

Date 10/11/2017
To Dominic Crinion
From Nathan Cairney (Tactical Group)
Copy to Steve Ryan (Tactical Group), Karen Harragon (DPE), Heather Nelson (DPE), Richard Johnson (Aspect Environmental), Michael Barrow (Qube), Westley Owers (Arcadis), Claire Vahtra (Arcadis)
Subject MPE Stage 2 – Consolidated assessment clarification responses

This memo and its attachments provides consolidates all information provided to the Department of Planning and Environment (DPE), since the submission of the MPE Stage 2 Response to Submissions (RtS) Report.

Table 1 provides a summary of all documentation issued to DPE, the date of issue and which Attachment it is provided in.

It is acknowledged that in some cases, responses relating to the above, included requests for additional information relating to other projects within the Moorebank Precinct. Unless otherwise included for the purpose of a cumulative assessment, this information is not relevant to the MPE Stage 2 Proposal, and should not be considered as part of this assessment nor is it considered relevant to the approval instrument.

Table 1 Summary of documentation issued to DPE

Information	Date issued to DPE	Attachment
<i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan Modification 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 Detailed response letter</i>	11 September 2017	Attachment A
<i>Moorebank Precinct East (MPE) and Moorebank Precinct West (MPW) response to submissions and outstanding information – updated issues list letter</i>	18 September 2017	Attachment B
Revised MPE Stage 2 RtS Appendix I: Updated consolidated project description PDF document	18 September 2017	Attachment C
<i>Response to Transport for NSW Submissions on Moorebank Precinct West (MPW) Stage 2 (SSD 7099), MPW Concept Plan Mod 1 (SSD 5066_MOD 1), Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) and MPE Concept Plan Mod 2 (MP 10_0193 MOD 2) letter</i>	29 September 2017	Attachment D
<i>Moorebank Precinct East (MPE) and Moorebank Precinct West (MPW) – NSW Rural Fire Service response/ recommended conditions of approval letter</i>	10 October 2017	Attachment E

Information	Date issued to DPE	Attachment
<i>MPE and MPW EPA Submission - Further Responses</i> email response	12 October	Attachment F
<i>Moorebank Precinct East (MPE) Stage 2 (SSD 7628) – response to independent noise review comments</i> letter	17 October 2017	Attachment G
<i>Response to MPE Stage 2 (SSD 7628) and MPW Stage 2 (SSD 7709) – Request for information</i> email letter	23 October 2017	Attachment H
<i>Response to Transport for NSW Submissions Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) Response to Submissions (dated 13/10/2017)</i> letter	23 October 2017	Attachment I
<i>Recommended Conditions of Approval from Government Agencies -Moorebank Precinct West (MPW) Stage 2 (SSD 7709), MPW Concept Modification 1 (SSD 5066 MOD 1), Moorebank Precinct East Stage 2 (SSD 7628) and MPE Concept Plan Modification 2 (MP 10_0193 MOD 2)</i> letter	23 October 2017	Attachment J
<p><i>Moorebank Precinct East (MPE) Stage 2 – Biodiversity Request for information (DP&E and OEH) (dated 18 October 2017) – BAR (November 2017)</i> letter.</p> <p>The revised BAR, prepared to supplement this response was issued to DPE on 09 November 2017 and is also provided in this attachment.</p>	<p>23 October 2017</p> <p>9 November 2017</p>	Attachment K
<i>Moorebank Precinct East (MPE) Stage 2 – WSUD DP&E meeting</i> response letter	30 October 2017	Attachment L
<i>Response to ‘EPA Review of the Response to Submissions Moorebank Intermodal Precinct East – Stage 2 – SSD 7628’ Letter,</i> letter	3 November 2017	Attachment M
<i>Response to Liverpool City Council ‘Moorebank Precinct East – Stage 2 – Response to Submissions Review’ Letter</i> letter	4 November 2017	Attachment N
MPE Stage 2 SSD Application – updated application form	6 November 2017	Attachment O
<i>GHD Environmental Management Plan</i>	10 November 2017	Attachment P

Attachment A

Table B-1 Response to DP&E requests for additional information

Key issue	Additional information required	Response	Reference
Application forms	Updated application forms with current applicant details	An updated application form for the Proposal, acknowledging who the applicant and landowner are and the land to which the application applies has been provided as Attachment C of this letter.	Attachment C of this letter
Consolidated list of mitigation measures	Including measures in the response to DPE issues	<p>A consolidated list of mitigation measures was provided in Section 8 of the MPE Stage 2 RtS. The mitigation measures provided in Section 8 were revised during the preparation of the MPE Stage 2 RtS, and included updates to respond to issues raised by the community, government agencies and stakeholders, inclusive of the NSW DP&E. Since the submission of the MPE Stage 2 RtS, a review of the mitigation measures included in the MPE Stage 2 RtS, as well as other relevant management plans and supporting documentation has been undertaken. As a result of this DP&E request, further inclusions have been made to the mitigation measures provided in Section 8 of the MPE Stage 2 RtS.</p> <p>The Final Compilation of Mitigation Measures (FCMM), including these revisions, has been provided as Attachment D of this letter.</p>	<p>Section 8 of the MPE Stage 2 RtS.</p> <p>Attachment D of this letter</p>
Detailed list of elements for approval (construction)	Construction elements including batching plant, crushing plant etc.	A Consolidated Project Description was provided as Appendix I of the MPE Stage 2 RtS. Table 4-11 of Appendix I, included a list of indicative construction plant and equipment for construction of the Proposal, including a concrete batching plant, crushing plant and a variety of other construction equipment. Table 4-11 also denoted which Construction Works Period the indicative plant and equipment are likely to be utilised.	Table 4-11 of the Consolidated Project Description, provided at Appendix I of the MPE Stage 2 RtS.
Detailed plans	<p><i>Site Plan</i></p> <p>Site plan should be provided as a series of plans at 1:1000 at A1 (including key plan). Showing existing site contours and finished contours or building platform levels to AHD. Existing and finished contours to extend approximately 20 outside construction footprint</p>	Site plans at the requested scale have been provided at Attachment E of this letter.	Attachment E of this letter.

Key issue	Additional information required	Response	Reference
	<p><i>Edge effect plan</i></p> <p>Plans for development of Moorebank Avenue, and works adjacent to the Boot Land, should be provided as a series of plans at 1:500 at A1 (including key plan).</p>	<p>Edge effect plans, showing the works along Moorebank Avenue, and those adjacent to the Boot Land as part of the MPE Stage 2 Proposal have been provided as Attachment E of this letter.</p>	<p>Attachment E of this letter.</p>
	<p><i>Sections</i></p> <ul style="list-style-type: none"> Sections showing proposed levels and tie in to existing vehicle access to adjoining properties not the subject of the application Sections through the MPE Stage 1 and MPE Stage 2 and MPW Stage 2 basin along Moorebank Avenue showing tie in of proposed finished levels. 	<p>Sections showing proposed levels and tie-ins to existing vehicle accesses as well as section through the MPE Stage 1 and MPE Stage 2 and MPW Stage 2 basin along Moorebank Avenue have been provided as Attachment E.</p>	<p>Attachment E of this letter.</p>
Traffic and transport	Requested modelling still outstanding	<p>Traffic modelling relevant to the environmental assessment of the MPE Stage 2 Proposal (EIS) has been provided to Roads and Maritime in March 2017. Additional operational traffic modelling was also discussed in the RtS, with modelling provided to Roads and Maritime in early September 2017. No traffic modelling relevant to the assessment of the MPE Stage 2 Proposal is currently outstanding.</p> <p>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling are ongoing. However, although related to the whole-of-precinct modelling, the traffic and transport assessment of the MPE Stage 2 Proposal, as presented in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS are relevant to the impacts of Stage 2 of the MPE Project and is not dependent on the abovementioned whole-of-precinct modelling.</p>	<p>Section 7 and Appendix K of the MPE Stage 2 EIS.</p> <p>Section 7 and Appendix C of the MPE Stage 2 RtS.</p>

Table B-2 Response to additional agency comments

Key issue	Additional information required	Response	Reference
Environment Protection Authority (EPA)			
Regulatory authority	Note that Liverpool City Council is the Appropriate Regulatory Authority for this Project under the <i>Protection of the Environment Operations Act 1997</i> . The EPA has agreed to assist council by providing comments and recommendations in relation to the key environmental issues of noise and vibration, and air quality.	Noted	N/A
Assessment of construction	<p>The EPA notes that the assessment of construction activities reflects that contained within the MPE Concept Plan Modification 2.</p> <p>As per EPA's advice on the Concept Plan Modification 2 (SSD 16_7628), it is not clear whether maximum daily operational intensity of the construction activities has been considered for the purposes of assessing against 24 hour impact assessment criteria. For example the assessment advises that emissions from hauling are based on an assumed capacity of each truck of 50 tonnes corresponding to approximately 26,400 trucks per annum. Based on this information and the proposed quantity of fill (1,320,000 tonnes) to be imported the averaging period for estimating emissions is likely to be based on annual average activity rates.</p> <p>Where peak daily activity rates have not been used to estimate emissions, modelled impacts may have been under predicted.</p>	<p>It is acknowledged that this issues was raised in response to the MPE Concept Plan Modification 2 Application. Section 4.1 of the MPE Concept Plan Mod RtS provided a response to this issue, as provided below:</p> <p>The EPA are correct to assume that the modelling results presented in the Air Quality Impact Assessment for the MPE Concept Plan modification are based on annual average activity rates (1,320,000 tonnes averaged evenly across each day of the year).</p> <p>To address EPA's concern that the modelling did not consider a peak daily scenario, revised analysis is presented based on a peak daily importation rate of 22,000 tonnes¹, for all material handling activities. This importation rate corresponds to the maximum daily fill importation rate for the whole precinct (i.e. across both MPW and MPE proposals) and conservatively assumes that on any given day there is a possibility, although unlikely, that 22,000 tonnes could be directed to MPE only.</p> <p>Other construction phase emission sources, such as dozers, have also been adjusted for the peak daily scenario, for example by removing the 70% utilisation assumption and assuming continuous operation for all construction hours. The revised analysis shows:</p>	N/A

¹ A mitigation measure (No. 1G, in Section 8 of the RtS) has been included to restrict the importation of fill to 22,000 m³/per day for both the MPE Stage 2 Proposal and the MPW Stage 2 Proposal.

Key issue	Additional information required	Response	Reference
	<p>The EPA recommends that the proponent provide additional information to demonstrate that maximum daily operation intensity of construction activities have been considered for assessing against 24 hour impact assessment criteria.</p>	<ul style="list-style-type: none"> The maximum incremental 24-hour PM₁₀ increases from 4.2 µg/m³ for the average daily activity rate to 8.0 µg/m³ for the peak daily activity rate. The maximum incremental 24-hour PM_{2.5} increases from 1.3 µg/m³ for the average daily activity rate to 1.9 µg/m³ for the peak daily activity rate. The maximum cumulative 24-hour PM₁₀ increases from 48.9 µg/m³ for the average daily activity rate to 50.9 µg/m³ for the peak daily activity rate. As a result, there is one additional exceedance of the impact assessment criteria at 5 locations, but this occurs on a day when the background is already elevated (48 µg/m³). It should be noted that the approach to the assessment assumes that the worst case daily activity scenario occurs every day of the year and it is unlikely that this scenario would correspond with an elevated background day and give rise to an additional exceedance. In fact, the proposed real-time boundary monitoring for each phase of construction is designed to eliminate the risk of this occurring. The maximum cumulative 24-hour PM_{2.5} increases from 23.6 µg/m³ for the average daily activity rate to 24.0 µg/m³ for the peak daily activity rate (i.e. no additional exceedances of the impact assessment criteria). <p>The revised assessment demonstrates that with consideration of the peak daily scenario, modelled impacts would not result in additional exceedances of the 24 hour impact assessment criteria with the exception of maximum cumulative 24-hour PM₁₀. However, it is unlikely that this scenario would occur and the proposed real-time boundary monitoring for each phase of construction has been designed to eliminate the risk of this occurring.</p>	
Assessment of operation	<p>The assessment of the operational phase of the proposal has considered emissions from warehouse traffic, mobile plant (forklifts), and warehouse heating/cooling assessed as natural gas boilers. In relation to emissions from vehicle movements the assessment is based on information and data contained in the traffic assessment. Review of the transport assessment and associated traffic modelling is beyond the scope of the EPA's review of the AQIA.</p> <p>In relation to the assessment of emissions from natural gas boilers for heating/cooling purposes</p>	<p>Generic assumptions are used by necessity. The specific details (size and emission performance) of boilers to be used for the heating and/ or cooling of warehouses are not known at this stage and will be determined as part of detailed design development (post determination of the MPE Stage 2 Proposal). The energy requirements of any warehouse facility, including for heating and cooling will be determined by the warehousing tenant(s) prior to operation of the Proposal. Therefore, no further details on the size of boilers to be installed can be provided and/ or benchmarked against best practice at this stage.</p> <p>Specific requirements for operational environmental management will be outlined in the Operational Environmental Management Plan (OEMP) to be prepared prior to the operation of the Proposal. The OEMP will allow the Proponent to require tenants</p>	Table 5-6 of the MPE Stage 2 AQIA, at Appendix M of the MPE Stage 2 EIS.

Key issue	Additional information required	Response	Reference
	<p>the assessment is based on generic assumptions rather than specific details on the size of any boilers that form part of the Stage 2 project. Specifically, emissions from natural gas boilers are based on an energy use intensity (150 MJ/m²/year), a warehouse footprint of 300,000 m² and emission factors. The proponent should be requested to provide further detail on the size and emission performance of boilers proposed for Stage 2.</p> <p>Table 5-6 of the AQIA presents a summary of estimated emissions for operation of Stage 2 and is presented in tonnes/annum. However previous tabulated emission estimates (Table 5-3, Table 5-5) are presented in kg/annum. This is potentially a typographic error, however the proponent should be request to check and confirm the emission estimates and revise the AQIA where the inconsistency is likely to effect the outcomes of the assessment.</p> <p>The EPA recommends the Proponent:</p> <ul style="list-style-type: none"> • Provide additional information on the size of any natural gas boilers proposed; • Benchmark the emission performance of any boilers against best practice; and • Confirm the emission estimation for the operational assessment noting the differences in reported units of measurement for emission rates in Table 5-6 and Tables 5-3 & 5-5. 	<p>to install energy efficient heating/cooling options and/ or consider best practice emissions performance for warehouse facilities.</p> <p>It is noted that the assumptions used in the air quality impact assessment are conservative and therefore the actual operational emissions would be expected to be lower, not higher than those included in Section 9 of the MPE Stage 2 EIS (Arcadis, 2016). Even with these conservative assumptions, the predicted air quality risk from the operation of the Proposal is low.</p> <p>Finally, it is noted that the emissions summary presented in Table 5-6 is incorrectly captioned as “tonnes/annum”. We can confirm that the emission values are reported in kg/annum and no update or change to the modelling assessment is required.</p>	

SSD2 Application

Introduction & Notes

This application form is required to apply for the consent of the Minister to carry out State Significant Development under Part 4 of the *Environmental Planning & Assessment Act 1979*.

You should not lodge this form unless you have previously submitted a request for Director General's Requirements and been provided with Director General's Requirements.

This form must contain all relevant information required under Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*, otherwise it may be rejected.

If your application is rejected, you will be advised within 14 days of lodgement. If the application and EIS are accepted, you will be contacted regarding the exhibition arrangements. You may also be asked to submit further information on the application or EIS prior to exhibition.

Persons lodging applications are required to declare reportable political donations (including donations of \$1,000 or more) made in the previous two years. For more details, go to www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Systems/Donations-and-Gift-Disclosure.

Applicant Details

Title:	Mr
First name:	Michael
Surname:	Yiend
Day Phone:	+61 2 9080 1900
Fax:	+61 2 9080 1999
Mobile:	
Email:	michael.yiend@qube.com.au
Company:	SIMTA, as Qube Holdings Limited
ABN:	141 497 230 53
Physical Address:	Level 27, 45 Clarence Street, Sydney, NSW 2000
Postal Address:	Level 27, 45 Clarence Street, Sydney, NSW 2000

Site details

Site Title:	Moorebank Precinct East
Site Location:	Moorebank Avenue, Moorebank 2170
Site Government Area:	Liverpool LGA
Lot/DP:	1/1048263, 2/1197707, 3/1197707, 3002/1125930, 5/1197707
Is new land involved?	No
Changes:	

Staged Development

Staged DA:	Yes
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Project Details

State & Regional Development SEPP - Schedule 1 - State Significant Development

- Clause 12: Warehouses or distribution centres

State & Regional Development SEPP - Schedule 2 - State Significant Development

- N/A

Ministerial Call In

- The development was not called in by the Minister for Planning & Environment

Online information provided by the applicant

Title	Moorebank Precinct East – Stage 2 Proposal
State Significance	Clause 12: Warehouses or distribution centres
Description	<p>The Proposal represents the Stage 2 of the MPE Project, which received Concept Plan Approval (MP10_0193) on 29 September 2014.</p> <p>The key components of the Proposal comprise:</p> <ul style="list-style-type: none">• Warehousing comprising approximately 300,000m² GFA and additional ancillary offices• A freight village, comprising 8,000m² GFA of retail, commercial and light industrial land uses• Establishment of an internal road network, and connection of the Proposal to the surrounding public road network

	<ul style="list-style-type: none"> Ancillary supporting infrastructure within the Proposal site, including: <ul style="list-style-type: none"> Stormwater, drainage and flooding infrastructure Utilities relocation and installation Vegetation clearing, remediation, earthworks, signage and landscaping Subdivision of the MPE Stage 2 site The Moorebank Avenue upgrade, which includes alteration of the existing lane configuration, earthworks and adjustment of the vertical alignment (approximately 2 m from existing levels) <p>Upgrading existing intersections along Moorebank Avenue for site access.</p>
Capital Investment Value	\$356,000,000
Construction "jobs"	750 construction jobs
Operational "jobs"	900 construction jobs
Landowner's Consent Provided?	No

Critical habitat and threatened species

Critical Habitat	No
Development threatens habitats	The development will result in clearing of a small are of a threatened ecological community and is adjacent to threatened species populations and threatened ecological communities.
Biodiversity compliant	A Biodiversity Assessment Report (BAR) has been prepared in accordance with the NSW Framework for Biodiversity Assessment

Approvals

Would the development otherwise, but for section 89J of the EP&A Act, require any of the following (select all that apply)?

- the concurrence under Part 3 of the Coastal Protection Act 1979 of the Minister administering that Part of that Act
- a permit under section 201, 205 or 219 of the Fisheries Management Act 1994
- an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977
- an Aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974
- an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act repealed by that Act) to clear native vegetation or State protected land
- a bush fire safety authority under section 100B of the Rural Fires Act 1997
- a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000

Do you require any of the following approvals in order to carry out the development (select all that apply)?

- an aquaculture permit under section 144 of the Fisheries Management Act 1994
- an approval under section 15 of the Mine Subsidence Compensation Act 1961
- a mining lease under the Mining Act 1992
- a petroleum production lease under the Petroleum (Onshore) Act 1991
- an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997 (for any of the purposes referred to in section 43 of that Act)
- a consent under section 138 of the Roads Act 1993
- a licence under the Pipelines Act 1967
- an aquifer interference approval under section 91 of the Water Management Act 2000

Online information provided by the applicant

- N/A

Consultation and concurrence

Would the development, but for Section 79B (2A) of the EP&A Act have required a concurrence under Section 79B of the Act, including a concurrence under the Threatened Species Conservation Act 1995?

Online information provided by the applicant

- No

Supporting Documents

Submitted files:

- MPE Stage 2 EIS and appendices as per
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7628

Political Donation

Persons lodging applications are required to declare reportable political donations (including donations of \$1,000 or more) made in the previous two years. For more details, go to www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Systems/Donations-and-Gift-Disclosure.

Do you need to make a political donations disclosure statement?

Online information provided by the applicant

- No

Submitter details

Name	Steve Ryan
Capacity	Managing Director – Tactical Group
Submitted	08/09/17 – Originally submitted 02/12/2016

FINAL COMPILATION OF MITIGATION MEASURES

The MPE Stage 2 Environmental Impact Statement ((MPE Stage 2 EIS) Arcadis, 2016) identified a range of environmental impacts and recommended management and mitigation measures to avoid, remedy or mitigate these impacts (refer to Section 22 of the MPE Stage 2 EIS).

These mitigation measures were revised as part of the MPE Stage 2 Response to Submissions Report ((MPE Stage 2 RtS), Arcadis, 2017) in response to the following:

- Submissions received during the public exhibition period
- To address the impacts of the amendments to the Proposal (the Amended Proposal)
- To incorporate additional mitigation measures from the MPE Concept Modification 2 RtS where necessary.

Subsequent to the submission of the MPW Stage 2 RtS to the NSW Department of Planning and the Environment (DP&E), DP&E have requested that we provide a consolidated list of mitigation measures, including measures in the response to DP&E issues (as requested in the *Moorebank Precinct East – Response to Submissions and outstanding information* letter (DP&E request), issued on 28 August 2017). In response to the DP&E request, a review of the following documentation has been undertaken:

- *Preliminary Construction Environmental Management Plan* (Arcadis, 2016), provided as Appendix G of the MPE Stage 2 EIS
- *Preliminary Construction Traffic Management Plan* (Arcadis, 2016), provided at Appendix K of the MPE Stage 2 EIS
- *Preliminary Operational Traffic Management Plan* (Arcadis, 2016), provided at Appendix K of the MPE Stage 2 EIS
- *Noise and Vibration Impact Assessment* (Wilkinson Murray, 2016), provided at Appendix L of the MPE Stage 2 EIS
- *Preliminary Construction Air Quality Management Plan* (Ramboll Environ, 2016), provided at Appendix M of the MPE Stage 2 EIS
- Revised mitigation measures provided in Section 8 of the MPE Stage 2 RtS
- *Stockpile Management Protocol*, provided at Appendix G of the MPE Stage 2 RtS
- *Environmental Works Method Statement*, provided at Appendix H of the MPE Stage 2
- *Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) Response to Submissions* letter, issued to NSW DP&E (dated 9 August, 2017).

