHIN 12-14 TIMES THE PIPE DIAMETER.
6. RIP-RAP TO CONSIST OF ANGULAR RUN-OF-QUARRY ROCK (d50= 150mm MINIMUM) AS NOTED IN THE SCHEDULE RIP-RAP TO BE MINIMUM THICKNESS OF RIP-RAP LAYER TO BE 1.6x AVERAGE ROCK SIZE (d50).
7. RIP-RAP IS TO BE PLACED OVER A 200mm LAYER OF MASS CONCRETE OVER NEEDLE-PUNCHED GEOFAB A44
8. PLACE ROCK SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF ROCK WITH A MINIMUM OF VOIDS. THE FINISHED RIP-RAP SURFACE SHOULD BE FREE OF POCKETS OF SMALL ROCK OR CLUSTERS OF LARGE ROCKS.
9. GAPS IN RIP-RAP TO BE HAND PACKED WITH TOPSOIL & PLANTED WITH NATIVE SEDGES & RUSHES TO PROVIDE. THE INTENT IS FOR THERE TO BE NO VOIDS BETWEEN RIP-RAP BOULDERS.
10. ENSURE THE FINISHED ROCK SURFACE BLENDS WITH THE SURROUNDING GROUND LEVELS. NO OVERFALL OR PROTRUSION OF ROCK SHOULD BE APPARENT.
11. ENSURE THAT STORMWATER FROM SURROUNDING GROUND IS FREE TO ENTER THE STRUCTURE WITHOUT CAUSING UNDESIRABLE PONDING OR SCOUR.

OUTLET	PIPE ϕ	La	W	d_{50}	Q_1		Q_{20}	
					FLOW	VELOCITY	FLOW	VELOCITY
OUTLET 1 (DOWNER)	1050ϕ	10m	12m	0.8m	0.86m³/s	0.30m/s	1.90m³/s	0.50m/s
OUTLET 2 (ESTATE)	2x1350ϕ	15m	20m	1.0m	2.73m³/s	0.40m/s	6.18m³/s	0.60m/s

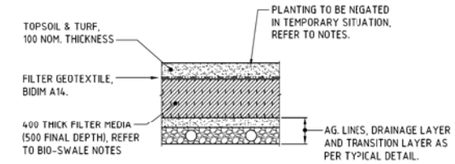
OUTLET STRUCTURES

SCALE 1:50



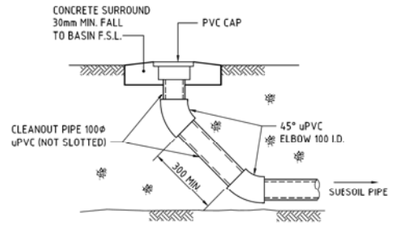
TYPICAL BIO-RETENTION DETAIL

SCALE 1:20



TEMPORARY BIO-RETENTION PROTECTION DETAIL

SCALE 1:20
TEMPORARY CONSTRUCTION REQUIREMENT DETAIL - REFER TO NOTES FOR IMPLEMENTATION PERIODS.



BIORETENTION CLEANOUT EYE ELEVATION

SCALE 1:20
DENOTED C.E. ON PLAN

BIO-RETENTION BASIN DETAILS

BIO-RETENTION NOTES :

FILTER MEDIA TO BE LOAMY SAND WITH A PERMEABILITY NOT LESS THAN 200mm/hr. FILTER MEDIA TO BE FREE OF RUBBISH, DELETERIOUS MATERIAL, TOXICANTS, DECLARED PLANTS AND LOCAL WEEDS, AND IS TO NOT BE HYDROPHOBIC.