As part of this review, the mitigation measures have been updated to include information that was previously presented within these management plans, appended to both the MPE Stage 2 EIS and RtS. No additional information that was not previously submitted to DP&E has been included in these mitigation measures. These mitigation measures supersede those previously provided in Section 8 of the MPE Stage 2 RtS.

For ease of reference, words deleted as part of the revision of mitigation measures as part of the MPE Stage 2 RtS are shown in ~~***bold italic strike through***~~ and words inserted as part of the MPE Stage 2 RtS are shown in ***underlined bold italics***. Words deleted as part of this additional review are shown in ~~*shaded italic strike through*~~ and words inserted are shown in *shaded italics*.

The revised mitigation measures represent the Final Compilation of Mitigation Measures (FCMM) for the MPE Stage 2 Proposal and are provided in Table 1 below.

Pre-construction activities for the Amended Proposal would be undertaken in the areas shown in Figure 1 and is relevant to mitigation measure No. 0A only (refer to Table 1). A full list of the pre-construction activities, which would be undertaken within the Amended construction area are provided in mitigation measure No. 0A and Appendix I of the MPE Stage 2 RtS.

The construction and operational activities included within the Amended Proposal have been separated into components based on their functional relationship and include the following:

- Warehousing – including, but not limited to, warehousing and attached offices, container storage areas, car parking, truck loading/unloading areas and vehicle manoeuvring and access roads.
- Freight village – including, but not limited to, freight village buildings, car parking, truck loading/unloading areas and vehicle manoeuvring and access roads
- Moorebank Avenue intersection - including, but not limited to, Moorebank Avenue Upgrade and associated intersection works.
- Site infrastructure – including but not limited to, construction works such as earthworks, construction and operation of internal roads, OSDs and utilities.

Figure 2 and Figure 3 outlines these components of the Amended Proposal provided in Table 1.

The 'implementation stage' column of Table 1 indicates the timing as to when the specific mitigation measures would be implemented. For example, a CEMP might be prepared prior to construction, but would not be 'implemented' until the construction phase.

For this Compilation of Mitigations Measures, the following definitions apply to the terms used in the implementation phase column:

- Detailed design - works and design progression prior to construction of the associated permanent physical works for the Amended Proposal
- Pre-construction phase – initial stage of physical works for the Amended Proposal, which are not included within the definition of construction and within Works period A (refer to list in mitigation measure No. 0A and Appendix I of the MPE Stage 2 Rts)
- Construction phase – during construction of all physical works (not included in pre-construction) for the Amended Proposal (Works periods B - G)
- Operation phase - either prior to, or during, operation of the Amended Proposal.



LEGEND

- ▮ Amended construction area
- ▲ Site access
- MPE Stage 2 construction compounds
- Watercourse

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 ABN 76 104 405 269
 Level 5, 141 Walker St | North Sydney NSW 2060
 P: +61 (0) 2 9907 9000 | F: +61 (0) 2 9907 9001
 Coordinate System: GDA 1994 MGA Zone 58
 Date Issued: July 12, 2017
 Aerial Imagery supplied by nearmap (May, 2017)

1:10,000 at A4
ARCADIS

SIMTA

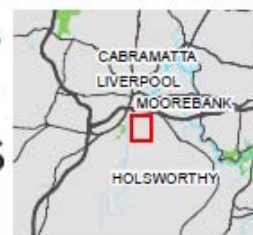




Figure 1 Pre-construction activities



LEGEND

-  Site infrastructure
-  Watercourse

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 Coordinate System: GDA 1994 MGA Zone 58
 Date issued: July 6, 2017
 Aerial imagery supplied by naemap (May 2017)



Figure 2 Site infrastructure

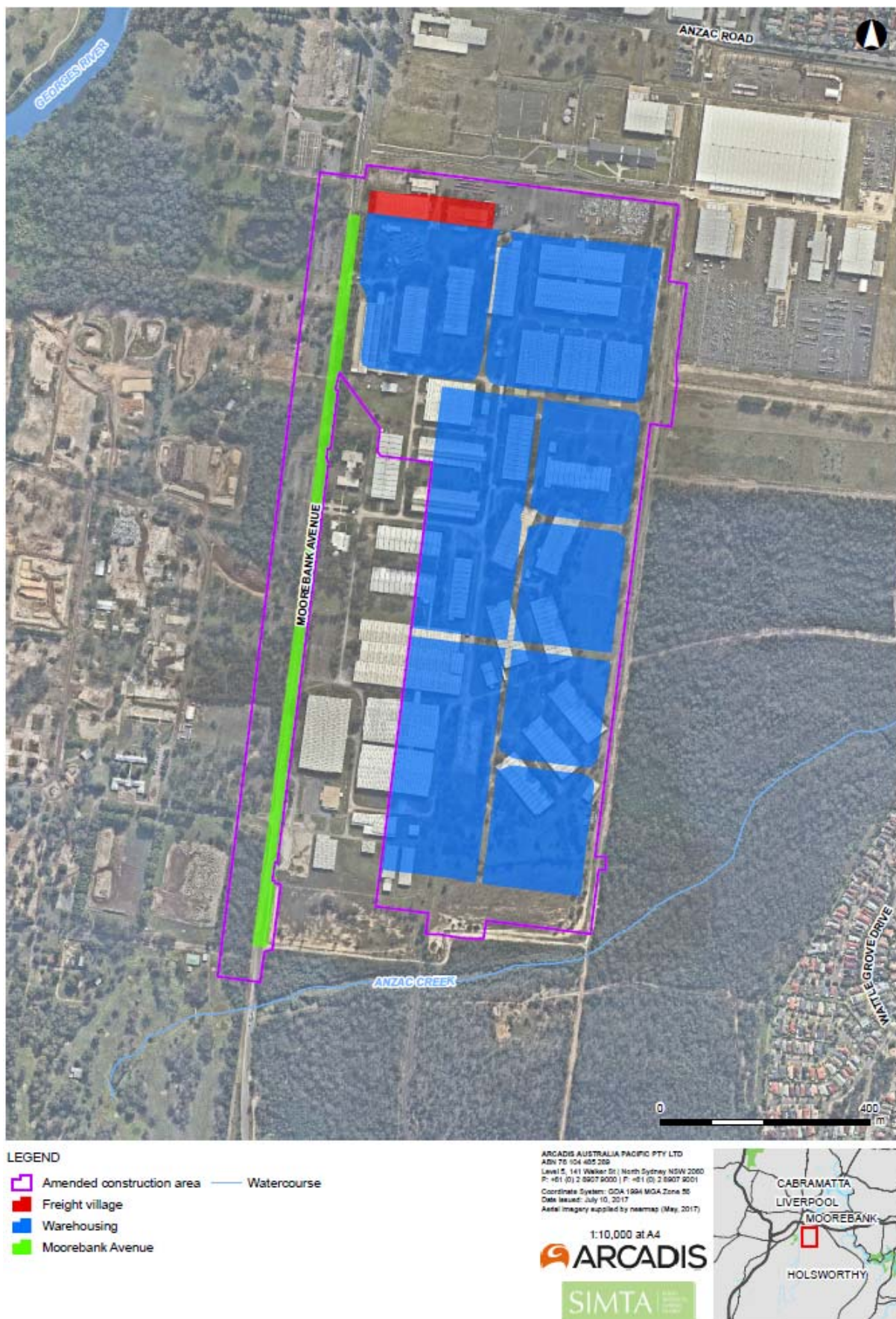


Figure 3 Key operational components

Table 1 Final Compilation of Mitigation Measures – MPE Stage 2 Proposal

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
0.	General environmental management					
0A	<p>Pre-construction works would be undertaken subject to Environmental Work Method Statement (EWMS) (Appendix H of the MPE Stage 2 RtS). Pre-construction works include the following:</p> <ul style="list-style-type: none">• works within Works period A (pre-construction activities), including:<ul style="list-style-type: none">– establishment of site access points– importation of fill for site preparation activities– installation of site fencing– remediation and UXO, EO or EOW management where required.• survey; acquisitions; or building/ road dilapidation surveys; fencing; investigative drilling, excavation or salvage• clearing any native vegetation within the Amended construction area , with the exception of the southern and eastern swales located outside of the MPE site• establishment of site compounds and construction facilities• installation of environmental mitigation measures• utilities adjustment and relocation that do not present a significant risk to the environment, as determined by the Environmental Representative• other activities determined by the Environmental Representative to have minimal environmental impact• all works as described in Works period A in Section 4 of the EIS and Appendix I of the RtS.	Pre-construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
0B	<p>The Construction Environmental Management Plan (CEMP), or equivalent, for the Amended Proposal would be based on the PCEMP (Appendix G of the EIS), and include the following preliminary management plans:</p> <ul style="list-style-type: none"> • Preliminary Construction Traffic Management Plan (PCTMP) (Appendix K of the EIS) • Air Quality Management Plan (AQMP) (Appendix M of the EIS) • Erosion and Sediment Control Plans (ESCPs) and Bulk Earthworks Plans (Appendix P of the EIS). <p>As a minimum, the CEMP would include the following sub-plans:</p> <ul style="list-style-type: none"> • Construction Traffic Management Plan (CTMP) • Construction Noise and Vibration Management Plan (CNVMP), prepared in accordance with the <i>Interim Construction Noise Guideline</i> • Construction Air Quality Management Plan • Flora and Fauna Management Plan • A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan • Contamination Management Plan • Flood Emergency Response and Evacuation Plan • UXO, EO, and EOW -Management Plan • Asbestos Management Plan • Heritage (Indigenous and Non-Indigenous) Management Plan/s • Bushfire Management Strategy • Community Information and Awareness Strategy. 	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
0C	<p>The Operational Environmental Management Plan (OEMP), or equivalent, for the Amended Proposal would be based on the following preliminary management plans:</p> <ul style="list-style-type: none"> • Preliminary Operational Traffic Management Plan (POTMP) (Appendix K of the EIS) • Air Quality Management Plan (Appendix M of the EIS) • Stormwater Drainage Design Drawings (Appendix P of the EIS) <p>As a minimum the OEMP would include the following sub-plans:</p> <ul style="list-style-type: none"> • Operational Traffic Management Plan (OTMP) • Operational Noise and Vibration Management plan (ONVMP) • Air Quality Management Plan • Flora and Fauna Management Plan • Flooding and Emergency Response Plan • Emergency Response Plan in accordance with the requirements of Clause 153C of the POEO Act and the POEO (General) Regulation (Cl. 98B) • Operational Hazard and Risk Management Plan • Bushfire Management Strategy • Community Information and Awareness Strategy. 	Operation	Y	Y	N <u>Y</u>	<u>Y</u>
0D	<p>The construction and/or operation of the Amended Proposal may be delivered in a number of stages. If construction and/or operation is to be delivered in stages a Staging Report would be provided to the Secretary prior to commencement of the initial stage of construction and updated prior to the commencement of each stage as that stage is identified.</p>	Construction and Operation	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
1.	Traffic and Transport					
1A	<p>A Construction Traffic Management Plan (CTMP) would be prepared, based on the PCTMP prepared as part of the EIS (refer to Appendix K of the EIS). The CTMP would detail the management controls to be implemented to avoid, minimise and mitigate impacts of construction of the Amended Proposal to traffic performance on the surrounding road network, pedestrian and cyclist access, and the amenity of the surrounding environment and would include the following key initiatives:</p> <ul style="list-style-type: none"> • Review of speed restrictions along Moorebank Avenue and additional signposting of speed limitations to reinforce reduced speed limits during construction of the Amended Proposal • Restriction of haulage routes through signage and education to ensure, where possible, that construction vehicles do not travel through nearby residential areas to access the Amended construction area, in particular Moorebank (Anzac Road) or the Wattle Grove residential areas • Inform local residents (in conjunction with the Community Information and Awareness Strategy) of the proposed construction activities and road access restrictions that the construction traffic must adhere to and establish communication protocols for community feedback on issues relating to construction vehicle driver behaviour and construction related matters • Installation of specific warning signs on approach to, and at entrances to, the construction site to warn existing road users of entering and exiting construction traffic • Establishing pedestrian exclusion zones and walking routes/crossing points which integrate within the existing pedestrian network • Distribution of day warning notices to advise local road users of scheduled construction activities and associated traffic movements. • Installation of appropriate traffic controls and warning signs for areas identified where potential safety risk issues exist • The promotion of car-pooling for construction staff and other shared transport initiatives during the construction phase 	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<ul style="list-style-type: none"> Management and coordination of the transportation of materials to maximise vehicle loads and therefore minimise vehicle movements Monitoring of traffic on Moorebank Avenue during peak periods to ensure that queuing at intersections does not impact on other road users Reducing, where reasonable and feasible, the volumes of construction vehicles travelling during peak periods, especially if the increase in traffic generated by construction activities impedes on the operation of Moorebank Avenue 					
1B	A road Safety Audit on Cambridge Avenue to be undertaken prior to the commencement of the construction of the Amended Proposal to identify the traffic safety risks and determine appropriate mitigations.	Construction	<u>N</u>	<u>N</u>	Y	<u>Y</u>
1C	<p>Moorebank Avenue would be upgraded for approximately 1.4 <u>1.5</u> kilometres from approximately 95 <u>35</u> metres south of the northern boundary of the MPE site to approximately 120 <u>185</u> metres south of the southern MPE site boundary. The following intersections would also be upgraded as part of the Amended Proposal:</p> <ul style="list-style-type: none"> Moorebank Avenue / MPE Stage 2 Moorebank Avenue / MPE Stage 1 northern access Moorebank Avenue / MPE Stage 1 central access Moorebank Avenue / MPE Stage 1 southern emergency access. <p>The funding of these upgrades would be clarified through discussions with SIMTA, Roads and Maritime and Transport for NSW.</p>	Construction and Operation	Y	Y	<u>N</u>	<u>N</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
1D	<p>It is intended that the POTMP would be further progressed and integrated into the OEMP for the Amended Proposal. Specifically, the following key aspects would be addressed in the OTMP:</p> <ul style="list-style-type: none"> • Heavy vehicle route management • Safety and amenity of road users and public • Congestion management on Moorebank Avenue • Road user delay management • Information signage, distance information and advance warning • Driver code of conduct • Incident management • Traffic monitoring. 	Operation	Y	Y	N	<u>Y</u>
1E	Bicycle and end of trip facilities would be provided in accordance with the <i>City of Sydney Section 3 – General Provisions</i> .	Operation	Y	Y	<u>N</u>	<u>N</u>
1F	Consultation would be undertaken with relevant bus provider(s) regarding the potential to extend the 901 bus service (or equivalent) and additional regular service bus stops with the aim of maximising public transport accessibility to, from and within the Amended operational area.	Operation	Y	Y	<u>Y</u>	<u>Y</u>
<u>1G</u>	<u>Importation of fill to site during construction of the Amended Proposal is to not exceed a total of 22,000 m³ of material per day. This limit is to be further reduced by an amount equivalent to any fill being imported to the MPW Stage 2 Proposal (SSD 7709) on the same day such that the combined importation of fill to the Amended Proposal site and MPW site does not exceed 22,000 m³ on any given day.</u>	<u>Construction</u>	<u>N</u>	<u>N</u>	<u>N</u>	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
2.	Noise and Vibration					
2A	<p>A Construction Noise and Vibration Management Plan (CNVMP), or equivalent, would be prepared for the Amended Proposal in accordance with the <i>Interim Construction Noise Guideline</i> (DECC, 2009) (or equivalent), and will include the following:</p> <ul style="list-style-type: none">• Identification of nearby residences and other sensitive land uses• Description of approved hours of work• Description and identification of construction activities, including work areas, equipment and duration• Description of what work practices (generic and specific) will be applied to minimise noise and vibration• Consider the selection of plant and processes with reduced noise emissions• A complaints handling process• Noise and vibration monitoring procedures• Overview of community consultation required for identified high impact works• Induction and training will be provided to relevant staff and sub- contractors outlining their responsibilities with regard to noise• Procedure for approval of any works undertaken outside of the following hours:<ul style="list-style-type: none">- Standard hours of 07:00 am to 18:00 pm Monday to Friday, and 08:00am to 13:00 pm Saturday,- Out of hours (OOH) work periods:<ul style="list-style-type: none">o OOH Period 1 is 6:00am – 7:00am weekdays;o OOH Period 2 is 6:00pm – 10:00pm weekdayso OOH Period 3 is 7:00am – 8:00am Saturday; ando OOH Period 4 is 1:00pm – 6:00pm Saturday.	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
2B	<p>Any works undertaken outside of the hours prescribed in mitigation measure 2A would be undertaken in consultation with relevant authorities. Works outside these hours that may be permitted would include:</p> <ul style="list-style-type: none"> Any works which would not result in audible noise emissions at any nearby sensitive receptors. The delivery of oversized plant and/or structures that police or other authorities determine require special arrangements to transport along public roads Emergency work to avoid the loss of lives, property and/or to prevent environmental harm Maintenance and repair of public infrastructure where disruption to essential services and/or consideration of worker safety do not allow work within standard construction hours. Public infrastructure works that shorten the length of the project and are supported by noise-sensitive receivers. Construction works where it can be demonstrated and justified that these works are required to be undertaken outside of standard construction hours. Any other work as approved through the CNVMP. 	Construction	Y	Y	Y	<u>Y</u>
2D	In the event of any noise or vibration related complaint or adverse comment from the community, noise and ground vibration levels (as relevant) would be investigated. Remedial action would be implemented where feasible and reasonable. The procedures for managing complaints would be provided within the Community Information and Awareness Strategy.	Construction and operation	Y	Y	Y	Y
2E	An Operational Noise Management Plan (ONMP) would be prepared which includes a framework for regular monitoring of operational noise. Monitoring would begin at the commencement of the operation of the Amended Proposal and would be conducted on an annual basis for up to 2 years (after commencement of operations of the Amended Proposal).	Operation	Y	Y	N	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
3.	Air Quality					
3A	<p>The Air Quality Management Plan (Ramboll, 2016), included within Appendix M of the EIS, would be further progressed and incorporated into the CEMP for the Amended Proposal. Specifically, the following key aspects would be addressed in the CEMP.</p> <p><u>Procedures for controlling/managing dust:</u></p> <ul style="list-style-type: none"> • <i>Clearing, site preparation and excavation</i> <ul style="list-style-type: none"> – <i>Deploy water carts periodically during construction to ensure exposure areas and topsoils/subsoil are kept moist.</i> – <i>Work practices would be modified to manage/control dust by limiting clearing, stripping and spoil handling during periods of adverse weather (hot, dry and windy conditions) and when dust is seen leaving the site.</i> – <i>The extent of clearing of vegetation and topsoil would be limited to the designated footprint required for construction and appropriate staging of any clearing.</i> • <i>Demolition of existing structures</i> <ul style="list-style-type: none"> – <i>Where possible, materials and structures would be dampened using water sprays prior to demolition. During adverse weather (hot, dry and windy conditions), consideration would be given to modify demolition activities when dust is seen leaving the site. Special consideration, including boundary monitoring would need to be given to the demolition of buildings containing asbestos in accordance with relevant guidelines and legislation.</i> • <i>Haulage and heavy plant and equipment movements</i> <ul style="list-style-type: none"> – <i>Water carts would be operated on all unsealed internal roadways and travel routes.</i> – <i>All vehicles on-site would be confined to a designated route with a speed limit of 30km/hr enforced.</i> – <i>Trips and trip distances should be controlled and reduced where possible, for example by coordinating delivery and removal of materials to avoid unnecessary trips.</i> 	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<ul style="list-style-type: none">– Dirt track-out should be managed using shaker grids and / or wheel cleaning. Dirt that has been tracked onto public roads would be cleaned as soon as practicable.– All trucks delivering fill or leaving the site with spoil material would have their load covered. <ul style="list-style-type: none">• Wind erosion<ul style="list-style-type: none">– Wind erosion from exposed ground would be limited by avoiding unnecessary vegetation and topsoil clearing and limiting to the minimum footprint required.– Wind erosion from temporary stockpiles would be limited by minimising the number of work faces on stockpiles and through temporary stabilisation (compaction of surface, water sprays, seeding, veneering). <p><u>Roles, responsibilities and reporting requirements:</u></p> <ul style="list-style-type: none">• During construction, environmental management would be the responsibility of the construction contractor. The Construction Manager (CM) would be responsible for the day to day construction activities of the Proposal site, including the implementation of dust controls. <p><u>Construction dust monitoring:</u></p> <ul style="list-style-type: none">• Visual checks would be made daily and reported on an environmental inspection report. The visual checks would:<ul style="list-style-type: none">– Inspect and report on excessive dust being generated at source (wheel generated dust, scrapers/graders, dozers, excavators, wind erosion).– Inspect and report on water cart activity and effectiveness.– Inspect and report on dust leaving the site.– Non-conformance (dust leaving the site) would be reported immediately to the CM or management. <p>Contingency measures for dust control where standard measures are deemed ineffective.</p>					

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
3B	<p>The Air Quality Management Plan (Ramboll, 2016), included within Appendix M of the EIS would be further progressed and integrated into the OEMP for the Amended Proposal. In accordance with the Air Quality Management Plan the following key aspects would be addressed in the OEMP:</p> <ul style="list-style-type: none"> • Implementation and communication of anti-idling policy for trucks • Complaints line for the community to report on excessive idling and smoky vehicles • Procedures to reject excessively smoky trucks visiting the site based on visual inspection. 	Operation	Y	Y	N	<u>Y</u>
3C	<i>During construction and operation, real-time boundary monitoring would be used to measure site emissions and alert site personnel when dust triggers are breached. This monitoring would determine if the best practice measures are effective and/or if additional reactive controls are needed on any particular day.</i>	Construction and operation	Y	Y	Y	Y
4.	Biodiversity					
4A	<p>A Construction Flora and Fauna Management Plan (CFFMP) would be prepared as part of the CEMP for the Amended Proposal. Native vegetation clearing for southern and eastern swales located outside of the MPE site would not occur until the Flora and Fauna Management Plan is approved. This would include the following:</p> <ul style="list-style-type: none"> • Clear identification of vegetation exclusion zones • Site induction procedure, including briefings regarding the local threatened flora and local fauna of the site and protocols to be undertaken if they are encountered • A pre-start up check for sheltering native fauna of all infrastructure, plant and equipment and/or during relocation of stored construction materials • Application of speed limits in areas adjacent to native vegetation 	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
4B	The threatened plant populations identified within the Boot lands (to the south) would be protected by a minimum 10 metre buffer between the edge of the area of occupied habitat and the Amended construction area.	Construction	Y	Y	Y	<u>Y</u>
4C	Potential bat roosting locations in buildings to be demolished would be checked, as far as is practicable, by a qualified ecologist or wildlife carer for presence of bats prior to demolition. Any bats found would be relocated.	Construction	Y	Y	N	<u>Y</u>
4D	<p>A two-stage approach would be undertaken to clearing:</p> <ul style="list-style-type: none"> Remove non-hollow bearing trees at least 48 hours before habitat trees are removed. Hollow bearing trees are to be knocked with an excavator bucket or other machinery to encourage fauna to evacuate the tree immediately prior to felling. Felled trees must be left for a short period of time on the ground to give any fauna trapped in the trees an opportunity to escape before further processing of the trees. Felled hollow bearing trees must be inspected by an ecologist as soon as possible (not longer than 2 hours after felling). 	Construction	Y	Y	Y	<u>Y</u>
4E	Directional lighting will be used where lighting is required in construction areas to avoid impact on fauna.	Construction	Y	Y	Y	<u>Y</u>
4F	<p>Should any animal be injured, the relevant local wildlife rescue agency (e.g. WIRES) and/or veterinary surgery would be contacted as soon as practical.</p> <p>Until the animal can be cared for by a suitably qualified animal handler, if possible minimise stress to the animal and reduce the risk of further injury by:</p> <ul style="list-style-type: none"> Handling fauna with care and as little as possible. Covering larger animals with a towel or blanket and placing in a large cardboard box. Placing small animals in a cotton bag, tied at the top. Keeping the animal in a quiet, warm, ventilated and dark location. 	Pre-construction, construction and operation	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
4G	<p>A Flora and Fauna Management Plan would be prepared as part of the OEMP for the Amended Proposal. This FFMP would focus on minimising impacts on biodiversity values on the adjacent Boot land.</p> <p><i>The FFMP would include measures relating to the monitoring, management and where necessary, eradication of weeds, disposal of green waste, and vehicle/ plant weed wash down protocols if required. Measures included in the FFMP relating to weed management would be prepared in accordance with the requirements of the Noxious Weeds Act 1993.</i></p>	Operation	Y	Y	N	<u>Y</u>
4H	<p><i>Potential indirect impacts to threatened flora species located within the Boot land (known as the Wattle Grove Offset Area) will be managed in accordance with the Biobanking Agreement.</i></p>	Operation	N	N	N	N
5. Stormwater and Flooding						
5A	<p>A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP), or equivalent, would be incorporated into the CEMP for the construction of the Amended Proposal. The SWMP and ESCPs would be developed in accordance with the principles and requirements of Managing Urban Stormwater – Soils & Construction Volume 1 ('Blue Book') (Landcom, 2004) and Volume 2 (DECC 2008). and consider the Preliminary ESCPs (Appendix P of the EIS). The following aspects would be addressed within the SWMP and ESCPs:</p> <ul style="list-style-type: none"> • 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 on appropriate impermeable surfaces as well as outside of riparian corridors • Inspection of all permanent and temporary erosion and sedimentation control works prior to and post rainfall events and prior to closure of the construction area 	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<ul style="list-style-type: none"> Wheel wash or rumble grid systems installed at exit points to minimise dirt on roads. 					
5B	<p>To minimise potential flood impacts as a result of construction of the Amended Proposal, the following measures would be implemented and documented in the SWMP:</p> <ul style="list-style-type: none"> The existing site catchment and sub-catchment boundaries would be maintained as far as practicable To the extent practicable, site imperviousness and grades should be limited to the extent of existing imperviousness and grades under existing development conditions. 	Construction	Y	Y	Y	<u>Y</u>
5C	A Flood Emergency Response and Evacuation Plan, or equivalent, would be prepared and implemented for the construction phase of the Amended Proposal to allow work sites to be safely evacuated and secured in advance of flooding occurring at the Amended construction area.	Construction	Y	Y	Y	<u>Y</u>
5D	<p>Stormwater quality improvement devices management measures would be designed and installed on site as presented in the Stormwater and Flooding Environmental Assessment (Appendix P of the EIS), including:</p> <ul style="list-style-type: none"> Gross pollutant traps (GPTs) at Section 6.2.1 Rain gardens in the base of the OSD channels, as shown in Figure 6-1 of Appendix P of the EIS. Stormwater quality improvement devices would be designed to meet the performance targets identified in Georges River Estuary CZMP. 	Detailed design and Construction	Y	Y	Y	<u>Y</u>
5E	<p>A water quality monitoring program for the operational phase of the Amended Proposal would be prepared as part of the OEMP for the Amended Proposal and would detail:</p> <ul style="list-style-type: none"> The frequency and duration of sampling Background water quality conditions Sampling methodology Reporting requirements 	Operation	Y	Y	N	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<p>Water quality monitoring would be undertaken for both Anzac Creek and the Georges River and would include the following parameters:</p> <ul style="list-style-type: none"> • Total suspended solids • Total phosphorous • Total nitrogen • Oils and grease. 					
5F	<p>A Flood Emergency Response Plan (FERP) would be developed for the operational <i>phase</i> of the Amended Proposal. The FERP would take into consideration, site flooding and broader flood emergency response plans for the Georges River and Anzac Creek floodplains and Moorebank area. The FERP would also include the identification of an area of safe refuge within the Amended Proposal site that would allow people to wait until hazardous flows have receded and safe evacuation is possible.</p>	Operation	Y	Y	<u>Y</u>	<u>Y</u>
5G	<p><i>Separated oily wastes would be captured and stored so that they do not enter the stormwater system.</i></p>	Operation	Y	Y	N	N
5H	<p><i>Measures associated with the OSDs to be developed during the detailed design phase would include:</i></p> <ul style="list-style-type: none"> • <i>Security fences – security fencing with locks would keep general public from entering the OSD basins. Only maintenance personnel or other relevant personnel with induction would be allowed into the basins.</i> • <i>Ladders – ladders are to be provided at regular intervals to provide safe access and egress</i> • <i>Access Ramp/ Sloped Driveway – would be provided for maintenance and emergency vehicles.</i> • <i>All OSD basins would have minimum base width of 6.0m. Maintenance access is to be provided along the base of the basin with access points via ramp/ sloped driveway.</i> • <i>Appropriate scour protection and energy dissipation will be provided at drainage outlets to control velocities in the OSD channels to less than 1.0m/s.</i> 	Pre-construction	N	N	N	Y

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<ul style="list-style-type: none"> Raingarden (bioretention) will be located in areas sufficiently away from drainage outlets to avoid re-suspension of sediments. The OSD outlets will be protected from blockage via combination of anti-blockage measures, such as palisade fencing, surcharge pit inlet grate and orifice trash screen in accordance with the Australian Rainfall and Runoff 2016 Project 11. 					
6.	Geology, Soils and Land Contamination					
6A	Excavated material would be reused on site where possible. Any excavated material that requires disposal would be subject to waste classification under the <i>Waste Classification Guidelines 2014</i> (NSW EPA, 2014) and would be disposed of at an appropriately licensed facility.	Construction	Y	Y	Y	<u>Y</u>
6B	<p><u>Stockpile sites established during construction are to be managed in accordance with stockpile management principles set out in Appendix G of the MPE Stage 2 RtS.</u></p> <p><u>The construction contractor would progress the Bulk Earthworks strategy (to be included within the CEMP) which would outline the volumes of imported and exported material, any buffer areas, temporary soil stockpiling areas and fencing of excavations, as required.</u></p> <p>Mitigation measures within the Stockpile Management Protocol include:</p> <ul style="list-style-type: none"> In order to accept fill material onto site, material characterisation reports/certification showing that the material being supplied is VENM/ENM must be provided. Each truck entering the MPE Stage 2 Proposal site will be visually checked and documented to confirm that only approved materials that are consistent with the environmental approvals are allowed to enter the site. Only fully tarped loads are to be accepted by the gatekeeper. Environmental Assurance of imported fill material will be conducted to confirm that the materials comply with the NSW EPA Waste Classification Guidelines and the Earthworks Specification for the MPE site. The frequency of assurance testing will be as nominated by the Environmental assessor/auditor. 	Pre-construction and construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<ul style="list-style-type: none"> All trucks accessing the site for the purpose of clean general fill importation would enter and exit via the existing main MPE Stage 2 site access located in the North-west of the MPE site from Moorebank Avenue. Ingress and egress to the stockpiling areas would be arranged so that the reversing of trucks within the site is minimised Stockpiles would not exceed ten-metres in height from the final site levels, with battered walls at gradients of 1V:3H For any stockpile heights greater than 4 m, benching would be implemented. Where reasonable and feasible, and to minimise the potential for erosion and sedimentation of stockpile(s), stockpile profiles would typically be at angle of repose (the steepest angle at which a sloping surface formed of loose material is stable) with a slight concave slope to limit the loss of sediments off the slope, or through the profile and the formation of a toe drain. The top surface of the stockpile(s) would be slightly sloped to avoid ponding and increase run off. Topsoil stockpiles would be vegetated to minimise erosion. stockpiles would be protected from upslope stormwater surface flow through the use of catch drains, berms, or similar feature(s) to divert water around the stockpile(s). A sediment control device, such as a sediment fence, berm, or similar, would be positioned downslope of the stockpile to minimise sediment migration. Any water seepage from stockpiles would be directed by toe drains at the base of the stockpiles toward the sediment basins or check dams and away from the emplacement or extraction working face. Newly formed stockpiles would be compacted (sealed off) using a smooth drum roller at the end of each working day to minimise water infiltration. Haul roads would be located alongside the stockpile to the work/tipping area. As per best practice, the catchment area of haul roads for surface water runoff would be approximately 25-30 m lengths, facilitated by the 					

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<p>provision of spine drains which would convey water from the haul road to toe drains at the base of the stockpile, and then to sediment basins.</p> <ul style="list-style-type: none"> • Temporary sediment basins would be established in accordance with the ESCP prepared for the site. • Stockpiling of clean fill material is to be carried out during Works Period A (pre-construction) and Works Period D (bulk earthworks). • Any imported clean general fill material that would be subject to stockpiling within the Proposal site for more than a 10-day period without being worked on, would be subject to stabilisation works, to minimise the potential for erosion. • Where the material being stockpiled is less coarse or has a significant component of fines then surface and slope stabilisation would be undertaken. Methods for slope stabilisation may include one or a combination of the following: <ul style="list-style-type: none"> – Application of a polymer to bind material together – Application of hydro-seed or hydromulch – Covering batters with mulch to provide ground cover. – Covering batters with geofabric – Use of a simple sprinkler system for temporary stockpiles, including use of radiating sprinkler nozzles to maintain fine spray over exposed surfaces. – Other options identified by the Contractor. • Topsoil stockpiles would be seeded with a grass/legume or nitrogen fixing species (such as acacia) to assist in erosion control and reduce loss of beneficial soil micro-organisms. 					

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
6C	<p>A Contamination Management Plan (CMP) (or equivalent) would be prepared and included within the CEMP for the Amended Proposal. The CMP would be prepared in consideration of the outcomes of the Environmental Management Plan (GHD, 2016) and Site Audit Statement and Site Audit Report (JBS&G, 2016) and would contain procedures on the following:</p> <ul style="list-style-type: none"> • Handling, stockpiling and assessing potentially contaminated materials encountered during the development works. • A management tracking system for excavated potentially contaminated materials to ensure the proper management material movements at the Amended construction area, particularly during excavation • Assessment, classification and disposal of waste in accordance with relevant legislation • A contingency plan for unexpected contaminated materials (unexpected finds protocol), such as materials that are odorous, stained or containing anthropogenic materials, that may be encountered during construction. 	Construction	Y	Y	Y	<u>Y</u>
6D	A site-wide UXO, EO, and EOW Management Plan (or equivalent) would be developed for the Amended construction area. This plan would be included within the CEMP and address the unexpected discovery of UXO, EO or EOW during construction.	Construction	Y	Y	Y	<u>Y</u>
6E	An Emergency Response Plan would be prepared and implemented. The plan would meet the requirements of Clause 153C of the POEO Act and the POEO (General) Regulation (Cl. 98B) and specify the procedure to be followed in the event of a spill, including the notification requirements and use of absorbent material to contain the spill. A spill kit would be provided on the Amended operational area at all times.	Operation	Y	Y	<u>Y</u>	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
6F	<p><u>In order to accept fill material onto site, the following will be undertaken:</u></p> <ul style="list-style-type: none"> <u>Material characterisation reports/certification showing that the material being supplied is VENM/ENM must be provided.</u> <u>Each truck entry will be visually checked and documented to confirm that only approved materials that are consistent with the environmental approvals are allowed to enter the site. Only fully tarped loads are to be accepted by the gatekeeper. Environmental assurance of imported fill material will be conducted to confirm that the materials comply with the NSW EPA Waste Classification Guidelines and the Earthworks Specification for the MPW site. The frequency of assurance testing will be as nominated by the Environmental assessor/auditor.</u> 	<u>Pre-construction and construction</u>	<u>N</u>	<u>N</u>	<u>N</u>	<u>Y</u>
6G	<u>The CEMP would include an Earthworks Specification, which would include details on earthworks material criteria, handling and placement requirements, embankment and cutting formation (including foundation, batter and benching requirements), unsuitable material and bridging layer requirements, conformance testing methods and acceptance criteria (e.g. for material acceptance and compaction control).</u>	<u>Construction</u>	<u>N</u>	<u>N</u>	<u>N</u>	<u>Y</u>
6H	<u>During detailed design, should it be identified that there is the potential for groundwater to be intercepted or affected consultation would be undertaken with NSW DPI.</u>	<u>Detail design</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>
6I	<u>During detailed design, should it be identified that there is the potential for groundwater to be intercepted, a Trigger Action Response Plan would be developed.</u>	<u>Detail design</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>
7.	Hazard and risk					
7A	Hazards associated with operation of the Amended Proposal would be identified through a Hazard and Operability Study (HAZOP), which would be undertaken as part of the detailed design.	Detail design	Y	Y	<u>Y</u>	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
7B	<p>The following measures would be included in the CEMP (or equivalent) to minimise hazards and risks:</p> <ul style="list-style-type: none"> Construction works, including the storage, handling and use of hazardous construction materials would be undertaken in accordance with the provisions of the <i>Work Health and Safety Act 2011</i> and <i>Work Health and Safety Regulation 2011</i>. All demolition activities would be undertaken in accordance with <i>Australian Standard AS2601-1991 – Demolition of Structures</i> Safe operational access and egress for emergency service personnel and workers will be provided at all times, and specified in the CEMP. Regular maintenance and inspection of all environmental and safety protection controls would be undertaken. 	Construction	Y	Y	Y	<u>Y</u>
7C	<p>An Asbestos Management Plan would be prepared for the Amended Proposal in accordance with the <i>Code of Practice: How to Manage and Control of Asbestos in the Workplace</i> (WorkCover NSW, 2011). The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> Identification of potential (suspected or confirmed) asbestos areas an outline of how asbestos risks would be controlled the identification of each person with responsibilities and details of their responsibilities under this plan Reference the asbestos register and risk assessment, which would also be prepared prior to construction being undertaken. 	Construction	Y	Y	<u>Y</u>	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
7D	<p>All asbestos removal works, including the demolition of the eight structures identified as containing asbestos (refer to Figure 14-1 of the EIS) will be undertaken in accordance with the Environmental Management Plan (GHD, 2016) and the following:</p> <ul style="list-style-type: none"> • The <i>Code of Practice for the Safe Removal of Asbestos</i> (NOHSC, 2005) • <i>Code of Practice: How to Safely Remove Asbestos</i> (WorkCover NSW, 2011)¹ <p>Asbestos removal would be carried out by an appropriately licensed asbestos removalist. The licensing requirements for asbestos removal are specified in the <i>Code of Practice How to Safely Remove Asbestos</i> (WorkCover NSW, 2011). .</p>	Construction	Y	Y	N	<u>Y</u>
7E	Dangerous goods entering or leaving the Stage 2 site must be notified in advance in accordance with the International Maritime Organisation (IMO) and regulations pertaining to the International Convention for the Safety of Life at Sea (SOLAS).	Operation	Y	Y	N	<u>N</u>
7F	Handling of dangerous goods including unpacking from containers and storage within warehouses on the Amended operational area would be undertaken in accordance with the <i>Storage and Handling of Dangerous Goods Code of Practice</i> (WorkCover NSW, 2005).	Operation	Y	Y	N	<u>N</u>
7G	Staff involved in the transport and handling of dangerous goods within the Amended Proposal site would receive training regarding the contents of the dangerous goods provisions and their roles and responsibilities. All training would be recorded and maintained in accordance with the appropriate competent authority (SafeWork NSW).	Operation	Y	Y	N	<u>Y</u>
7H	Design, installation and maintenance of gas reticulation infrastructure would be undertaken in accordance with <i>Australian Standard AS 2944-1 (2007): Plastic pipes and fittings for gas reticulation – Polyamide pipes</i> and <i>Australian Standard AS 2944-2 (2007): plastic pipes and fittings for gas reticulation – Polyamide fittings</i> .	Operation	Y	Y	Y	<u>Y</u>

¹ Excavation or disturbance of those areas of the Amended construction area where potential for asbestos to be present within the soil is discussed and mitigated in Chapter 13 (Soils, Geology and Contamination).

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
7I	Storage of flammable/combustible liquids within the Amended operational area would be carried out in accordance with <i>Australian Standard AS 1940: The Storage and Handling of Flammable and Combustible Liquids</i> . Secondary containment measures would be implemented in a location away from waterways and drainage paths/infrastructure.	Operation	Y	Y	N	<u>N</u>
7J	An Operational Hazard and Risk Management Plan would be developed for the Amended operational area and be implemented as part of the OEMP for the Amended Proposal. This plan would be reviewed regularly and updated should goods entering the site change. As a minimum, the plan would adopt the requirements of the Code of Practice for Storage and Handling of Dangerous Goods (WorkCover NSW, 2005).	Operation	Y	Y	<u>Y</u>	<u>Y</u>
7K	Appropriate testing, alarm systems and work, health and safety (WHS) precautions would be implemented for the safety of personnel and infrastructure.	Operation	Y	Y	N	<u>Y</u>
7L	No hazardous or regulated wastes would be disposed of on site.	Operation	Y	Y	N	<u>Y</u>
7M	<i>Should it be identified at a future stage that a tenant or tenants require dangerous goods storage within the Proposal site, a screening test would be undertaken in accordance with SEPP 33.</i>	Operation	Y	Y	N	N
8. Visual Amenity, urban design and landscape						
8A	<p>The following mitigation measures would be implemented, where reasonable and feasible, to minimise the visual impacts of the Amended Proposal:</p> <ul style="list-style-type: none"> Existing vegetation around the perimeter of construction sites would be retained The early implementation of landscape planting would be considered in order to provide visual screening during the construction of the Amended Proposal Elements within construction sites would be located to minimise visual impacts, e.g. setting back large equipment from site boundaries Construction lighting, on both ancillary facilities and plant and equipment, would be designed and located to minimise the effects of light spill on surrounding sensitive receivers, including residential areas and the proposed conservation area 	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<ul style="list-style-type: none"> Design of site hoardings would consider the use of artwork or project information Regular maintenance would be undertaken of site hoardings and perimeter areas including the prompt removal of graffiti Re-vegetation/landscaping would be undertaken progressively Where required for construction works, cut-off and directed lighting would be used and lighting location considered to ensure glare and light spill are minimised. 					
8B	<p>The following mitigation measures would be implemented, where reasonable and feasible, for the landscaping of the Amended Proposal:</p> <ul style="list-style-type: none"> Use of native shrubs and ground covers to form a screening barrier when mature. A landscaping corridor of screening vegetation to provide informal street character along Moorebank Avenue. Use of local species as understory planting to support and enhance local habitat values Use of seeds collected within the local area for planting to reinforce the genetic integrity of the region, where possible. 	Operation	Y	Y	Y	<u>Y</u>
8C	Light for the Amended Proposal would be designed to minimise any direct light spill and would comply with the requirements of <i>Australian Standard AS4282-1997- Control of the Obtrusive Effects of Outdoor Lighting</i> .	Detailed design and operation	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
9.	Indigenous Heritage					
9A	An exclusion zone would be provided around previously identified MPE Isolated Artefacts 2, 3 and 4 (refer to Figure 16-2) to avoid potential disturbance of these artefacts during construction of the Amended Proposal.	Construction	Y	N	N	<u>Y</u>
9B	<p>Management of Aboriginal heritage would be included in the CEMP for the Amended Proposal. Information within the CEMP would include:</p> <ul style="list-style-type: none"> • A summary of the findings of the Aboriginal Heritage Impact Assessment Report (provided at Appendix S of the EIS) • Guidance on unexpected archaeological and cultural finds (including human remains). 	Construction	Y	Y	Y	<u>Y</u>
9C	All relevant personnel and contractors involved in the design and construction of the Amended Proposal would be advised of the relevant heritage considerations, legislative requirements and recommendations in the Aboriginal Heritage Impact Assessment Report (provided at Appendix S of the EIS).	Detailed design and Construction	Y	Y	Y	<u>Y</u>
10.	Non-Indigenous Heritage					
10A	A Heritage Management Plan in adherence to NSW Heritage Council guidelines would be prepared as part of the CEMP for the Amended Proposal.	Construction	Y	Y	N	<u>Y</u>
10B	Archaeological monitoring and recording would be conducted at PADs V and W, which have the potential to contain archaeological remains of local significance. Monitoring and recording would be undertaken by a suitably qualified archaeologist, who would assess the likely significance of any archaeological deposits encountered, and provide advice regarding appropriate further action. If highly significant remains were identified during monitoring, it would be appropriate to conduct further monitoring for additional sites of former structures or test excavations.	Construction	Y	N	Y	<u>Y</u>
10C	A Heritage Interpretation Strategy should be prepared in consultation with the <i>Heritage Council of NSW</i> prior to the commencement of construction, outlining appropriate interpretive measure for the Amended construction area in the context of the MPE site as a whole.	Construction	Y	Y	<u>Y</u>	<u>Y</u>