FILTER MEDIA TO HAVE THE FOLLOWING COMPOSITION RANGE:

CLAY & SILT (<0.05mm)	<3%
VERY FINE SAND (0.05-0.15mm)	5-30%
FINE SAND (0.15-025mm)	10-30%
MEDIUM TO COARSE SAND (0.25-1.00mm)	40-60%
COARSE SAND (1.0-2.0mm)	7-10%
FINE GRAVEL (2.0-3.4mm)	<3%

FILTER MEDIA THAT DOES NOT MEET THE FOLLOWING CRITERIA SHALL BE REJECTED:

a. ORGANIC MATTER CONTENT TO BE IDEALLY WITHIN 1% TO 3% (W/W) AND TO BE NO GREATER THAN 5%(W/W).
b. PH TO BE BETWEEN 5.5 AND 7.5
c. PHOSPHOROUS CONTENT TO BE NO GREATER THAN 35mg/kg

FILTER MEDIA TO BE ASSESSED BY QUALIFIED HORTICULTURALIST TO ENSURE CAPABILITY OF SUPPORTING PLANT LIFE.

DRAINAGE LAYER TO BE CLEAN GRAVEL 5-7mm.

PLANTS TO BE IN ACCORDANCE WITH PARRAMATTA CITY COUNCIL.

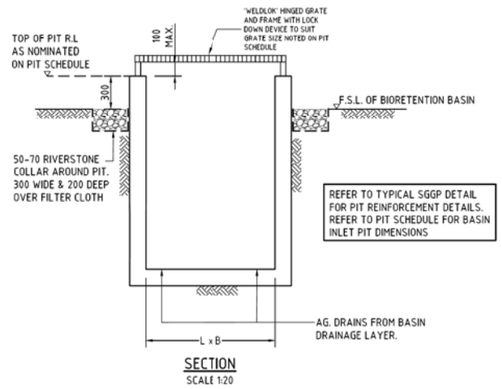
PROVIDE 100mm TOPSOIL AND TEMPORARY EROSION PROTECTION (JUTEMASTER OR EQUIV) TO SWALE BATTER SLOPES AND ADJACENT LANDSCAPED AREAS. NOTE THAT NO TOPSOIL IS TO BE PLACED OVER FILTRATION MEDIA. PROVIDE SILT FENCE TO TOP OF BANK UNTIL SUCH TIME AS THIS STABILISING AND VEGETATION HAS BEEN COMPLETED.

BIO-RETENTION TO BE PARTIALLY INSTALLED, FOLLOWING COMPLETION OF THE ROAD, WITH THE TOP 75-100mm OF FILTER MEDIA REPLACED WITH A FINE TO COARSE SAND UNDERLAIN WITH A GEOTEXTILE LAYER (REFER TO DETAIL). FOLLOWING COMPLETION OF THE UPSTREAM DEVELOPMENT AND SITE STABILISATION, THE SAND IS TO BE REMOVED, REPLACED WITH FILTER MATERIAL AND PLANTED OUT. REFER TO TEMPORARY BIO-BASIN DETAIL

PRIOR TO PLANTING, THE TOP 100mm OF THE BIORETENTION FILTER MEDIA IS TO BE AMELIORATED WITH APPROPRIATE ORGANIC MATTER, FERTILISER AND TRACE ELEMENTS TO AID PLANT ESTABLISHMENT AS PER THE TABLE BELOW:

TABLE: RECIPE FOR AMELIORATING TOP 100mm OF BIORETENTION FILTER MEDIA

CONSTITUENT	QUANTITY (kg/m² OF FILTER AREA)
GRANULATED POULTRY MANURE FINES	50
SUPERPHOSPHATE	2
MAGNESIUM SULPHATE	3
POTASSIUM SULPHATE	2
TRACE ELEMENT MIX	1
FERTILISER NPK (16.4.14)	4
LIME	20



SECTION

SCALE 1:20

BASIN INLET PIT - BIP

NSW GOVERNMENT | Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: SSD-10459

Granted on: 31 January 2021

Signed: JF Sheet No: 17 of 44

SCALE 1:20 AT A0 SHEET SIZE

200mm 0 500 1000 1500 2000mm

SCALE 1:20 AT A0 SHEET SIZE

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
REVISED AS CLOUDED	18.11.20	C
ISSUED FOR INFORMATION	12.08.20	B
ISSUED FOR INFORMATION	21.07.20	A