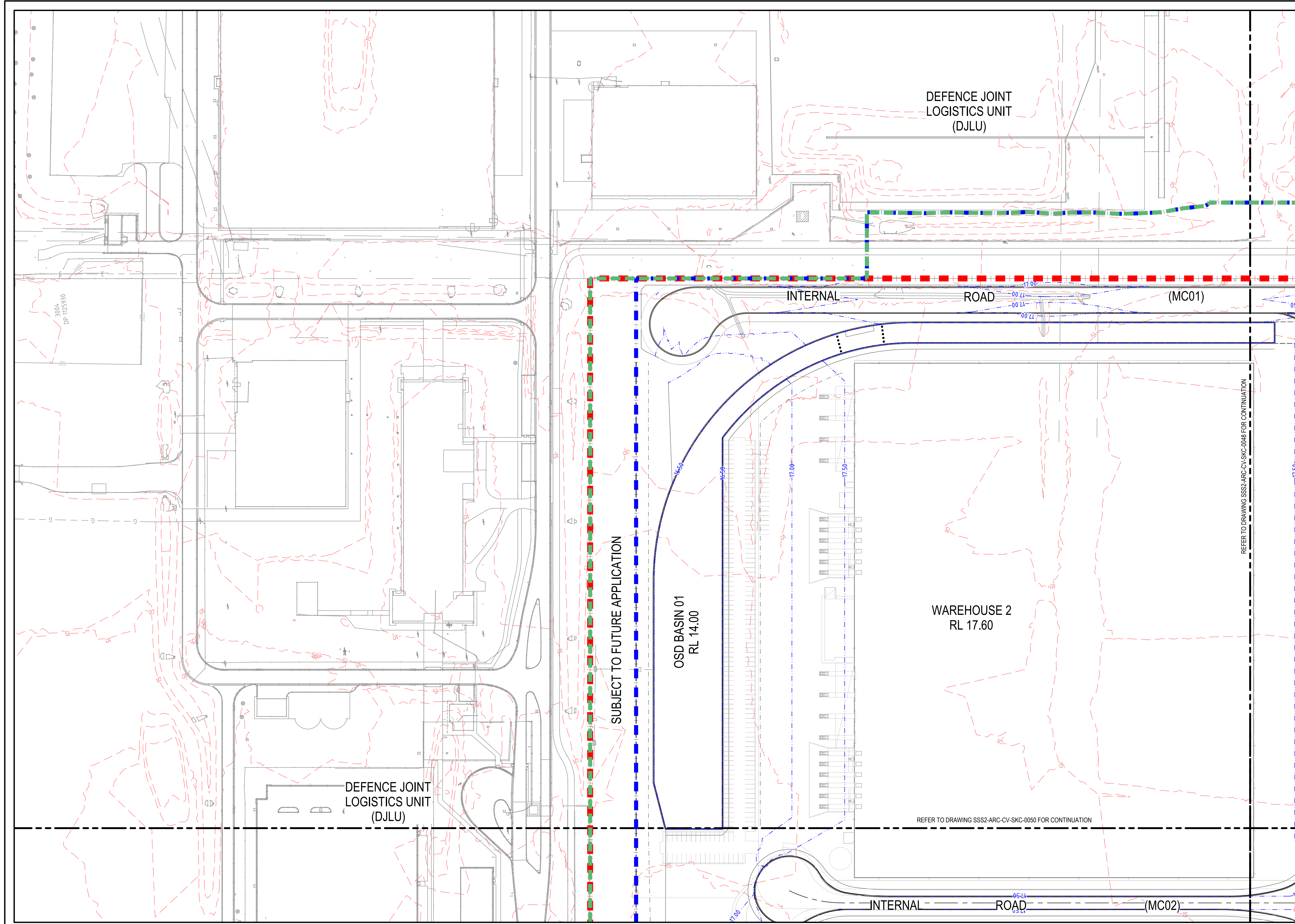
No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
10D	If unexpected finds are located during works an archaeological consultant would be engaged to assess the significance of the finds and the NSW Heritage Council notified.	Construction	Y	Y	Y	<u>Y</u>
11.	Greenhouse Gas					
11A	Energy efficiency design aspects would be investigated, where practicable as part of the detailed design process in order to reduce energy and fuel consumption.	Detailed design	Y	Y	N	<u>Y</u>
11B	Project planning would be undertaken to ensure that the site vehicle movements and construction activities are efficient, to avoid double handling of materials and unnecessary fuel use where possible.	Construction	Y	Y	Y	<u>Y</u>
11C	Fuel efficiency of the construction plant/equipment will be assessed prior to selection, and where practical, equipment with the highest fuel efficiency and which uses lower GHG intensive fuel (e.g. biodiesel) will be used.	Construction	Y	Y	Y	<u>Y</u>
11D	Consideration will be given to material substitution where reasonable and feasible to reduce embodied energy of construction materials.	Detailed design and Construction	Y	Y	Y	<u>Y</u>
11E	Where possible locally sourced materials will be used to reduce GHG emissions associated with transport during construction.	Construction	Y	Y	Y	<u>Y</u>
11F	Waste would be diverted from landfill, including diversion of spoil, construction and demolition waste, and commercial and industrial waste, where reasonable and feasible. The management of waste would be considered as part of the preparation of the CEMP for the Amended Proposal, detailing the appropriate procedures for waste management.	Construction	Y	Y	Y	<u>Y</u>
11G	Fuel efficiency of the operation plant/equipment will be assessed prior to selection, and where practical, equipment with the highest fuel efficiency and which uses lower GHG intensive fuel (e.g. biodiesel) will be used during operation.	Operation	Y	Y	N	<u>Y</u>
11H	Implement adaptation measures to address medium and high rated risks detailed in the climate change risk assessment presented in the Greenhouse Gas (GHG) and Climate Change Risk Assessment (Appendix V of the EIS).	Detailed design Operation	Y	Y	N	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
12.	Waste					
12A	<p>Measures to mitigate the effect of the construction waste streams would be incorporated into the Amended Proposal's CEMP, including the following information:</p> <ul style="list-style-type: none"> • Avoidance and reuse of material will have priority over recycling • Recycling will have priority over disposal • Earth excavated from the site will be used for fill material and landscaping where feasible • If possible concrete components will be crushed and reused onsite, with the remainder sent to a recycling facility • Waste generation will be minimised by ordering the correct quantity of materials • Selection of materials which maximise recycled content, while having low embodied water and energy use • Selection of materials which maximise durability and lifespan. <p>The following procedures and protocols will be considered within the CEMP regarding waste management:</p> <ul style="list-style-type: none"> • Characterisation of construction waste streams • Management of any identified hazardous waste streams • Procedures to manage construction waste streams, including handling, storage, classification, quantification, identification and tracking • Mitigation measures for avoidance and minimisation of waste materials • Procedures and targets for reuse and recycling of waste materials. • Inclusion of the waste management strategies included in the Concept Plan Statement of Commitments for construction waste management. 	Construction	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
12B	<p>Measures to mitigate the effect of the operational waste streams would be incorporated into the Amended Proposal's OEMP, including the following information:</p> <ul style="list-style-type: none"> • Addressing waste management requirements and goals in staff inductions • Providing staff access to documentation outlining the facility's waste management requirements • Appropriate areas shall be provided for the storage of waste and recyclable material including: <ul style="list-style-type: none"> – Locating recycling bins in kitchen areas beside general waste bins to prevent contamination of recycling – Positioning paper recycling bins close to printer / photocopying equipment – Establishing bays or containers for recyclable waste generated through de-stuffing – Minimising general waste bins at desks but providing adequate container and paper recycling to encourage sorting of recyclables – Ensuring warehouse tenants are providing adequate bin storage for the expected quantity of waste • Standard signage on how to use the waste management system and what materials are acceptable in the recycling will be posted in all waste collection and storage areas • Waste management planning incorporating principles of the waste hierarchy • All domestic waste shall be collected regularly and disposed of at licensed facilities • By ensuring bins are placed in the correct location and access ways are clear waste collection vehicles will be able to service the development efficiently and effectively • An education programme and on-going monitoring will to be implemented for training personnel to properly sort and transport waste into the right components and destinations 	Operation	Y	Y	N	<u>N</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
	<ul style="list-style-type: none"> Sewage waste will be discharged to Sydney Water sewerage infrastructure in accordance with Sydney Water requirements Trade waste will be discharged to the sewer through a trade waste agreement with Sydney Water Inclusion of the waste management strategies included in the Concept Plan Statement of Commitments for operational waste management. 					
13.	Bushfire					
13A	<p>A bushfire management strategy, or equivalent, will be prepared as part of the CEMP for the Amended Proposal. The strategy will include:</p> <ul style="list-style-type: none"> Emergency response plans and procedures Restrictions on activities (namely hot works) that cannot be undertaken on total fire ban days within areas of high Bushfire Hazard Rating, unless otherwise advised by the NSW Rural Fire Service. All construction site offices and temporary buildings will be located outside buffer areas to ensure minimum setbacks of 10 m. All construction site offices will be accessible via access roads suitable for firefighting appliances similar to NSW Rural Fire Service category 1 tankers. 	Construction	Y	Y	Y	<u>Y</u>
13B	<p>A bushfire management strategy, or equivalent, would be prepared as part of the OEMP for the Amended Proposal. In particular, the strategy would ensure management of landscaped areas within the Stage 2 site would be undertaken to maintain minimum dry fuel loads.</p>	Operation	Y	Y	<u>Y</u>	<u>Y</u>
14.	Property and infrastructure					
14A	<p>As relevant, further assessment of services demand, infrastructure requirements and augmentation works, in consultation with relevant infrastructure and service providers would be undertaken.</p>	Detailed design	Y	Y	Y	<u>Y</u>

No.	Mitigation measures	Implementation stage	Applicability			
			Warehousing	Freight village	Moorebank Avenue Upgrade	<u>Site infrastructure</u>
15.	Socio-economic					
15A	<p>A community information and awareness strategy would be included in the CEMP and would outline measures to maintain communication with the community and all relevant stakeholders throughout the construction process of the Amended Proposal.</p> <p><i>Additionally, written notification would be provided to potentially affected and adjoining land owners prior to commencement of site operations.</i></p>	Construction	Y	Y	Y	<u>Y</u>
15B	The Operational Environmental Management Plan (OEMP) would include measures to engage with stakeholders and to manage and respond to feedback received during the operation of the Amended Proposal.	Operation	Y	Y	N	<u>Y</u>

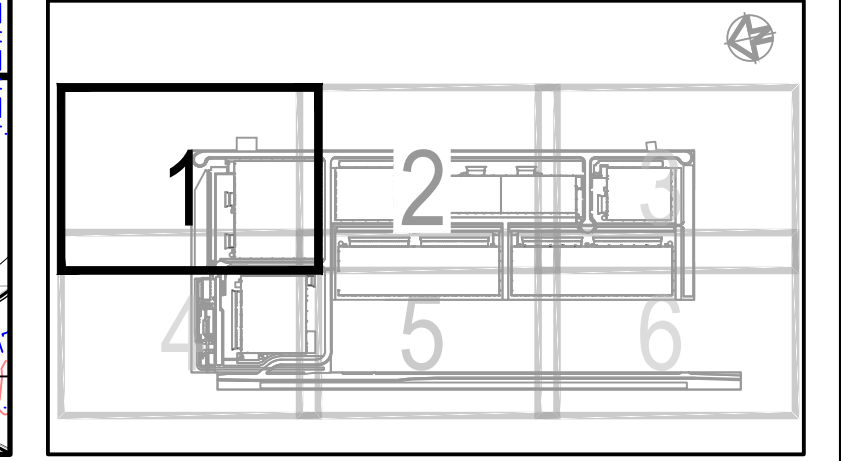


LEGEND

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- MPE STAGE 2 OPERATIONAL BOUNDARY
- MPE STAGE 2 CONSTRUCTION BOUNDARY
- INDICATIVE PROPOSED CONTOUR *
- EXISTING CONTOUR

NOTE

- SUBJECT TO DETAIL DESIGN



01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date

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Client

SIMTA

SYDNEY
INTERMODAL
TERMINAL
ALLIANCE

TACTICAL

GROUP

Status

SKETCH
NOT TO BE USED FOR CONSTRUCTION

Scales

1:1000

Current Issue Signatures

Drawn
A.ZHAO

Designed
M.O'CALLAGHAN

Height
Datum
AHD

Grid
MGA

Checked
K.MCAREAVEY

Approved
M.KEFFORD

Original Size

A1

File Name

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Project

MOOREBANK PRECINCT EAST
(MPE) STAGE 2

Title

EXISTING AND PROPOSED
CONTOUR PLAN
SHEET 1

Arcadis Australia Pacific Pty Limited
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arcadis.com

Project No.

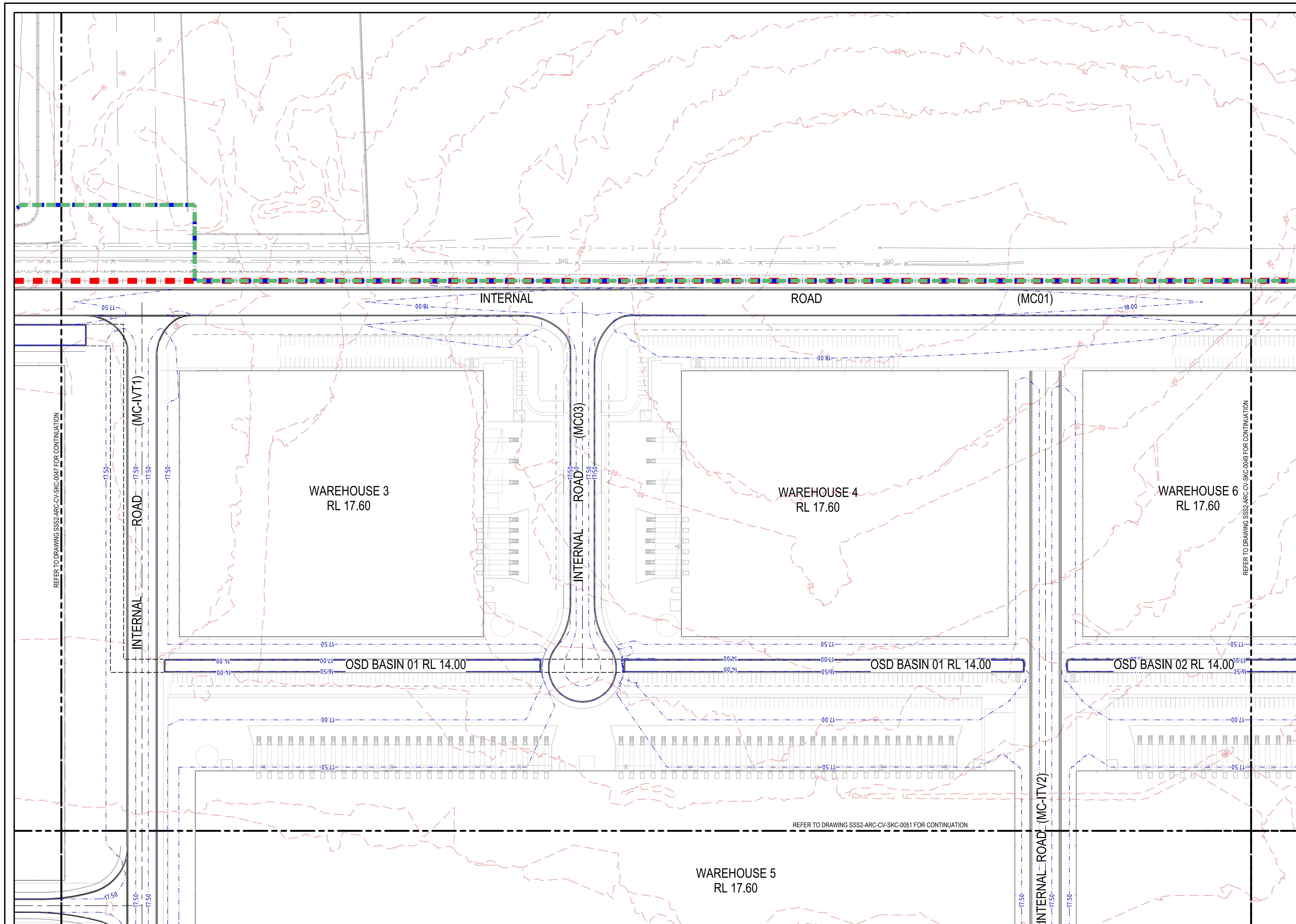
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Issue

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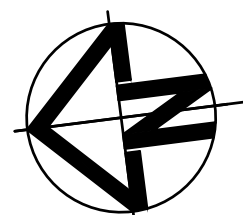
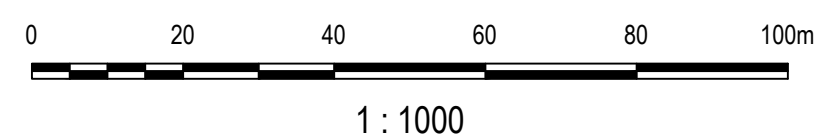
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- MPE SITE BOUNDARY
- MPE STAGE 2 OPERATIONAL BOUNDARY
- MPE STAGE 2 CONSTRUCTION BOUNDARY
- INDICATIVE PROPOSED CONTOUR *
- EXISTING CONTOUR

NOTE

- SUBJECT TO DETAIL DESIGN

01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

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Project

MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title

EXISTING AND PROPOSED CONTOUR PLAN SHEET 2

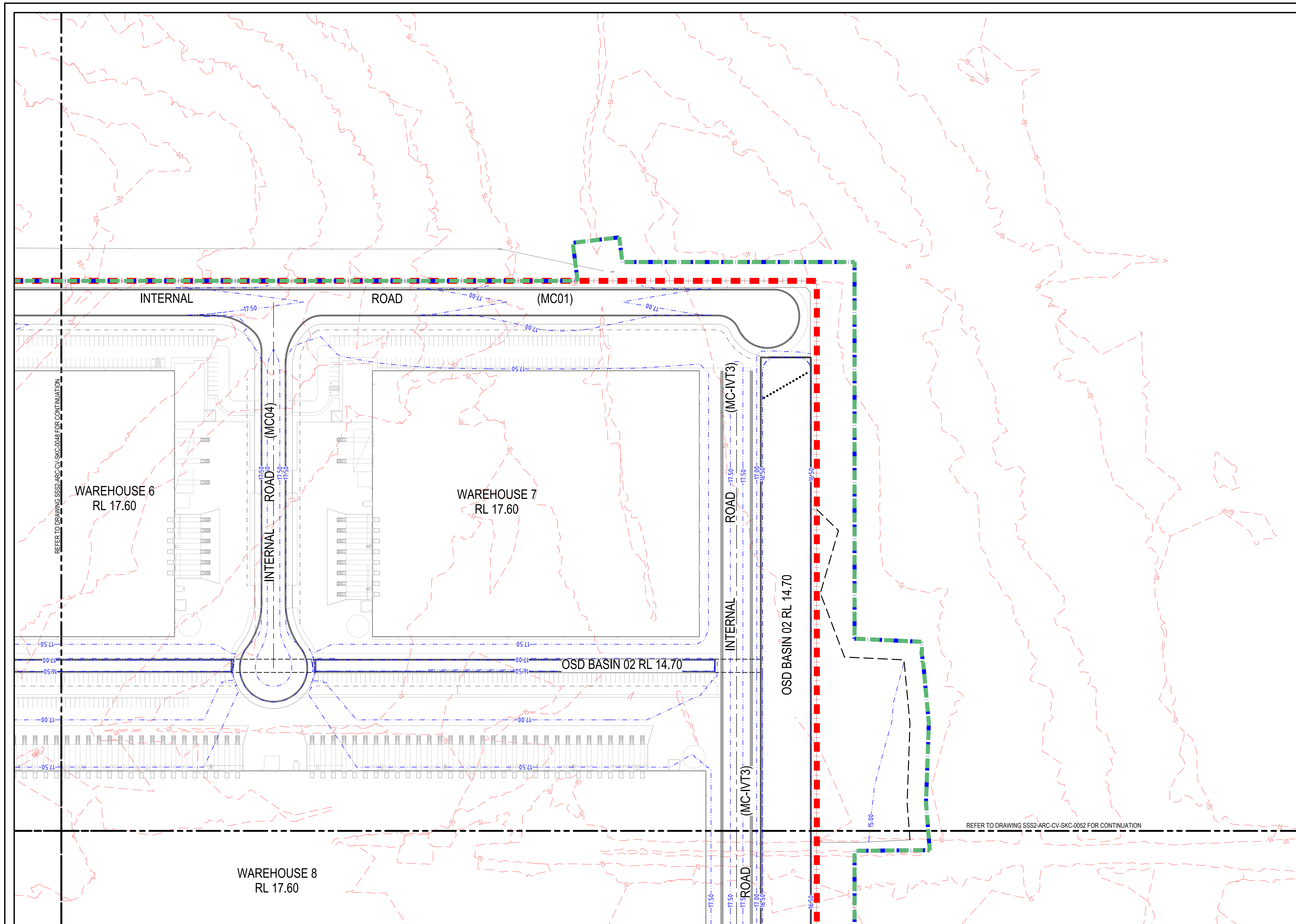
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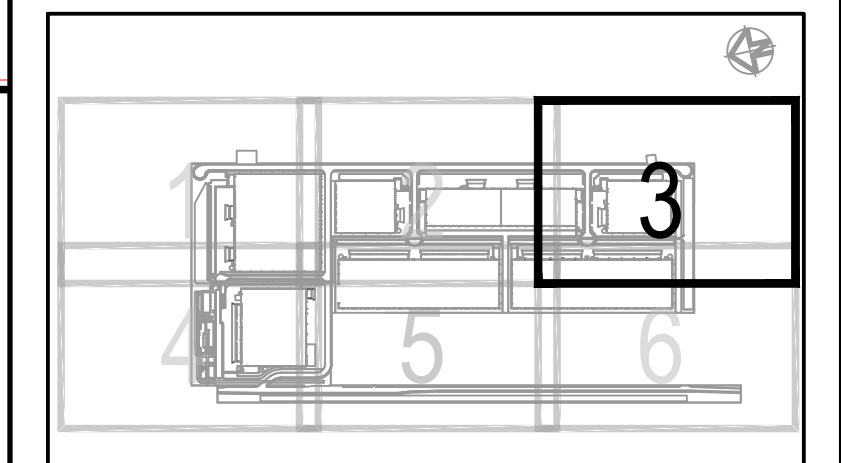