ARCHITECT

CLIENT

PROJECT: SUSTAINABLE ROAD RESOURCE CENTRE (PHASE 1)
9 DEVON STREET, CLYDE NSW

DESIGNED XC | DRAWN HU | DATE MAY 20 | CHECKED | SIZE A0 | SCALE AS SHOWN | CAD REF C013919.01-DA46

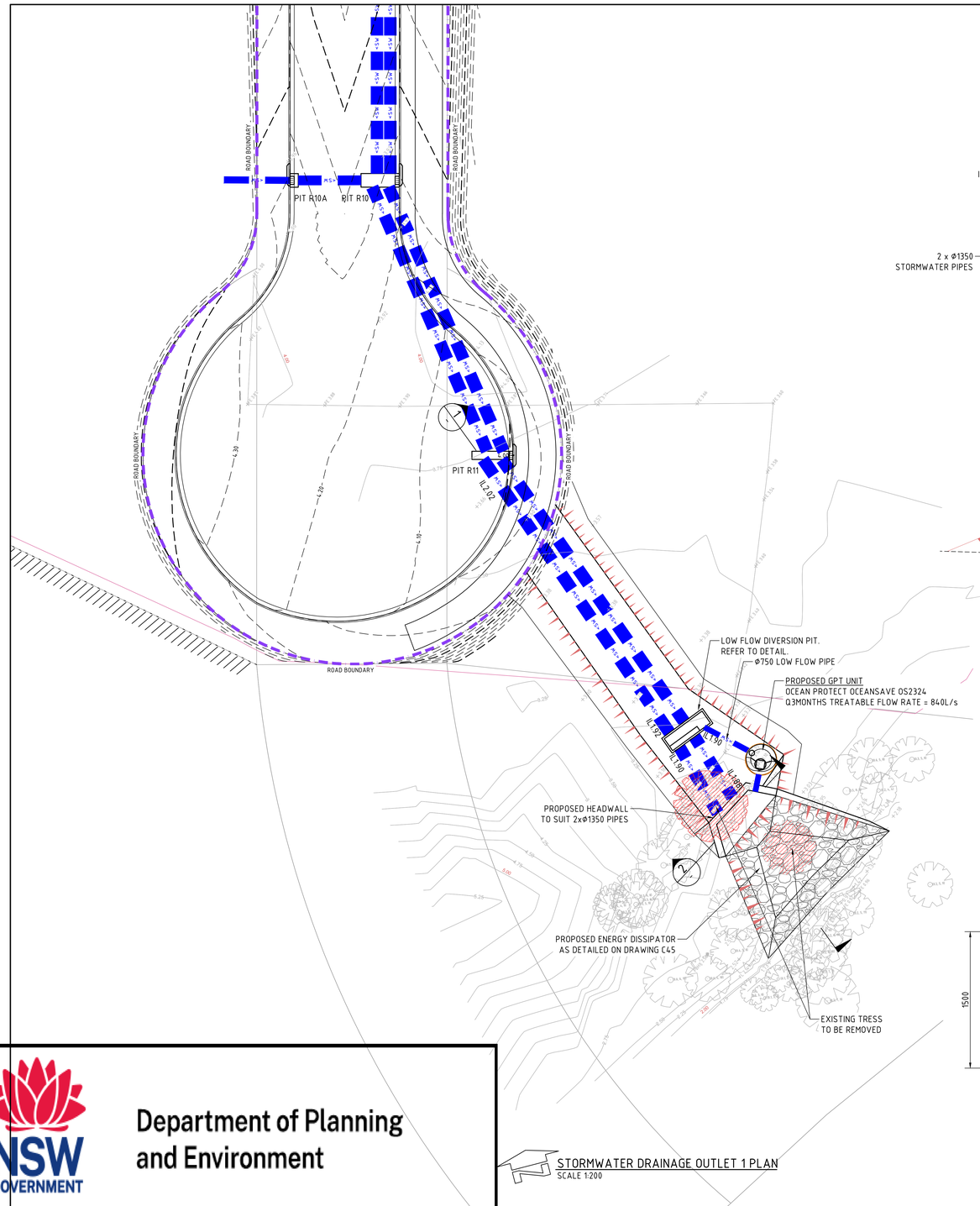
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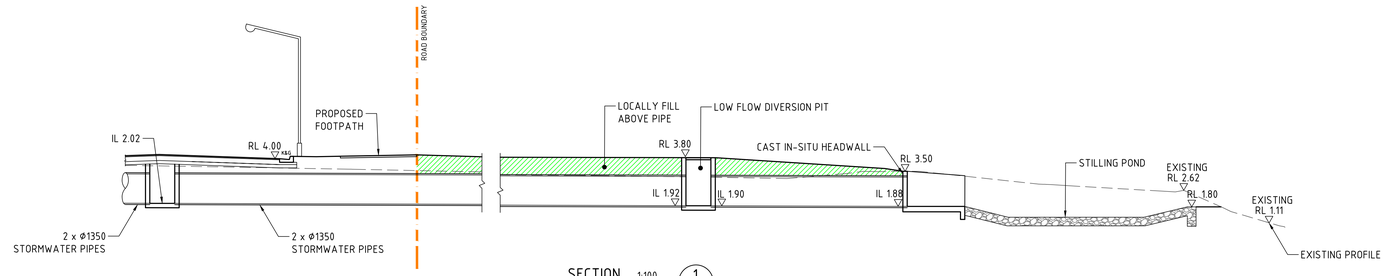
PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: CONCEPT STORMWATER DRAINAGE DETAILS - SHEET 2

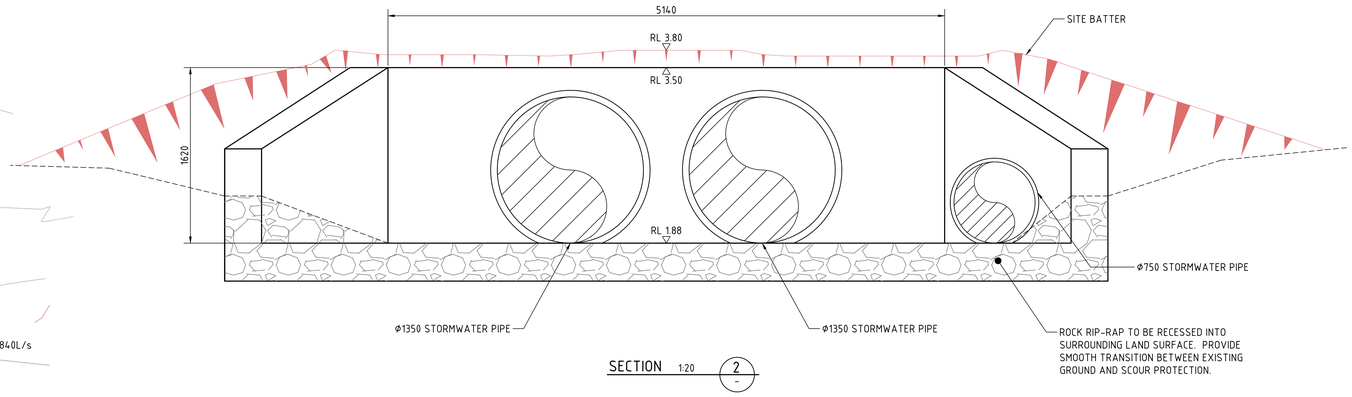
DRAWING No. C013919.01-DA46 | TITLE C



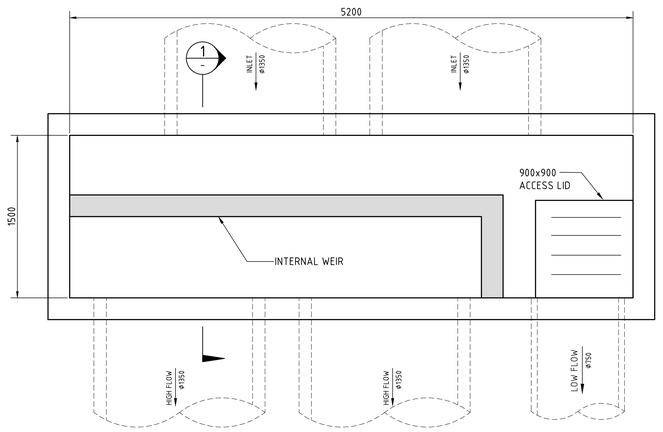
STORMWATER DRAINAGE OUTLET 1 PLAN
SCALE 1:200