LEGEND

- MPE SITE BOUNDARY
- MPE STAGE 2 OPERATIONAL BOUNDARY
- MPE STAGE 2 CONSTRUCTION BOUNDARY
- INDICATIVE PROPOSED CONTOUR *
- EXISTING CONTOUR

NOTE

- SUBJECT TO DETAIL DESIGN



01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date

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Client

SIMTA

SYDNEY
INTERMODAL
TERMINAL
ALLIANCE

TACTICAL

GROUP

Status

SKETCH
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Current Issue Signatures

Drawn
A.ZHAO

Designed
M.O'CALLAGHAN

Checked
K.MCAREAVEY

Approved
M.KEFFORD

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Project

MOOREBANK PRECINCT EAST
(MPE) STAGE 2

Title

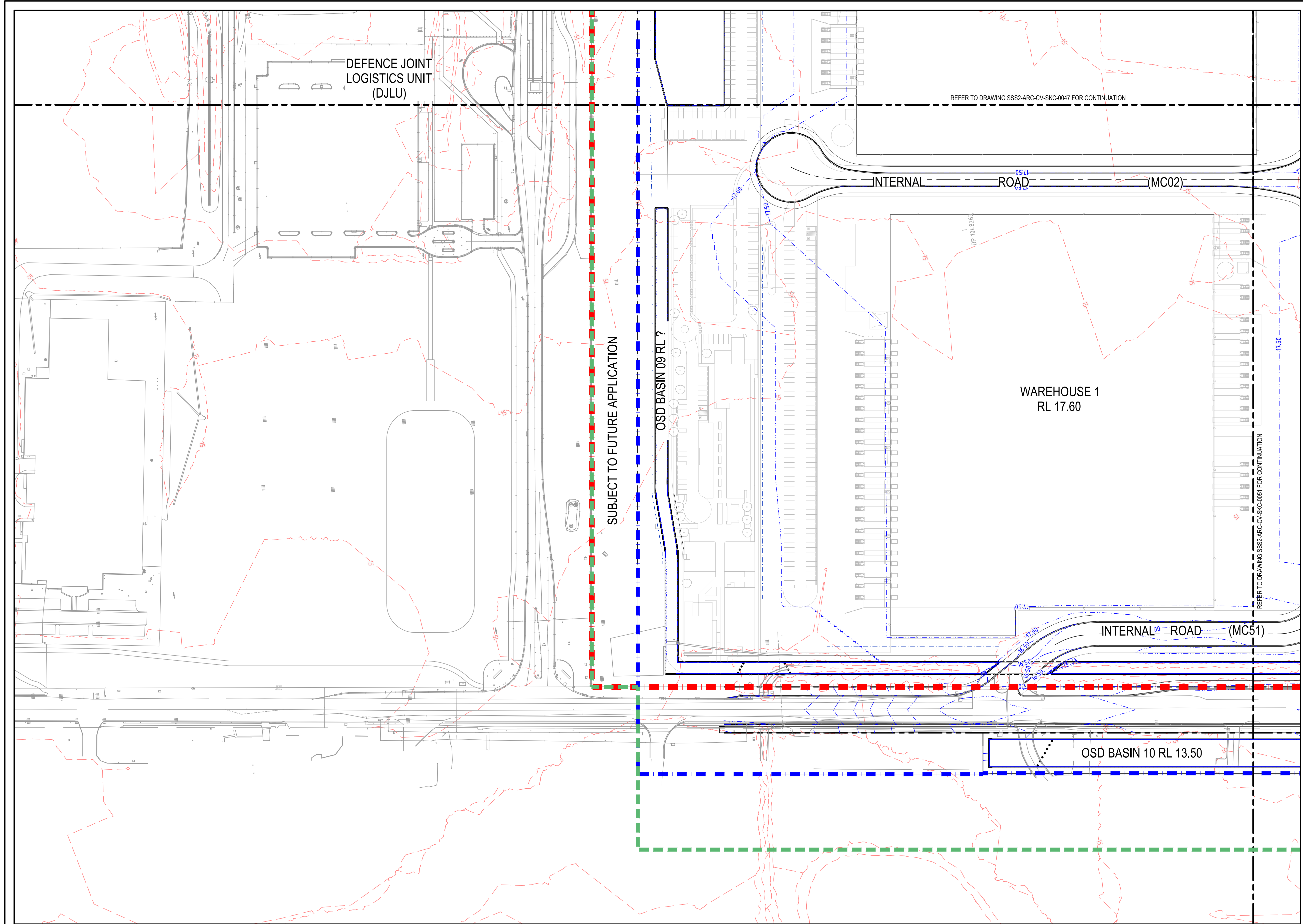
EXISTING AND PROPOSED
CONTOUR PLAN
SHEET 3

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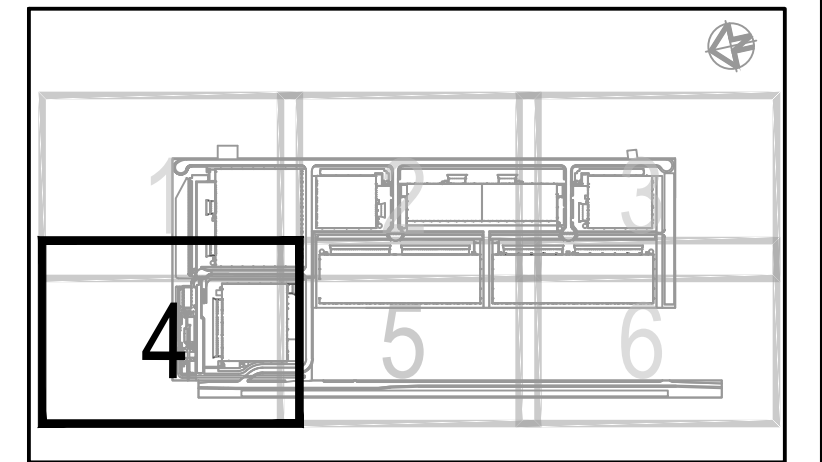


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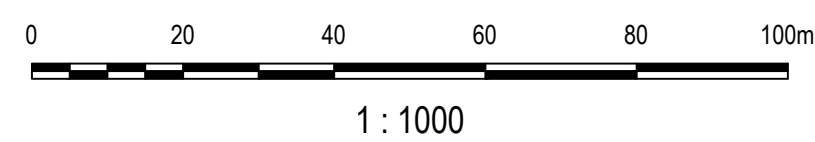
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- MPE STAGE 2 OPERATIONAL BOUNDARY
- MPE STAGE 2 CONSTRUCTION BOUNDARY
- INDICATIVE PROPOSED CONTOUR *
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NOTE

- SUBJECT TO DETAIL DESIGN



01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

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		Approved M.KEFFORD
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Project

MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title

EXISTING AND PROPOSED CONTOUR PLAN SHEET 4

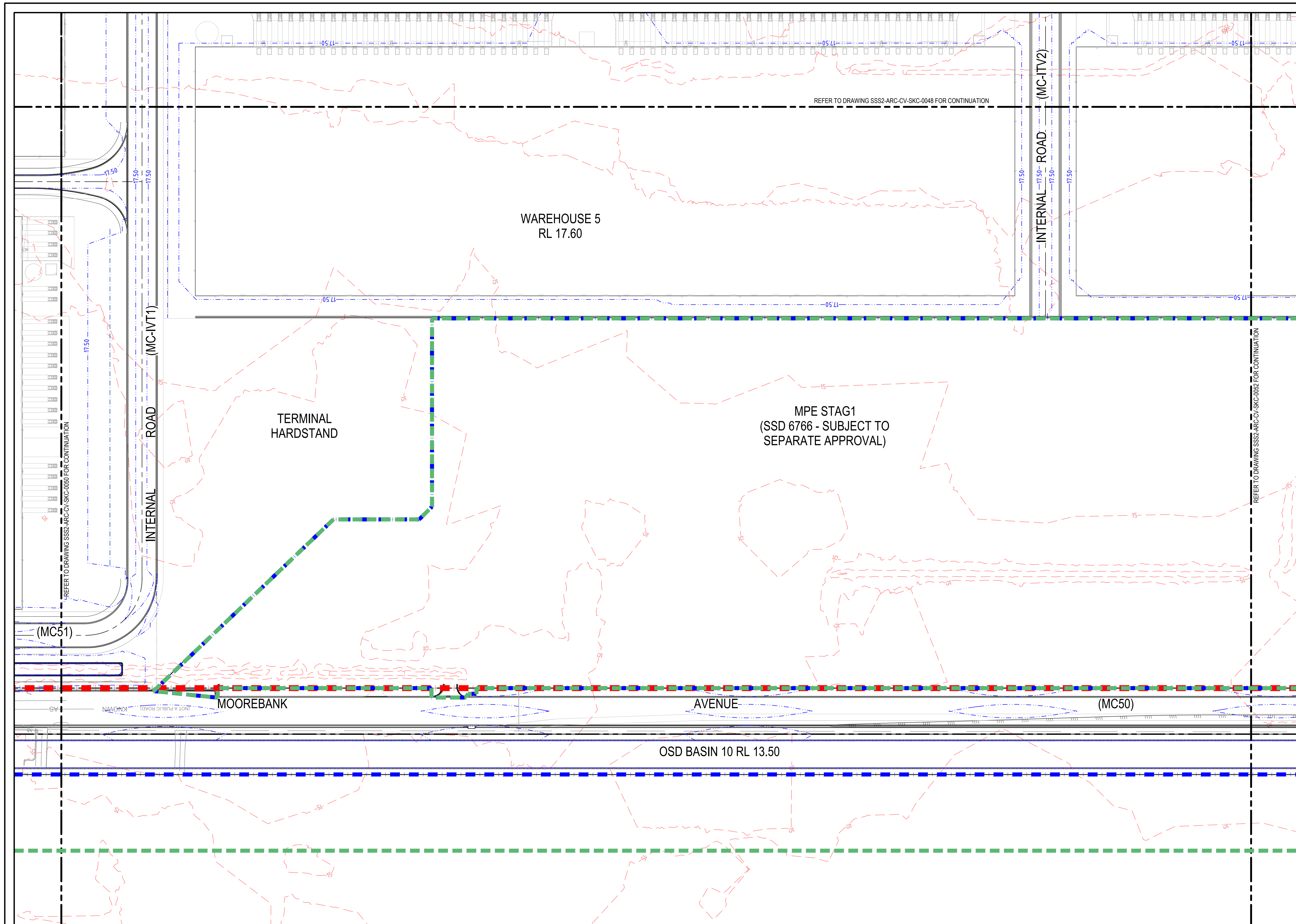
ARCADIS

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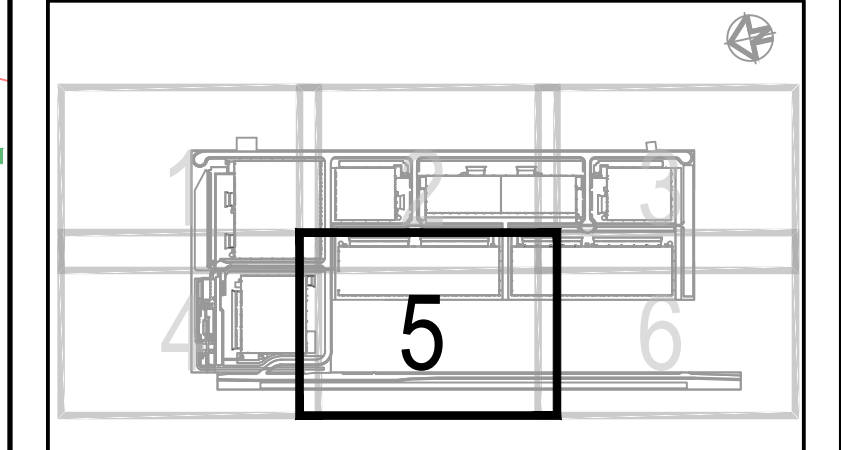


LEGEND

- MPE SITE BOUNDARY
- MPE STAGE 2 OPERATIONAL BOUNDARY
- MPE STAGE 2 CONSTRUCTION BOUNDARY
- INDICATIVE PROPOSED CONTOUR *
- EXISTING CONTOUR

NOTE

- SUBJECT TO DETAIL DESIGN



01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date

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Client

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SYDNEY
INTERMODAL
TERMINAL
ALLIANCE

TACTICAL

GROUP

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MOOREBANK PRECINCT EAST
(MPE) STAGE 2

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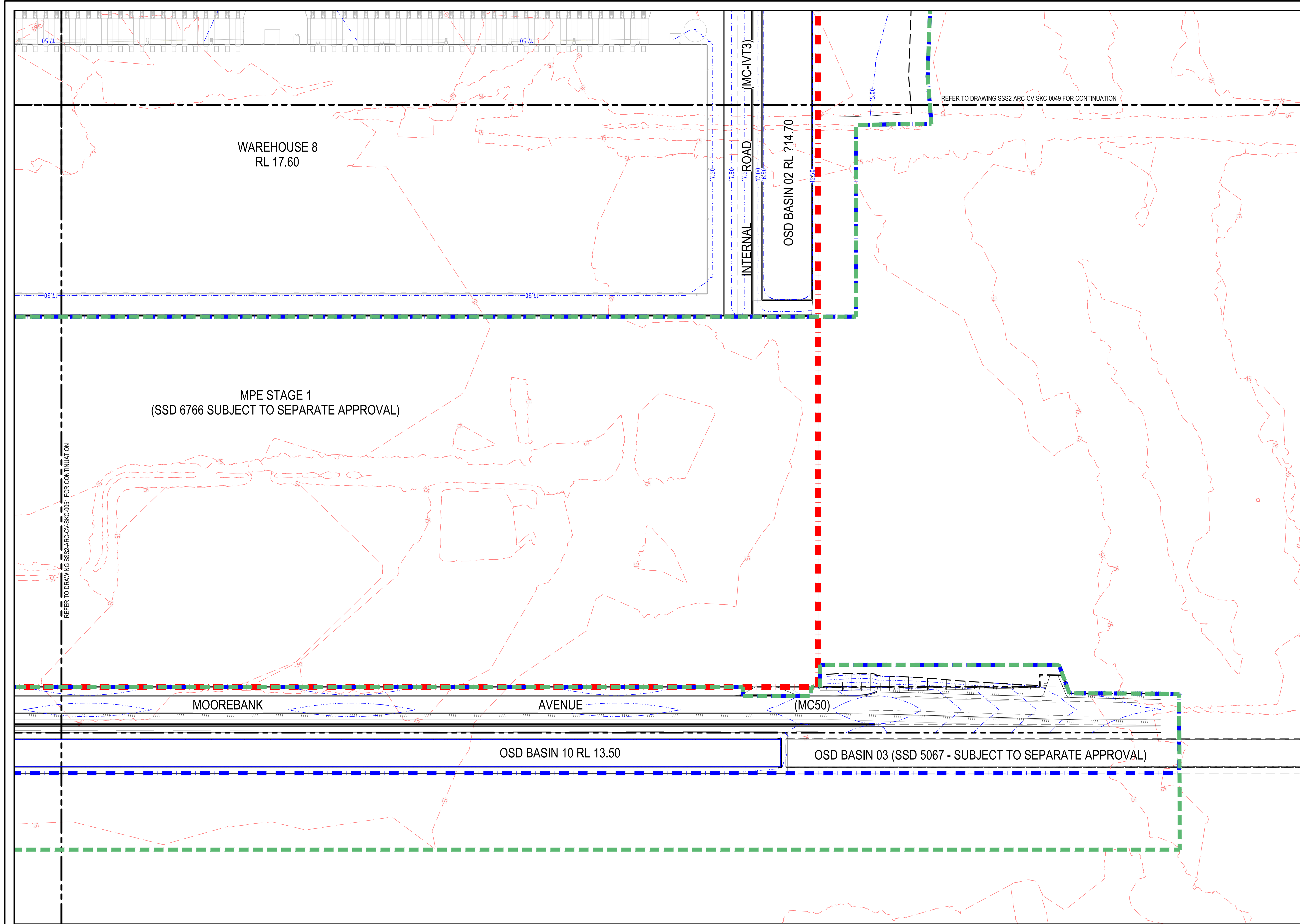
EXISTING AND PROPOSED
CONTOUR PLAN
SHEET 5

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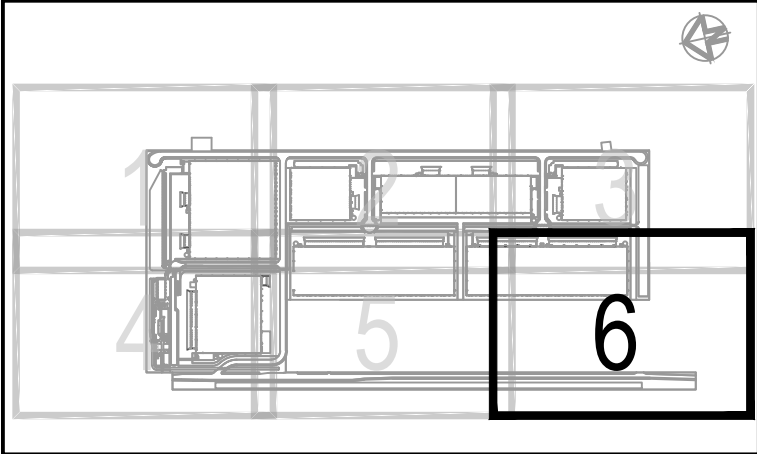


LEGEND

- MPE SITE BOUNDARY
- MPE STAGE 2 OPERATIONAL BOUNDARY
- MPE STAGE 2 CONSTRUCTION BOUNDARY
- INDICATIVE PROPOSED CONTOUR *
- EXISTING CONTOUR

NOTE

- SUBJECT TO DETAIL DESIGN



01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date

1 : 1000

Client

SYDNEY INTERMODAL TERMINAL ALLIANCE

Status

SKETCH
NOT TO BE USED FOR CONSTRUCTION

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Grid	MGA	Checked	K.MCAREAVEY
		Approved	M.KEFFORD

Filename: SSS2-ARC-CV-SKC-0052-ExistingAndProposedContourPlanSheet6.dwg

Project

MOOREBANK PRECINCT EAST
(MPE) STAGE 2

Title

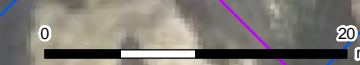
EXISTING AND PROPOSED
CONTOUR PLAN
SHEET 6

Arcadis Australia Pacific Pty Limited
Level 5, 141 Walker St
NORTH SYDNEY NSW 2060
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Project No.
AA009335


Drawing No.
SSS2 -ARC-CV- SKC - 0052-


Issue
01

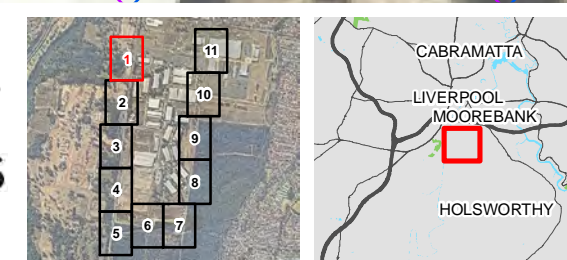


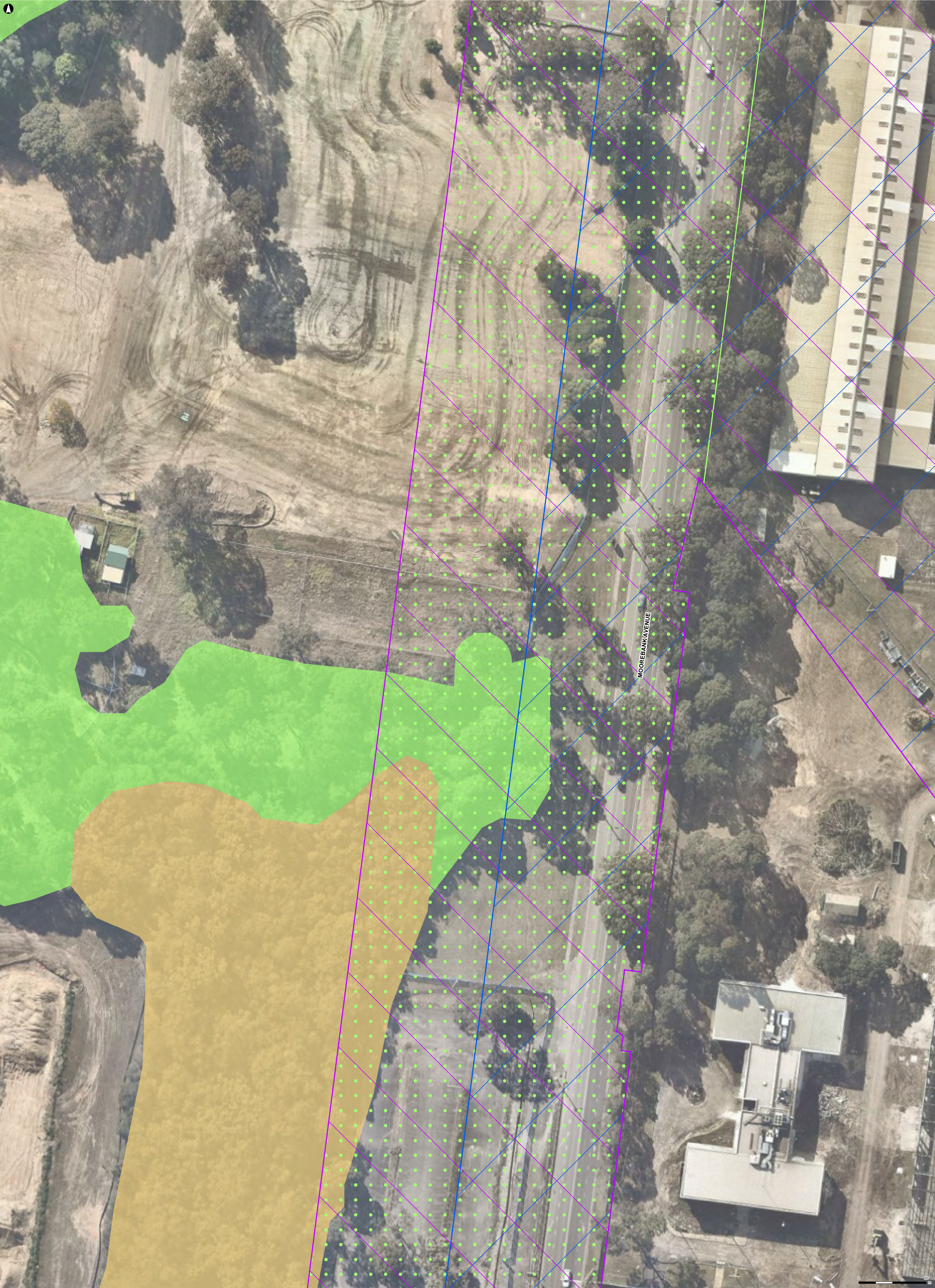
 Moorebank Avenue upgrade
 Amended construction area
 Amended operational area
 Vegetation Communities
 Forest Red Gum - Rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain Sydney Basin

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 **SIMTA** FORUM
TECHNICAL
SYMPOSIUM





LEGEND

Moorebank Avenue upgrade

Amended construction area

Amended operational area

Vegetation Communities

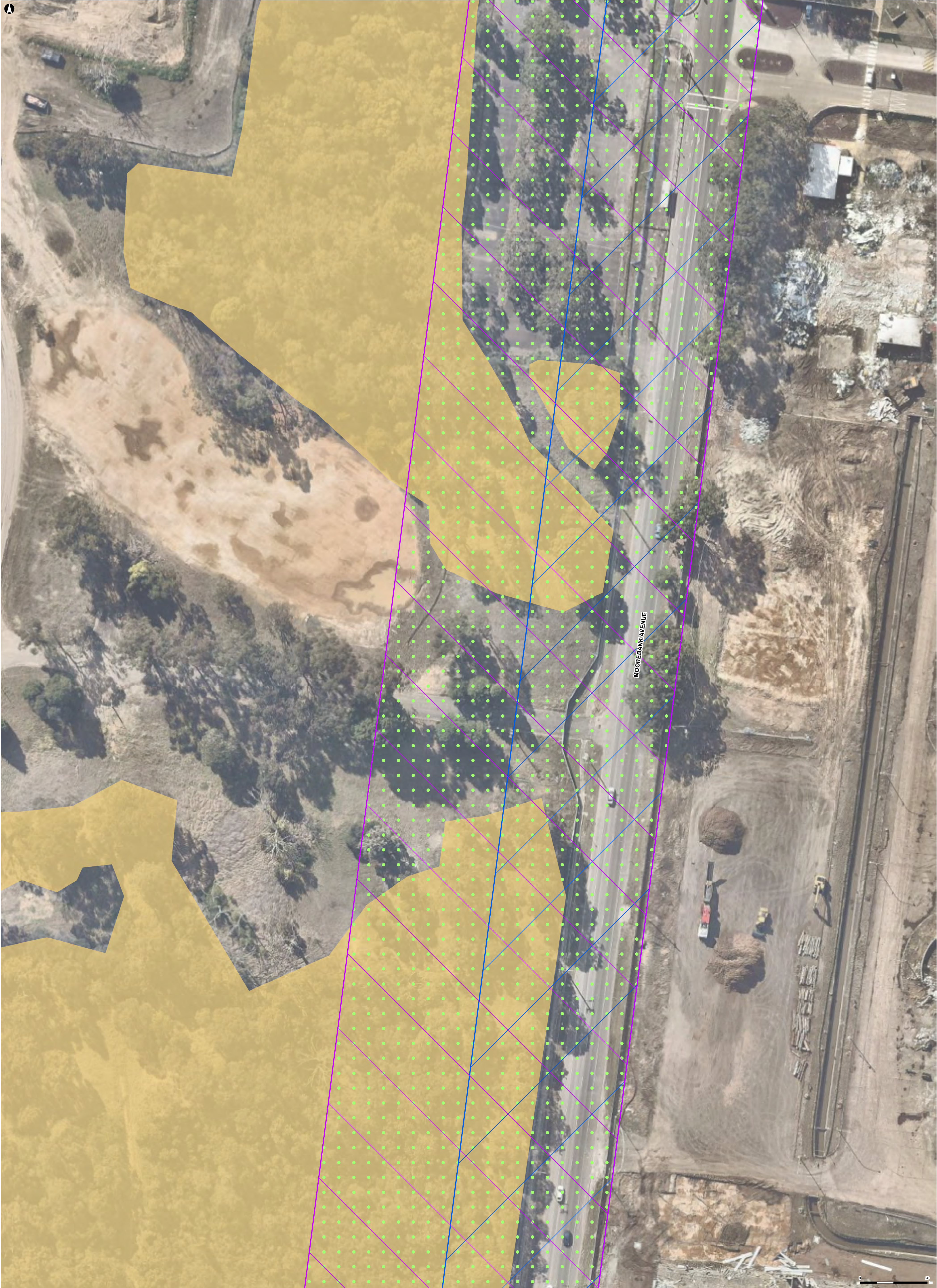
Forest Red Gum - Rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain Sydney Basin

Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion

ARCADIS AUSTRALIA PACIFIC PTY LTD
ABN 74 104 485 200
Level 10, 100 George St | Sydney NSW 2000
P: +61 (0)2 9247 8000 | F: +61 (0)2 9247 8001
Coordinate System: GDA 1984 MGA Zone 56
Aerial imagery supplied by GeoEye (2008/01/1)

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ARCADIS
SMTA



LEGEND

Moorebank Avenue upgrade

Amended construction area

Amended operational area

Vegetation Communities

Hard-leaved Scribbly Gum - Parramatta Red Gum healthy woodland of the Cumberland Plain, Sydney Basin Bioregion

ARCADIS AUSTRALIA PACIFIC PTY LTD

ABN 74 106 485 200

Level 10, 100 George St, Sydney NSW 2000

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Coordinate System: GDA 1984 MGA Zone 56

Source Imagery: Esri/Airphoto (2000/01)

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ARCADIS

SIMTA

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CABRAMATTA

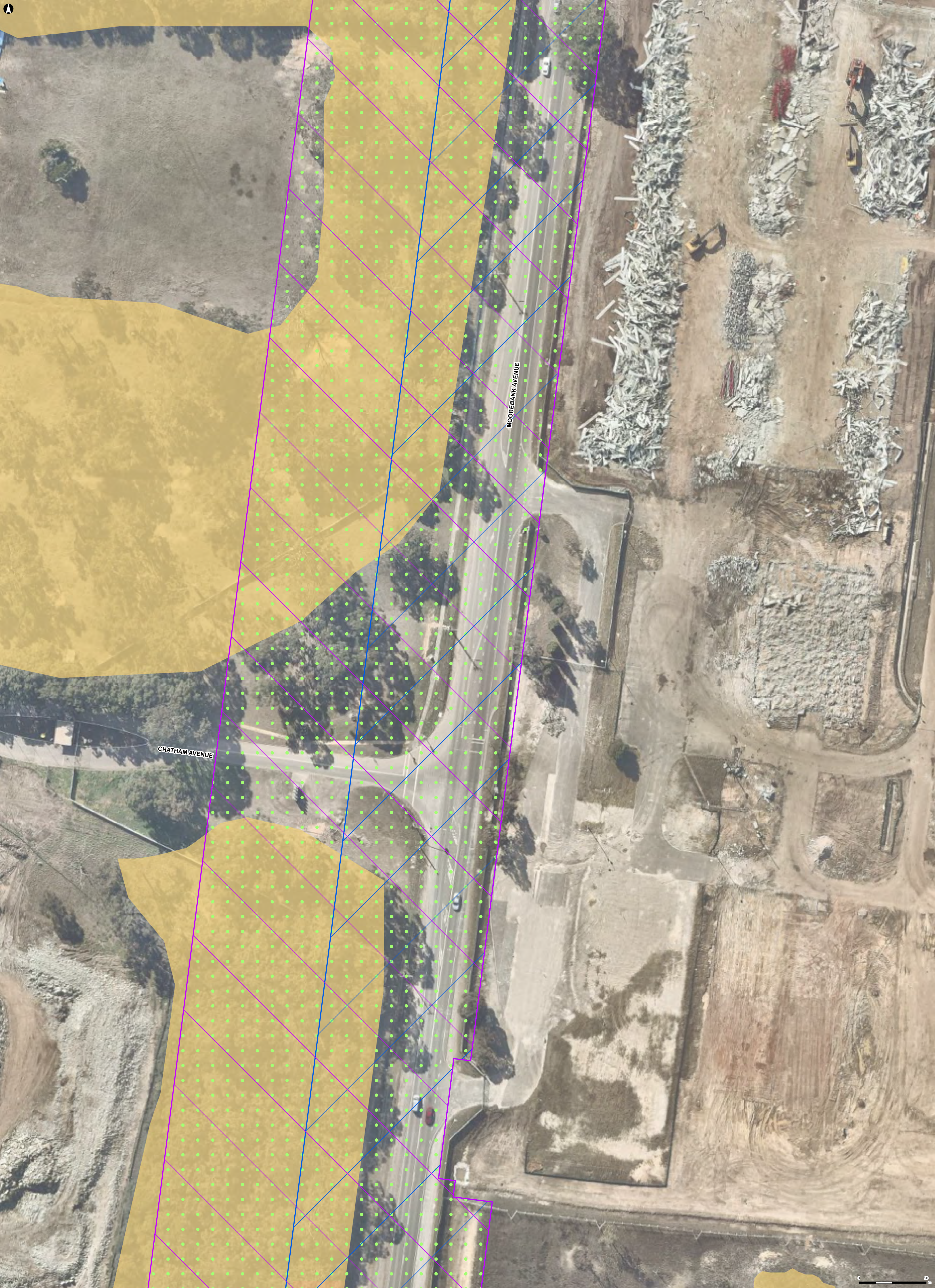
LIVERPOOL

MOOREBANK

HOLSWORTHY

Edge effect plan - Page 3 of 11

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LEGEND

Moorebank Avenue upgrade

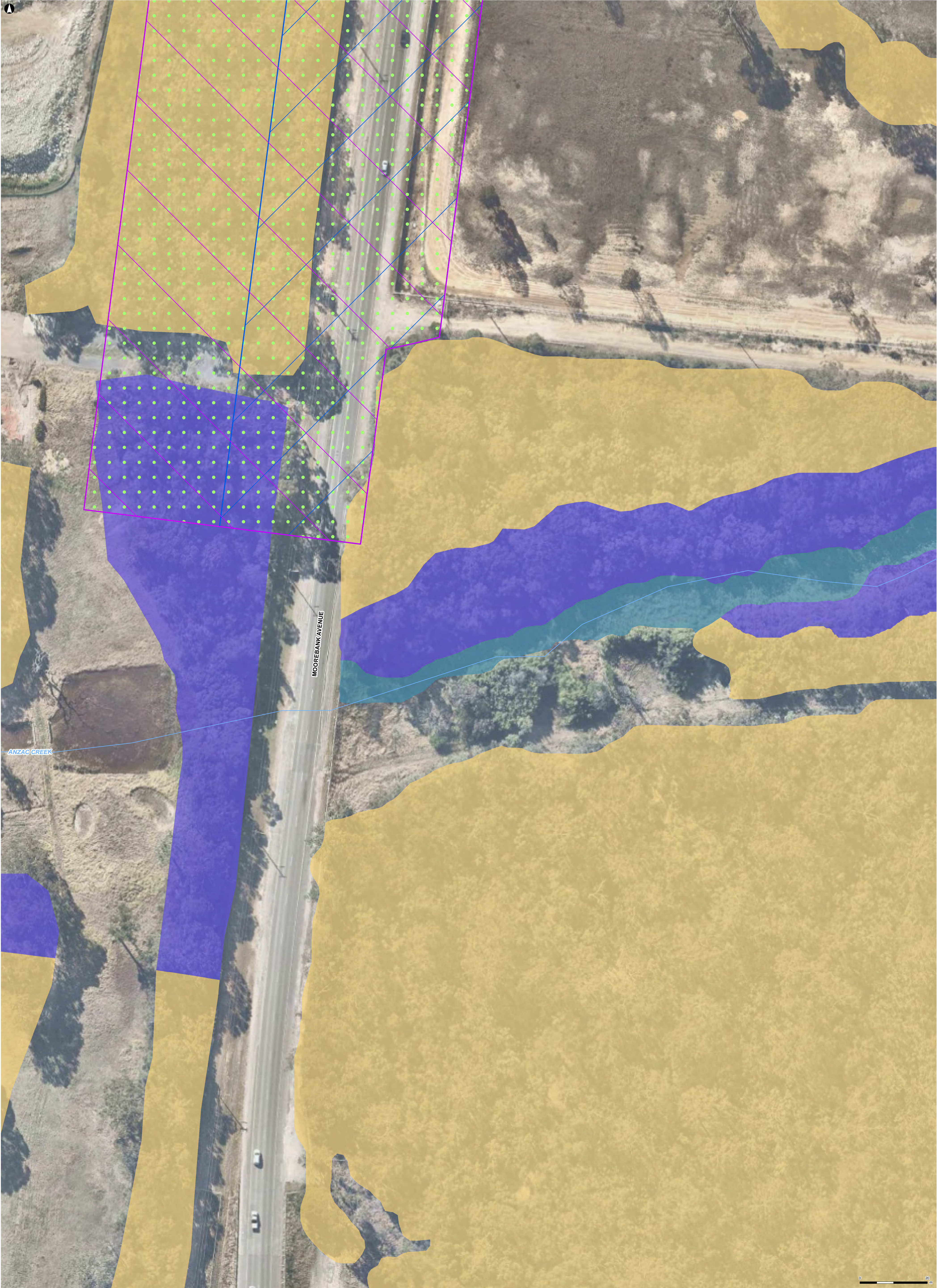
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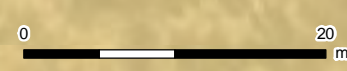
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Vegetation Communities
 Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion

ARCADIS AUSTRALIA PACIFIC PTY LTD
ABN 74 106 485 206
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www.arcadis.com.au
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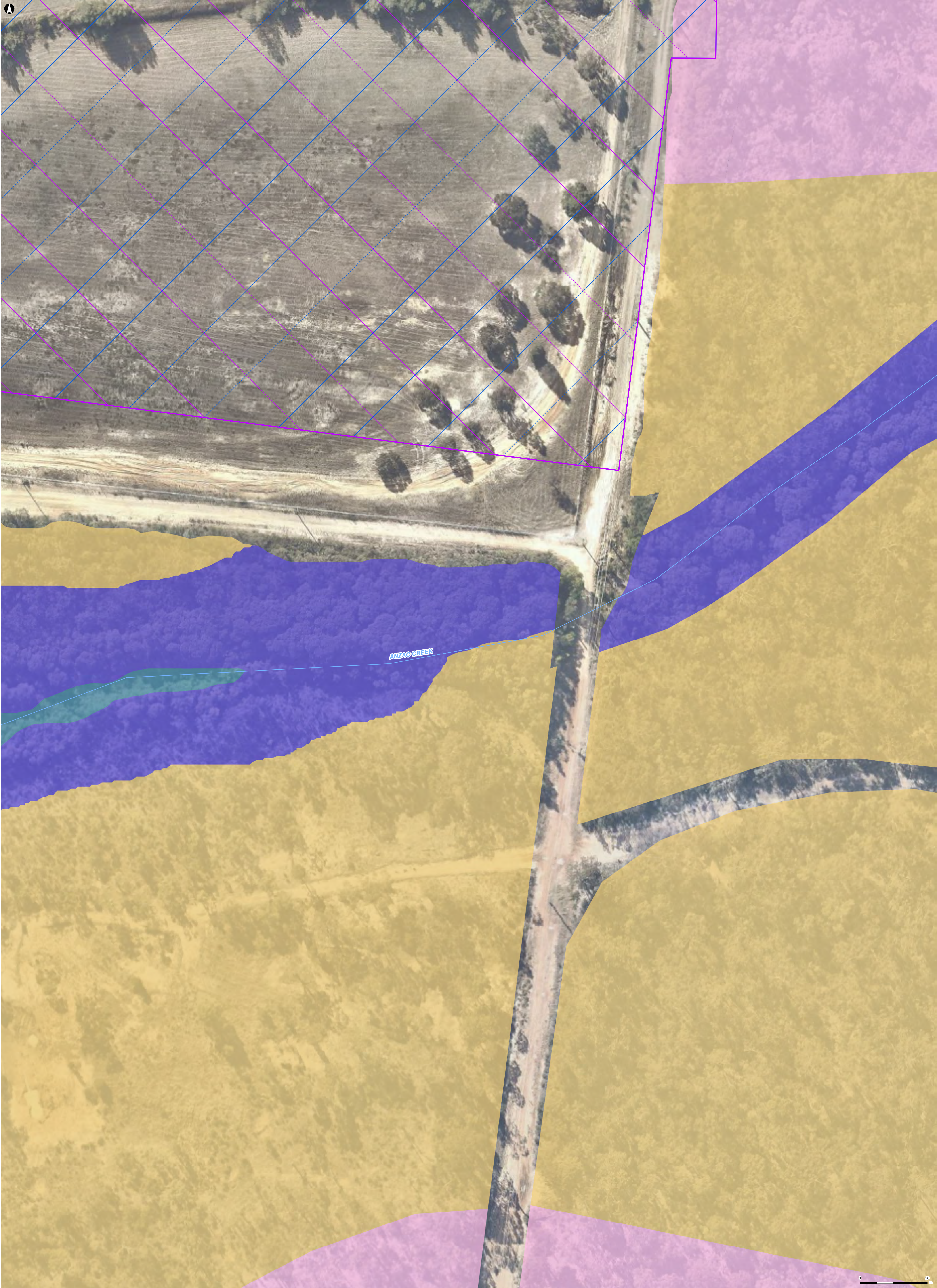




 Amended construction area Amended operational area

Vegetation Communities

- Coastal freshwater lagoons of the Sydney Basin Bioregion and South East Corner Bioregion
- Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion
- Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion





LEGEND

- Amended construction area

Amended operational area
- Vegetation Communities


 - Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion
 - Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion
 - Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion



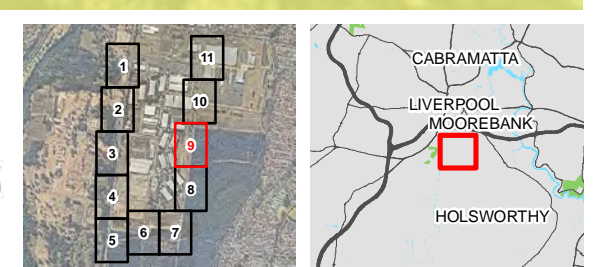
 Amended construction area Amended operational area

■ Broad-leaved Ironbark - Grey Box - *Melaleuca decora* grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion

1:500 at A1

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LEGEND

Amended construction area

Amended operational area

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ABN 74 100 000 000
Level 10, 100 George St, Sydney NSW 2000
P 61 2 9237 1000 F 61 2 9237 1001
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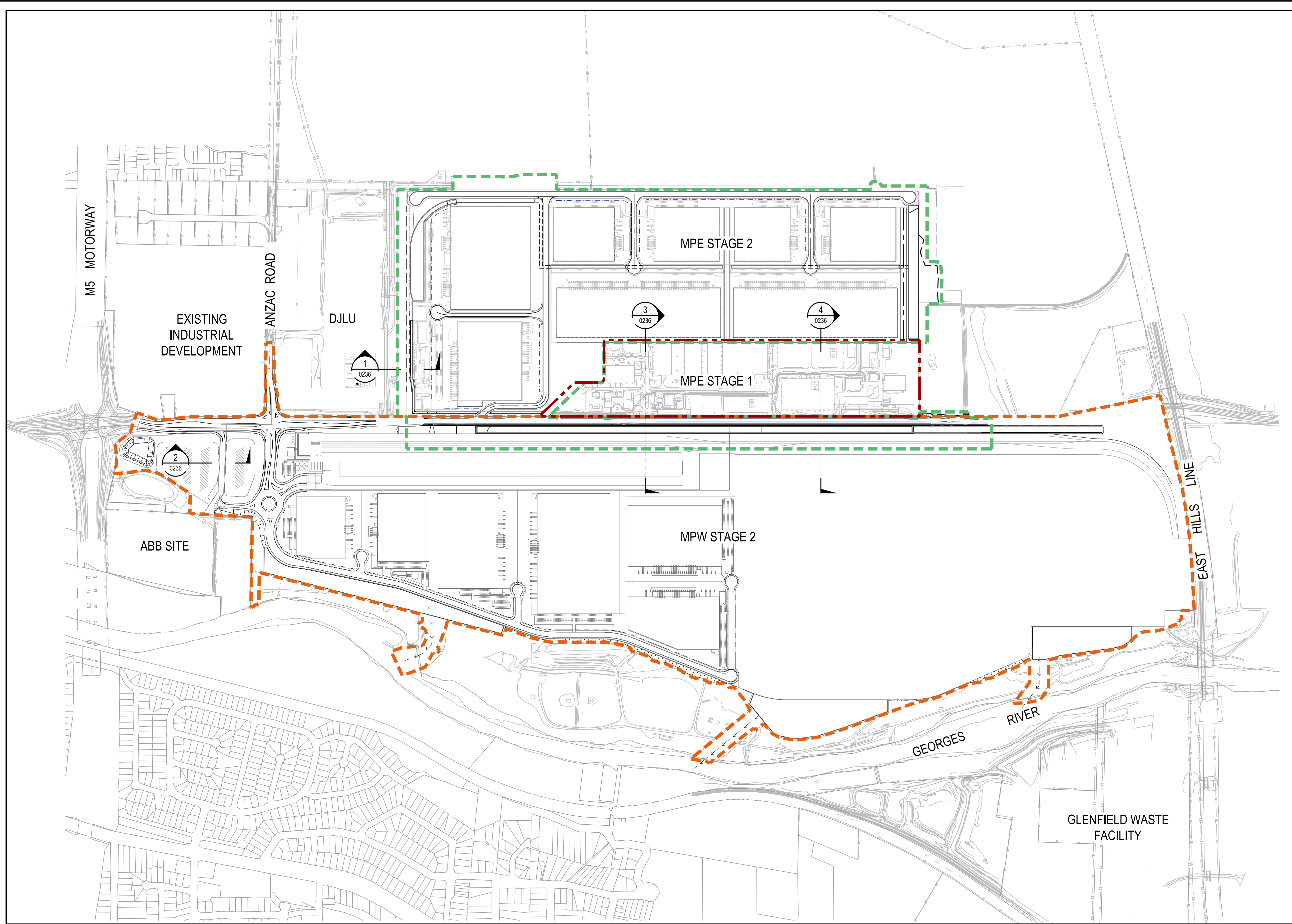
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Infrastructure