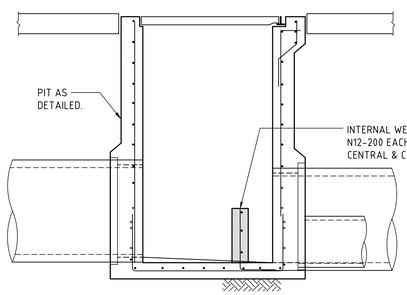
SECTION 1:100 (1)



SECTION 1:20 (2)



PLAN
SCALE 1:20



SECTION
SCALE 1:20

LOW FLOW DIVERSION PIT DETAIL

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A0 SIZE SHEET

1m 0 1 2 3 4 5 6 7 8 9 10m
SCALE 1:100 AT A0 SIZE SHEET

2m 0 5 10 15 20m
SCALE 1:200 AT A0 SIZE SHEET

Department of Planning and Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Section 4.55 (1A) Modification Application
Application number: SSD-10459-Mod-2
Granted on: 2 August 2023
Signed: JF Sheet number: 1 of 1

FOR APPROVAL

AMENDMENTS	DATE	ISSUE
ISSUED FOR APPROVAL	14.12.22	A

ARCHITECT

CLIENT

PROJECT
SUSTAINABLE ROAD RESOURCE CENTRE - STAGE 2
9 DEVON STREET, CLYDE NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
XC	HU	MAY 21		A0	AS SHOWN	C013919.01- C44

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Costin Roe Consulting

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DRAWING TITLE
STORMWATER DRAINAGE OUTLET 1 PLAN AND DETAILS

DRAWING No C013919.01-C44 ISSUE A



APPENDIX I

PROJECT ROLES AND RESPONSIBILITIES

ANNEX I – PROJECT ROLES AND RESPONSIBILITIES

The Project Manager works with the relevant functional managers and human resources personnel to ensure adequate resources are in place for the project, as per the project's employee relations management plan.

The Project Manager ensures that the specific roles, inter-relationships, and lines of reporting for the project are defined in the project's organisational structure, and may assign:

- an individual to a specific role
- the responsibilities for the specific role to themselves; or
- the responsibilities for the specific role to other project team members.

Project Manager

- Ensure the legislative and corporate safety, health and environment management measures and controls are implemented and maintained.
- Visibly committing to and implementing environmental practices as defined in the CEMP.
- Overseeing site occupation and project delivery compliance to the CEMP, and ensuring environmental records are maintained and made available upon request to government agencies.
- Reporting project environmental status and environmental incidents to the Environmental Advisor.
- Reviewing and participating in environmental incident investigations and nominated corrective measures.
- Attending project and environmental meetings.
- Participating in environmental audits.
- Initiating environmental reviews with the Environmental Advisor to facilitate continual improvement.
- Ensuring environmental works are carried out in accordance with the CEMP and applicable sub-plans, and VE Property procedures.
- Co-ordinating and facilitating task-based risk assessment activities for their area of responsibility.
- Ensuring all personnel, including subcontractors and visitors, undertake project defined induction and training, and are aware of any evacuation and emergency procedures.
- Ensuring daily and weekly environmental inspections are carried out and actions identified are implemented immediately.
- Ensuring environmental issues are raised at site toolbox meetings.
- Participating in emergency response as part of the emergency response team.

Site Supervisor (foreman)

- Ensuring environmental works are carried out in accordance with the CEMP and applicable sub-plans, and VE Property procedures.
- Reporting environmental incidents to the Project Manager and the Environmental Advisor as they are identified.
- Participating with the Environmental Advisor in the investigation of incidents in their area of responsibility.
- Ensuring environmental issues are raised at site toolbox meetings.

Environment and Sustainability Manager (governance role)

- Providing senior support to the Project Manager and Environmental Advisor/ Zero Harm Advisor to ensure environmental works are carried out in accordance with the CEMP and the respective sub-plans, and VE Property procedures.
- Periodically review and audit to verify compliance with this plan.
- Providing technical support to site staff.