SIMTA
Sustainable
Infrastructure
Management
Technology

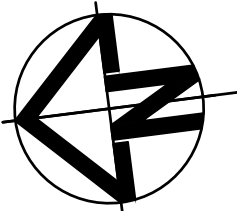
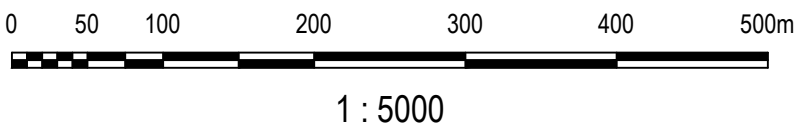


LEGEND

MPW STAGE 2 CONSTRUCTION BOUNDARY

MPE STAGE 2 CONSTRUCTION BOUNDARY

01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status	SKETCH NOT TO BE USED FOR CONSTRUCTION	
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Height Datum	AHD	Designed M.O'CALLAGHAN
Grid	MGA	Checked K.MCAREAVEY
		Approved M.KEFFORD
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Project	MOOREBANK INTERMODAL OVERALL PRECINCT
Title	GENERAL ARRANGEMENT PLAN

ARCADIS

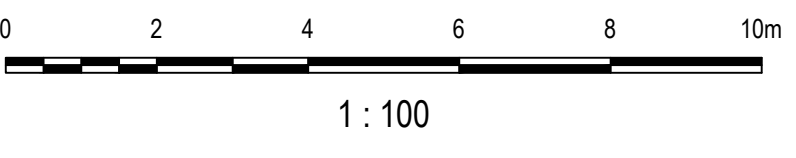
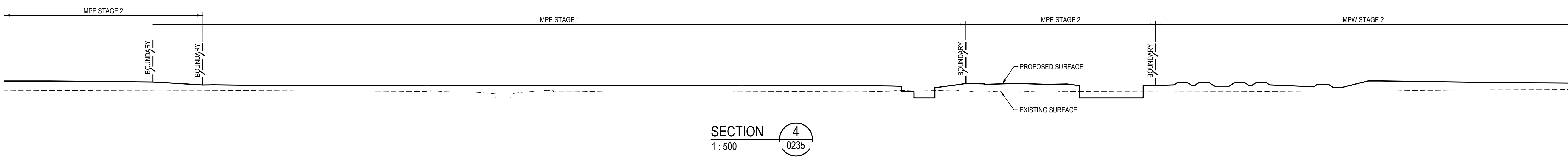
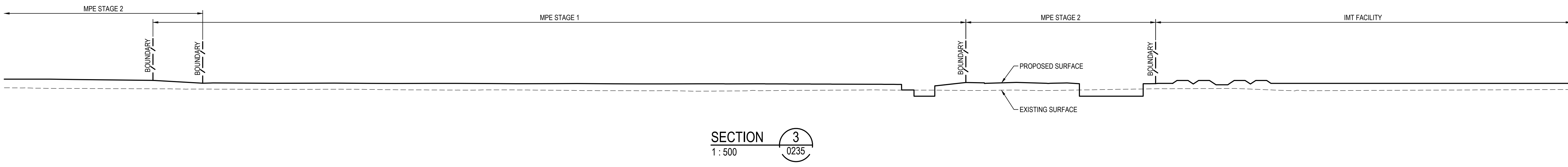
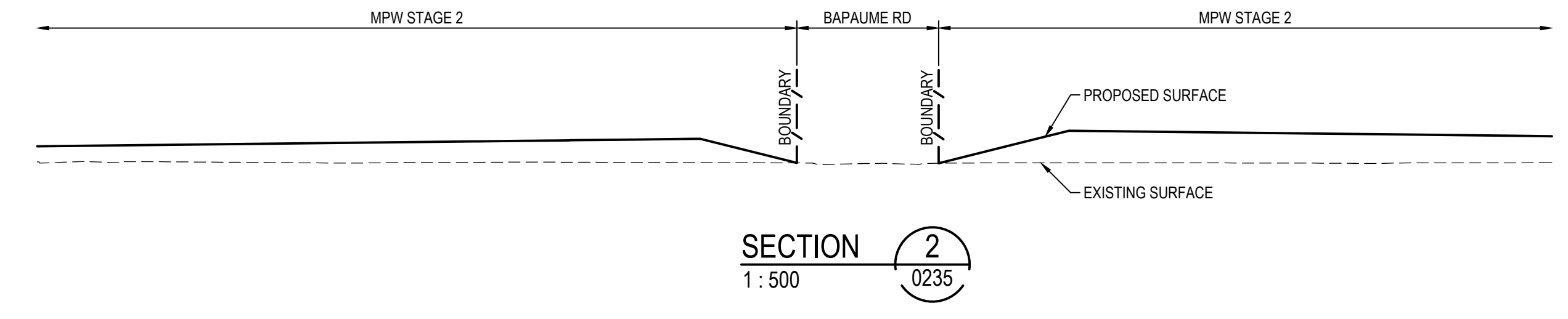
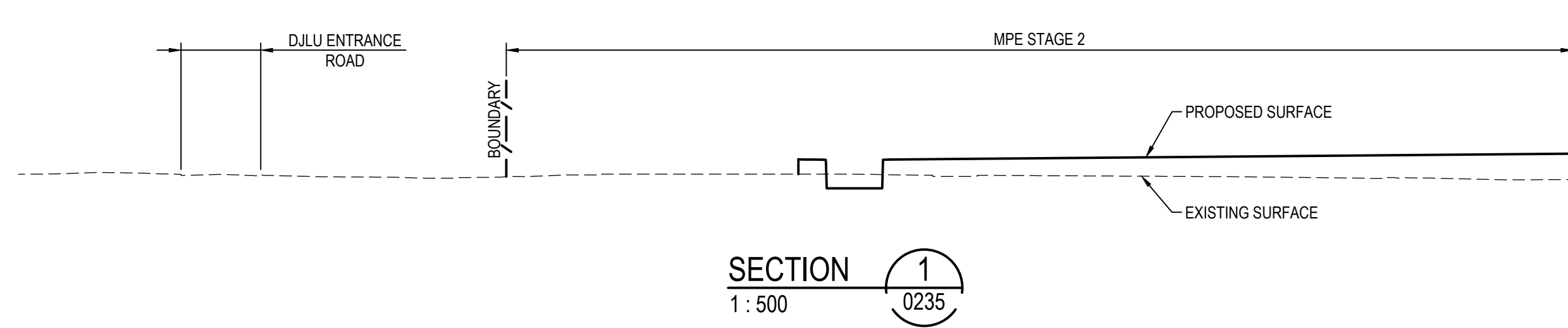
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Project No.
AA009335

Drawing No.
PREC-ARC-CV-SKC-0235-

Issue
01



01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date

Client

SIMTA

SYDNEY
INTERMODAL
TERMINAL
ALLIANCE

TACTICAL

GROUP

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Project		MOOREBANK INTERMODAL OVERALL PRECINCT	
		SITE SECTIONS	

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Project No.
AA009335

Drawing No.
PREC-ARC-CV-SKC-0236-

Issue
01

Attachment B

Attachment A: Response to DP&E detailed issues table

Project All/ MPE/ MPW	Key Issue	Desired outcome	Information required	Why information is critical	Arcadis comment
MPW	Dependencies Assessment Timeframe Ability to Determine	Procedural requirements met	<ul style="list-style-type: none"> Ongoing discussion about procedural requirements regarding 24/7 warehouse/ heavy vehicle access. 	Procedural requirements critical to determination.	<p>SIMTA and DP&E have been undertaking ongoing discussions with DP&E in regards to the 24/7 operation of warehouses included in the MPW Stage 2 Proposal. SIMTA's position with regards to the need for re-exhibition of the MPW Stage 2 RtS in relation to the hours of warehouse operations was formally provided to DP&E in the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter prepared by SIMTA and dated 31/08/2017.</p> <p>The following information was included in the abovementioned letter:</p> <p><i>This proposed amendment to include 24 hour, seven days a week warehouse operations within the RtS has been developed to further clarify and respond to consultation undertaken during the preparation of and public exhibition of MPW Stage 2 EIS, with relevant Commonwealth and NSW Government Agencies including NSW Ports.</i></p> <p><i>Table 6-5 of the MPW Stage 2 Environmental Impact Statement (MPW Stage 2 EIS) (prepared by Arcadis, dated October 2016) summarised the consultation comments from NSW Ports during the preparation of the EIS. On the topic of logistics operations, NSW Ports Table 6-5 noted that:</i></p> <p><i>'Ports expressed desire for the whole of the logistics chain to operate 24/7, specifically including 24/7 intermodal terminal and warehousing operation as part of the Proposal'.</i></p> <p><i>The Proposal, as included as part of the MPW Stage 2 EIS, included 24/7 intermodal terminal operations; however, did not specifically identify 24/7 operation of warehousing within the Proposal Description (Section 4 of the EIS). Although this was not mentioned in the Proposal Description of the EIS, the Operational Traffic and Transport Impact Assessment (OTTIA) (included in Section 7 and Appendix M of the EIS) provided an assessment of 24/7 warehousing operations. An assessment from other environmental aspects including noise and air were omitted from the MPW Stage 2 EIS however have been clearly identified in the RtS and would result in a negligible environmental impact on the MPW Stage 2 Proposal. It is expected that given the negligible environmental impact associated with this amendment/clarification to SSD7709, this amendment does not necessitate that the MPW Stage 2 RtS is re-exhibited.</i></p> <p>It is SIMTAs understanding that the procedural requirements in relation to this matter are currently with DP&E for consideration.</p>
All	Dependencies Ability to Determine	Land owner's consent for concept modifications	<ul style="list-style-type: none"> Applicant to provide land owner's consent. 	<p>Critical to meeting procedural requirements.</p> <p>Delays in obtaining land owners' consent substantially delayed past approvals.</p>	<p>A response to this information was provided in the following documents, issued to DP&E:</p> <ul style="list-style-type: none"> <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter, dated 31/08/2017 <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 31/08/2017 <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter, dated 11/09/2017 <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 11/09/2017 <i>Moorebank Precinct East (MPE) and Moorebank Precinct West (MPW) Land owners consent</i> letter, dated 15/09/2017. <p>SIMTA would continue to update DP&E on the progress of obtaining landowners consent, however consent from all respective landowners is anticipated to be provided in the near future.</p>

Project All/ MPE/ MPW	Key Issue	Desired outcome	Information required	Why information is critical	Arcadis comment
MPW	Dependencies Ability to Determine	Secretary certifies that applicant has made satisfactory arrangements for the provision of relevant State public infrastructure	<ul style="list-style-type: none"> Traffic model provided to RMS/Transport for NSW. Agreement between applicant and RMS legal. Acceptance of form of agreement by the Department's development contributions and legal teams. 	<p>Separate to the Department's assessment process, required by RMS/TfNSW.</p> <p>Statutory requirement to comply with LEP.</p> <p>Determination cannot be made without certification.</p>	<p>The following information relating to the provision of traffic modelling was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter, dated 11/09/2017:</p> <ul style="list-style-type: none"> Traffic models relating to the MPW Stage 2 Proposal have been provided, including additional modelling undertaken as part of the Response to Submissions Report. No traffic modelling relevant to the assessment of the MPW Stage 2 Proposal is currently outstanding. <p><i>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling are ongoing. However, although related to the whole-of-precinct modelling, the traffic and transport assessment of the MPW Stage 2 Proposal, as presented in Section 7 and Appendix M of the MPW Stage 2 EIS and Section 7 and Appendix B of the MPW Stage 2 RtS are relevant to the impacts of Stage 2 of the MPW Project and is not dependent on the abovementioned whole-of-precinct modelling. Regular meetings are being held with Roads and Maritime/TfNSW. The next meeting is to be held on 18 September 2017 to further discuss the Precinct modelling, however, we note that this is separate to the planning approval process for MPW Stage 2. These meeting are expected to result in a form of agreement between Qube and RMS that the applicant has made satisfactory arrangements for the provision of relevant State public infrastructure.</i></p>
All	Dependencies Traffic and Transport Ability to Determine	<p>Acceptable traffic and transport outcomes</p> <p>Transport agency agreement</p>	<ul style="list-style-type: none"> Traffic model provided to RMS/Transport for NSW. 	Commission will closely consider transport advice.	<p>The information below was provided in the following documents, issued to DP&E:</p> <ul style="list-style-type: none"> <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter, dated 11/09/2017 <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 11/09/2017 <p><i>Traffic models relating to the MPW Stage 2 and MPE Stage 2 Proposals have been provided, including additional modelling undertaken as part of the Response to Submissions Reports. No traffic modelling relevant to the assessment of the MPW Stage 2 and MPE Stage 2 Proposals is currently outstanding.</i></p> <p><i>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling are ongoing. However, although related to the whole-of-precinct modelling, the traffic and transport assessment of the MPE Stage 2 Proposal, as presented in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS and the traffic and transport assessment of the MPW Stage 2 Proposal, as presented in Section 7 and Appendix M of the MPW Stage 2 EIS and Section 7 and Appendix B of the MPW Stage 2 RtS are relevant to the impacts of Stage 2 of the MPW Project and Stage 2 of the MPE Project and is not dependent on the abovementioned whole-of-precinct modelling.</i></p>
All	Dependencies Section 94 contributions	Compliance with MPW Concept condition E13 and MPE Schedule 3.	<ul style="list-style-type: none"> Update on negotiations with Liverpool City Council on VPAs/ payments/ works in kind. Evidence of agreement with Council on Section 94 contributions. 	Detail required for Department to finalise assessment and recommended conditions.	<p>MPW:</p> <p>The information below was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter, dated 11/09/2017:</p> <p><i>SIMTA has recently consulted with Liverpool City Council (LCC) regarding landowner's consent for the MPW Stage 2 Proposal. It is intended that these discussions would also include developer contributions with a meeting to be undertaken with LCC in the near future.</i></p> <p>MPE:</p> <p>The information below was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 11/09/2017:</p> <p><i>SIMTA has recently consulted with Liverpool City Council (LCC) regarding landowner's consent for the MPE Stage 2 Proposal. It is intended that these discussions would also include developer contributions with a meeting to be undertaken with LCC in the near future.</i></p> <p>A meeting is being held with LCC on 25 September 2017.</p>

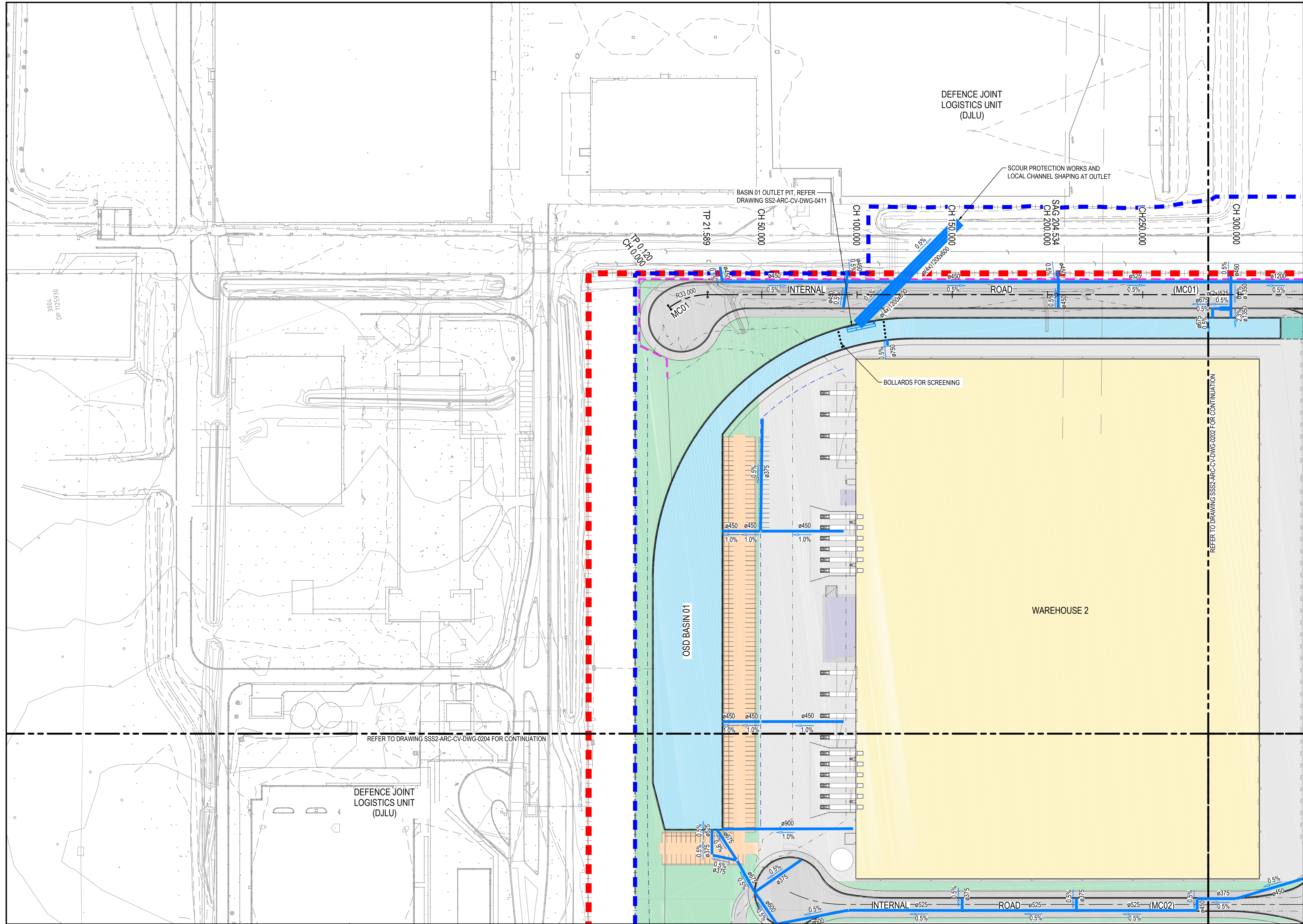
Project All/ MPE/ MPW	Key Issue	Desired outcome	Information required	Why information is critical	Arcadis comment
MPW	Requirements of concept approval Traffic and Transport Cumulative impacts	Assessment of acceptability of all cumulative impacts in supplementary RtS.	<ul style="list-style-type: none"> Traffic assessment/ information as per requested by RMS. Inclusion of cumulative air quality and traffic impact assessments for approved and current applications (MPE Stage 1 + MPE Stage 2 + MPW Stage 2). 	<p>Traffic information required by RMS to provide submission on EISs and RtSs.</p> <p>Critical for evaluation by the Department, Department's technical specialists, and the Commission.</p> <p>If not provided, risk that Commission requires additional information during its determination phase.</p>	<p>The following information was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709) letter</i>, dated 11/09/2017.</p> <p>With regards to traffic assessment/ information:</p> <p><i>Traffic models relating to the MPW Stage 2 and MPE Stage 2 Proposals have been provided, including additional modelling undertaken as part of the Response to Submissions Reports. No traffic modelling relevant to the assessment of the MPW Stage 2 and MPE Stage 2 Proposals is currently outstanding.</i></p> <p><i>The MPE Stage 2 Proposal included an operational traffic and transport assessment that included a cumulative assessment of the MPE Stage 1 Project, MPE Stage 2 Proposal and MPW Stage 2 Proposal.</i></p> <p><i>Additional information relating to cumulative impacts of the MPW Stage 2 Proposal have been provided as Attachment E of the response to the MPW Stage 2 DPE letter.</i></p> <p><i>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling are ongoing. However, although related to the whole-of-precinct modelling, the traffic and transport assessment of the MPE Stage 2 Proposal, as presented in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS and the traffic and transport assessment of the MPW Stage 2 Proposal, as presented in Section 7 and Appendix M of the MPW Stage 2 EIS and Section 7 and Appendix B of the MPW Stage 2 RtS are relevant to the impacts of Stage 2 of the MPW Project and Stage 2 of the MPE Project and is not dependent on the abovementioned whole-of-precinct modelling.</i></p> <p>With regards to the cumulative impact assessment of air quality and traffic impacts (MPW Stage 2 + MPE Stage 1 + MPE Stage 2):</p> <p><i>Section 19 of the MPW Stage 2 EIS included an assessment of the cumulative impacts of the MPW Stage 2 Proposal with concurrent construction and operation of other developments. The cumulative scenarios as detailed below were considered the most realistic, based on the best available information available at the time of writing:</i></p> <ul style="list-style-type: none"> <i>Cumulative construction (2018): concurrent construction of the Proposal with MPW Early Works, and the construction of the MPE Stage 1 Project.</i> <i>Cumulative operation: Operation of the Proposal at 500,000 TEU throughput, combined with the operation of the MPE Stage 1 Project at 250,000 TEU throughput.</i> <p><i>At each stage of development of the MPW Project under the MPW Concept Approval, the cumulative construction and operational scenario would be reconsidered and an assessment of the cumulative impacts at each development stage be undertaken. This cumulative scenario was considered to be representative of the cumulative environment at the time of undertaking the environmental assessment of the MPW Stage 2 Proposal.</i></p> <p><i>It was also considered realistic based on the anticipated planning approval timeframe for the MPW Stage 2 Proposal, i.e. EIS exhibited in late October/late November 2016 with MPE Stage 2 EIS exhibited in mid-December 2016/ late February 2017.</i></p> <p><i>Since the preparation of the MPW Stage 2 EIS, an SSD application has been submitted to NSW DP&E for Stage 2 of the MPE Project, under the MPE Concept Approval. As the environmental assessment of the MPW Stage 2 Proposal was being undertaken at the time of undertaking the environmental assessment of the MPE Stage 2 Proposal, the construction and operational cumulative assessment undertaken as part of the MPE Stage 2 EIS considered the concurrent construction and operation of the MPE Stage 2 Proposal with the MPW Stage 2 Proposal. For information, Attachment E of the Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709) letter includes section 19 of the MPE Stage 2 EIS, which considered cumulative construction and operational impacts of the MPE Stage 2 and MPW Stage 2 Proposals. In addition, Attachment E includes a cumulative assessment of the MPW Stage 2 Proposal, drawing upon the information provided in the MPE Stage 2 cumulative assessment, as previously requested by DP&E, including consideration of air quality and traffic impacts.</i></p>