- Assisting in the investigation of any incidents.

Project Environmental Manager or Safety Manager

The project team organisational structure will include a Project Environmental Manager or Safety Manager as defined in the project management plan.

- Providing senior support to the Project Manager and Environmental Advisor to ensure environmental works are carried out in accordance with the CEMP and applicable sub-plans, and VE Property procedures.
- Providing technical support to site staff.
- Assisting in the investigation of any incidents.
- Participating actively in project team environmental and WHS meetings.
- Assisting in achieving zero environmental incidents for the project.
- Maintaining a useable library of environmental documentation.
- Undertaking weekly and monthly environmental inspections across all areas of the site and presenting alerts or findings at toolbox meetings.
- Regularly audit system/CEMP and producing high quality environment audit reports.
- Provide guidance in resolving environmental issues with a view to continuous improvement and elimination of any environmental incidents.
- Co-ordinating and delivering environmental training, including for environmental management, spill response, and spill prevention.
- Assisting field personnel in the development of project specific documentation, e.g. task-based risk assessments.
- Monitoring and reporting on energy, greenhouse gas and waste management, including sewage disposal.
- Being familiar with and implementing the requirements of this CEMP, as required.
- Complying with any regulations or statutory obligations for environmental management.

Environmental Advisor

- Visibly committing to environmental procedures and instruction, and maintaining environmental records defined within this CEMP.
- Reporting to the Environmental Manager, Safety Manager, and Project Manager on environmental issues, as required.
- Providing environment planning (inclusive of impact mitigation measures) and discipline technical support to the Project Manager and project team.
- Assisting the Project Manager/ Environmental Manager in providing environmental training and inducting all site personnel, including subcontractors and visitors.
- Providing environmental input to the formulation of task-based risk assessments, as required.
- Resolving and/ or facilitating solutions to site environmental issues and problems.
- Liaising with relevant regulatory authorities and stakeholders, as required.
- Reviewing and participating in environmental incident investigation and nominating corrective measures.
- Carrying out environmental inspections.
- Initiating environmental reviews with the Project Manager and facilitating continual improvement.
- Directing the workforce (in consultation with the Project Manager) to stop work in order to achieve compliance with the environmental requirements of the head contract, as covered in the CEMP and applicable sub-plans, or to prevent environmental damage.

Construction personnel

- Visibly committing to environmental procedures and instruction.
- Completing required inductions as specified in this CEMP.
- Participating in the formulation of task-based risk assessments.

- Implementing environmental controls as detailed in inductions, task-based risk assessments, all aspects of this CEMP and applicable sub-plans, compliance documents, procedures, and standards.
- Reporting environmental incidents and issues to the relevant Supervisor or to the Environmental Advisor.
- Using equipment provided to reduce environmental hazards or emissions.
- Participating in daily and weekly environmental inspections.
- Contributing to the overall project goal for zero environmental impacts and incidents by making suggestions for improvement where identified.
- Complying with all aspects of this CEMP and all associated compliance documents, permits, procedures, and standards.
- Conducting task-based risk assessments and providing to VE Property prior to execution.
- Undertaking induction(s) as defined by this CEMP and complying with project environmental instructions.
- Providing to VE Property details of all hazardous substances, contained within safety data sheets, proposed for use in subcontractor scope.
- Providing other environmental related data to VE Property as defined by this CEMP, including data for NGER, waste generation, and water consumption.
- Attending site meetings when requested.
- Reporting, investigating, and implementing corrective measures arising from associated environmental incidents.
- Attending environmental training and awareness sessions.

Safety Administrator

- Reporting to the Environmental Manager, Safety Manager, and Project Manager on environmental issues, as required.
- Visibly committing to environmental procedures and instruction, and maintaining environmental records defined within this CEMP.
- Providing administrative support to the environmental team, specifically:

    - Inductions and registrations.
    - Audit and inspection results.
    - Incident reports.

- Verification of competency and training record update

element.

SYDNEY NEWCASTLE CENTRAL COAST MACKAY

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