Project All/ MPE/ MPW	Key Issue	Desired outcome	Information required	Why information is critical	Arcadis comment
MPW	Biodiversity	Assessment of indirect impacts on all adjoining lands. OEH acceptance of updated BAR.	<ul style="list-style-type: none"> Assessment of indirect impacts from proposed MPW Stage 2 works on species (including <i>Hibbertia fumana</i>) in the 'Boot land' including groundwater dependent ecosystems (Anzac Creek corridor). 	<p>Detail required for Department to finalise assessment.</p> <p>Need to refer information to OEH.</p> <p>Risk to project if unaddressed.</p>	<p>The following information was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709) letter</i>, dated 11/09/2017</p> <p><i>With the exception of Persoonia nutans, all threatened flora species in the Boot land have a minimum of 25 metre wide native vegetation buffer between them and the edge of the MPW Stage 2 Construction Area. The closest record of each species to any proposed MPW Stage 2 impacts ranges from 25 metres to 688 metres. Given that:</i></p> <ul style="list-style-type: none"> <i>the recorded threatened plant populations are located a minimum of over 25 metres from any MPW Stage 2 project impacts, with the vast majority of records located over 50 metres from any impacts;</i> <i>the closest impact is an OSD, which is designed to capture sediment flows that may impact on adjoining areas, and will be designed, constructed and managed in accordance with a stormwater management plan; and</i> <i>the existing Moorebank Avenue will not be disturbed, at this location, as part of the MPW Stage 2 Proposal, and would provide an additional barrier between the proposed impacts and the threatened flora populations on the Boot Land, particularly in the area south of Anzac Creek where Moorebank Avenue rises to form the rail overbridge.</i> <p><i>It is considered unlikely that there would be any indirect impacts on the threatened flora populations identified in the Boot land as a result of the Proposal. The risk of introducing or spreading weeds and pathogens into the Boot land as a result of the MPW Stage 2 Proposal is considered low, given the barrier effect of Moorebank Avenue and the proposed implementation of hygiene procedures for the use of vehicles and the importation of materials to the site.</i></p>
All	Requirements of concept approval Construction activities	Summary of temporary facilities (e.g. concreting batching plant, materials crushing) as well as key activities provided in Project Overviews.	<ul style="list-style-type: none"> Inclusion of temporary facilities and key activities in supplementary MPW Stage 2 RtS. Inclusion of temporary facilities in supplementary MPE Stage 2 RtS. 	Clearly identifies all facilities that would otherwise be Designated Development, i.e. "concrete works" and "crushing, grinding and separating works".	<p>The Consolidated Proposal Descriptions previously submitted within the MPE Stage 2 RtS (Appendix I) and MPW Stage 2 RtS (Appendix O) updated to respond to the comments raised by DP&E in their meeting with SIMTA representatives on 12 September 2017. These have been submitted in Attachment B of this letter.</p> <p>Designated development is not considered relevant to State Significant Developments (SSD), seeking approval under Part 4, Division 4.1 of the EP&A Act (refer to Section 77A(2) of the EP&A Act). Notwithstanding this, any facilities to be included for the construction of the MPW Stage 2 and MPE Stage 2 Proposals, which would otherwise be defined as designated development (under Schedule 3 of the <i>Environmental Planning and Assessment Regulations 2000</i> (EP&A Regs)) have been identified in the updated Consolidated Proposal Descriptions (Attachment B).</p> <p>Detailed descriptions of the proposal descriptions have also been discussed in the following documents, issued to DP&E:</p> <ul style="list-style-type: none"> <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709) letter</i>, dated 11/09/2017 <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628) letter</i>, dated 11/09/2017 <p>MPW:</p> <p><i>Appendix O of the MPW Stage 2 RtS comprised a consolidated proposal description, as requested by NSW DP&E in its submission on the MPW Stage 2 EIS, provided in April 2017. Table 4-9 in Section 4.3.5 of the consolidated proposal description provides a summary of the indicative plant and equipment likely to be utilised during each construction works periods of the MPW Stage 2 Proposal. Amongst other things, a concrete batching plant and crushing plant have been listed as indicative plant and equipment.</i></p> <p>MPE:</p> <p><i>A Consolidated Project Description was provided as Appendix I of the MPE Stage 2 RtS. Table 4-11 of Appendix I, included a list of indicative construction plant and equipment for construction of the Proposal, including a concrete batching plant, crushing plant and a variety of other construction equipment. Table 4-11 also denoted which Construction Works Period the indicative plant and equipment are likely to be utilised.</i></p>

Project All/ MPE/ MPW	Key Issue	Desired outcome	Information required	Why information is critical	Arcadis comment
All	Requirements of concept approval Mitigation Measures	Consolidated list of mitigation measures in supplementary RtSs, particularly in relation to imported fill stockpile management (as discussed at meeting on 29/8/2017).	<ul style="list-style-type: none"> Inclusion of commitments/ mitigation measures identified in response to the Department's issues and any additional measures identified in response to additional information required. 	Reduces need for extensive conditions if risks are adequately addressed through mitigation measures/ commitments.	<p>The information below was provided in the following documents, issued to DP&E:</p> <ul style="list-style-type: none"> <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709) letter, dated 11/09/2017</i> <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628) letter, dated 11/09/2017.</i> <p>MPW:</p> <p>It is understood that DP&E were to provide an additional request for information and detail updates required for the mitigation measures for MPW Stage 2. Based on discussions with DP&E in the meeting undertaken with SIMTA representatives on 5 September 2017, and in lieu of receiving this information from DP&E, further detail has been included in the mitigation measures for the MPW Stage 2 Proposal. Attachment F of the SIMTA letter response includes updated mitigation measures, from those provided in the MPW Stage 2 RtS (Section 8). The additional information provided has been drawn from the management plans which were submitted with the EIS and the RtS for the MPW Stage 2 Proposal. All of this information has previously been submitted to DP&E however as requested the mitigation measures have been updated to provide more detail.</p> <p>MPE:</p> <p>A consolidated list of mitigation measures was provided in Section 8 of the MPE Stage 2 RtS. The mitigation measures provided in Section 8 were revised during the preparation of the MPE Stage 2 RtS, and included updates to respond to issues raised by the community, government agencies and stakeholders, inclusive of the NSW DP&E. Since the submission of the MPE Stage 2 RtS, a review of the mitigation measures included in the MPE Stage 2 RtS, as well as other relevant management plans and supporting documentation has been undertaken. As a result of this DP&E request, further inclusions have been made to the mitigation measures provided in Section 8 of the MPE Stage 2 RtS.</p> <p>The Final Compilation of Mitigation Measures (FCMM), including these revisions, has been provided as Attachment D of the previous SIMTA letter response.</p>
All	Requirements of concept approval Infrastructure for staged warehouse construction. (discussed at Regular Meeting on 5/9/2017)	Individual warehouses can operate regardless of the sequence in which they are constructed.	<ul style="list-style-type: none"> Details of all infrastructure committed to, to support individual warehouse operation, e.g. internal roads, car parking, landscaping (e.g. shade trees), drainage etc. 	Reduces need for extensive conditions if commitments are made in supplementary RtS.	<p>The information requested has previously been provided for the MPW Stage 2 Proposal and MPE Stage 2 Proposal SSD Applications. The most up-to-date versions of this information has been previously provided at the following locations:</p> <p>MPW:</p> <ul style="list-style-type: none"> Internal roads: MPW Stage 2 RtS Appendix H – DWG C-MIC2-SSD-002-AA003760-06 Car parking: MPW Stage 2 RtS Revised Architectural drawings at Appendix B – Warehousing masterplan (115123_A_SSD_2000). Landscaping: MPW Stage 2 RtS Revised Landscape Design Statement at Appendix B Drainage: MPW Stage 2 RtS Appendix H (catchment plan at DWG C-MIC2-SSD-406-AA003760-06, stormwater drainage basin and typical raingarden details at DWG C-MIC2-SSD-416-AA003760-06) Utilities: A utilities summary report was provided at Appendix H of the EIS. Final Compilation of Mitigation Measures, at Appendix F of the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709) letter, dated 11/09/2017</i> <p>MPE:</p> <ul style="list-style-type: none"> Internal roads: MPE Stage 2 RtS Appendix E –SSS2-ARC-CV-DWG-002 Car parking: MPE Stage 2 RtS Revised Architectural drawings at Appendix B Proposed Stage 2 Site Plan (DWG 115123_A_SSD_006) Landscaping: MPE Stage 2 RtS Revised Landscape Design Statement at Appendix B Drainage: MPE Stage 2 RtS Appendix E – SSS2-ARC-CV-DWG-0411 to SSS2-ARC-CV-DWG-0432 Utilities: A utilities and servicing strategy was provided at Appendix F of the MPE Stage 2 EIS

Project All/ MPE/ MPW	Key Issue	Desired outcome	Information required	Why information is critical	Arcadis comment
					<ul style="list-style-type: none"> Final Compilation of Mitigation Measures, provided at Appendix D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 11/09/2017.
MPW	Design detail Contamination (PFAS/PFOS)	Confirmation that site is not included in Department of Defence PFAS/PFOS investigation program.	<ul style="list-style-type: none"> Evidence of consultation with Department of Defence on status of MPW site. 	Confirmation required for Department to finalise assessment.	<p>The following information was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter, dated 11/09/2017:</p> <p><i>The MPW site is not a priority site on the Department of Defence PFAS investigation and management program.</i></p> <p>The site is no longer a Department of Defence site. Prior to vacating the site, the Department of Defence provided a Section A Site Audit Statement that certifies that the site is suitable for commercial and industrial use.</p>
All	Design detail Drawings and Sections Details of stormwater system and materials	<p>Demonstrate acceptable design in hydrology, landscaping and urban design, and water sensitive design.</p> <p>Provision of plans and sections at suitable scales and sufficient information for the Department's and technical specialists' assessment of:</p> <ul style="list-style-type: none"> edge effects due to site filling, proposed drainage structures, retaining walls (e.g. changes to overland flow paths, slope stability, vegetation and visual impacts) effectiveness/ functionality of proposed stormwater drainage system (particularly in relation to water quality) 	<ul style="list-style-type: none"> MPE Stage 2 and MPW Stage 2 application plans and application boundaries at 1:5000 at A1 (similar to masterplan dated 31/01/2017 provided to the Department). Site plans at 1:1000 at A1 (including key plan), showing existing site contours and finished contours or building platform levels to AHD. Existing and finished contours to extend at least 20m outside construction footprint. Plans for development of Moorebank Avenue, and works in riparian zones/ Boot land as a series of plans at 1:500 at A1 (including key plan). Cross-sections and details showing: <ul style="list-style-type: none"> existing ground levels (AHD) proposed fill level (AHD) proposed retaining wall heights proposed OSD basin wall heights adjacent to conservation area proposed retaining wall/ OSD wall materials/ treatment conservation zone boundary/ 1% AEP Georges River flood extent annotated fill batter slopes (e.g. 1 in 4) and treatments proposed levels and tie in to existing vehicle access to 	<p>GAO and the Department's stormwater specialist both expressed strong concerns that information provided does not represent good water sensitive urban design or good landscape design or address their integration.</p> <p>MPW RtS did not respond to GAO good design guides, i.e.</p> <ul style="list-style-type: none"> staff open space shade managing heat load across site (human health) relationship with riparian corridor off-site views from public areas green corridors within site/connections to riparian zone and Boot Land. <p>Currently insufficient information to finalise assessment.</p> <p>Unable to assess scale and extent of edge effects.</p> <p>Detail required to demonstrate if or how (e.g. construction of retaining walls) existing ground levels around the perimeter of MPW would be maintained, particularly adjacent to the conservation zone/ Boot land as the Government Architect's Office (GAO)</p>	<p>The following list details information previously provided to DP&E in response to their request for further information:</p> <p>MPW:</p> <p>Additional information to response to the issues raised by the Government Architect's office on the MPW Stage 2 Proposal was provided in the <i>Moorebank Precinct West (MPW) Stage 2 (SSD 7709) Response to Submissions – issues raised by Government Architect NSW</i> letter, issued to the Principal Landscape Architect, Barbara Schaffer on 3 July 2017.</p> <p>The information below was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct West Concept MOD 1 (SSD 5066_MOD1)/ Moorebank Precinct West Stage 2 (SSD 7709)</i> letter, dated 11/09/2017:</p> <ul style="list-style-type: none"> Site plans provided at 1:1000 at A1 at Attachment G. Edge effect plans provided for relevant areas (works along Moorebank Avenue and in the riparian zone, as requested) at 1:500 at A1 at Attachment G. Cross sections showing details was only requested for MPW Stage 2. Existing ground levels and proposed fill levels were provided in the revised drainage design drawings as Earthworks Sections Sheet 1 (DWG C-MIC2-SSD-116-AA003760-07) and Earthworks Sections Sheet 2 (DWG C-MIC2-SSD-117-AA003760-07), in the Revised Stormwater and Drainage Design Drawings in Appendix H of the MPW Stage 2 RtS. The conservation zone boundary is shown as the 'Proposal Operational Boundary' on DWG LDA-007 and LDA-008 in the revised Landscape Design Statement and Plans. These plans were also provided again for information at Attachment G The remaining information requested relating to cross-sections, including the heights of retaining walls and OSD basin walls, fill batter sloped and the retaining wall/ OSD wall materials/ treatment would be determined as part of future detailed design development. Proposed levels and tie in to existing vehicle access to adjoining properties not the subject of the application was not requested as part of MPW letter. This information was however provided as Attachment E of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 11/09/2017 Sections through MPE Stage 1 and MPE Stage 2 and MPW Stage 2 basin along Moorebank Avenue showing tie in of proposed finished levels was not requested as part of MPW letter This information was however provided as Attachment E of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 11/09/2017 <p>MPE:</p> <p>The information below was provided in the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept MOD 2 (MP 10_0193 MOD 2)/ Moorebank Precinct East Stage 2 (SSD 7628)</i> letter, dated 11/09/2017:</p> <ul style="list-style-type: none"> Site plans provided at 1:1000 at A1 at Appendix E.

Project All/ MPE/ MPW	Key Issue	Desired outcome	Information required	Why information is critical	Arcadis comment
		<ul style="list-style-type: none"> relationship between final landform and stormwater system relationship between final landform and rail corridor relationship between final Moorebank Avenue level and vehicle access to adjacent sites. <p>Application plan for use in the Department's assessment reports to clearly indicate which works are being constructed under which applications.</p>	<ul style="list-style-type: none"> adjoining properties not the subject of the application <ul style="list-style-type: none"> Sections through MPE Stage 1 and MPE Stage 2 and MPW Stage 2 basin along Moorebank Avenue showing tie in of proposed finished levels. Longitudinal sections of the main piped drainage systems showing existing surface levels, finished surface levels, pipe gradient, pipe diameter, invert levels, outlet invert levels into OSD basins, OSD basin outlet invert levels (all to scale and in AHD). Longitudinal sections and cross-sections (3) of the culvert through MPW (to scale and in AHD). Details of materials to be used in construction of the system Plan configuration and typical cross-sections for all OSD systems including surrounding existing and final surface levels (including proposed drainage swales at southern end of MPW site), drainage inlets and outlets (to scale and in AHD). Details of materials to be used in construction of the system. Plan configuration of bioretention systems within OSD basins including drainage inlets and outlets (to scale and in AHD). Confirm how potential scouring and excessive sedimentation would be addressed. In particular, how would long-term performance of the bioretention systems be maintained in basins receiving high flows and associated debris/coarse sediment loads that potential would block the biofilter. Longitudinal sections and cross sections (2) of each of the outlets from OSD basins to the Georges River (to scale and in AHD). Provide details of materials to be used in construction of the system 	<p>noted that existing levels need to be maintained within the drip line of tree trunks to ensure their survival, with maximum upslope fill levels to be determined by an arborist.</p> <p>Detail required to demonstrate need for fill for drainage purposes as an input to the Department's assessment report section on project need and justification</p> <p>There are no details on the materials and depth of the culvert through MPW.</p> <p>There is discrepancy between landscape plans and civil plans as to the base of the OSD basins.</p> <p>There is no information on where the bioretention systems would be located in these basins, which will take up less than 20% of the basin.</p> <p>There is a need to confirm what materials will be used in systems.</p> <p>Stormwater details needed as basis for discussions between the Department's stormwater specialist and the applicant's specialist.</p> <p>Outcomes from above to inform the Department's discussions with Council's stormwater engineers.</p> <p>Department will require better design outcome through extensive conditions.</p>	<ul style="list-style-type: none"> Edge effect plans provided for relevant areas (works along Moorebank Avenue and in the riparian zone, as requested) at 1:500 at A1 at Attachment E. proposed levels and tie in to existing vehicle access to adjoining properties not the subject of the application were provided at Attachment E Sections through MPE Stage 1 and MPE Stage 2 and MPW Stage 2 basin along Moorebank Avenue showing tie in of proposed finished levels were provided at Attachment E. Existing ground levels and proposed fill levels were provided in the revised drainage design drawings as Site Sections Sheet 1 (SSS2-ARC-CV-DWG-0121) and Site Sections Sheet 2 (SSS2-ARC-CV-DWG-0122), in the Revised Stormwater and Drainage Design Drawings in Appendix E of the MPE Stage 2 RtS. The conservation zone boundary is not relevant to the MPE Stage 2 Proposal. <p>General</p> <p>In response to the information required from DP&E in this table, some additional responses and drawings have been prepared and attached to this letter.</p> <ul style="list-style-type: none"> MPE Stage 2 and MPW Stage 2 application plans and application boundaries at 1:5000 at A1 (similar to masterplan dated 31/01/2017 provided to the Department) - this information was not requested previously by DP&E in their requests for additional information; however. This information has been previously provided in the revised architectural drawings: <ul style="list-style-type: none"> For the MPW Stage 2 Proposal, this information was included as <i>Stage 2 Site plan – Drawing No. 115123_A_SSD_012</i> at Appendix B of the MPW Stage 2 RtS For the MPE Stage 2 Proposal, this information was included as <i>Stage 2 Site plan – Drawing No. 115123_A_SSD_0006</i> at Appendix B of the MPE Stage 2 RtS. <p>Plan configuration of the bioretention systems within OSD basins including drainage inlets and outlets (to scale and in AHD) are attached to this letter.</p> <p>The potential for scouring has been addressed via the use of rock protection/energy dissipators at every pipe outlet into the OSD basins throughout the site. It is also noted that predicted velocities through the basins are generally low and not expected to cause erosion. Excessive sedimentation has been addressed via the use of Gross pollutant traps (GPTs) (CDS units), with expected reduction of suspended solids in the order of 70% prior to entering the bio retention / detention basin.</p> <p>In addition to the above, both sedimentation and scouring would be managed in accordance with an operational maintenance schedule (which would be integrated into the Operational Environmental Management Plan for the Proposal). Routine inspections would be specified to check for accumulated litter, excessive accumulation of sediment, structural damage, weed infestation and erosion.</p> <p>It is assumed that the comment provided relates to coarse sediment loads during construction as it is not anticipated that excessive coarse sediment to be encountered from the operation of the proposal. It is envisaged that sediment ponds may be established in OSD areas during construction, however these would be converted into bio retention ponds prior to operation. This ensures that stormwater management measures are tailored to the potential water quality impacts posed by both construction and operation. Bio retention systems are not anticipated to be operational prior to approximately 90% of upstream development has been completed and should therefore not be affected by construction sediment loads.</p>



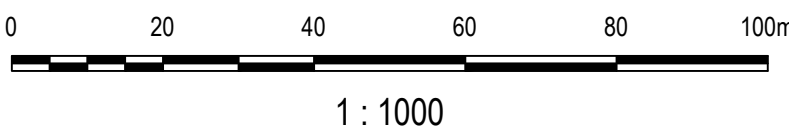
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- MPE SITE BOUNDARY
- MPE STAGE 2 OPERATIONAL BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK (BY OTHERS)
- PROPOSED ON SITE DETENTION BASINS
- RETAINING WALL (EXCLUDES BASIN WALLS)

NOTES

1. REFER TO DRAWING SSS2-ARC-CV-DWG-0003 FOR TYPICAL ROAD CROSS SECTIONS.

Issue	Description	Date
05	PIPE SIZES AND GRADES ADDED	18/09/2017
04	ISSUE FOR SSD APPLICATION (RESPONSE TO SUBMISSIONS)	26/06/2017
03	ISSUE FOR SSD APPLICATION INCORPORATING CLIENT COMMENTS	28/10/2016
02	ISSUE FOR SSD APPLICATION	19/10/2016
01	DRAFT ISSUE FOR SSD APPLICATION	16/09/2016



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status: **NOT FOR CONSTRUCTION**
INDICATIVE / CONCEPT AND SUBJECT TO CONFIRMATION DURING DETAILED DESIGN

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Original Size	A1
Height Datum	AHD
Grid	MGA

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Project: **MOOREBANK PRECINCT EAST (MPE) STAGE 2**

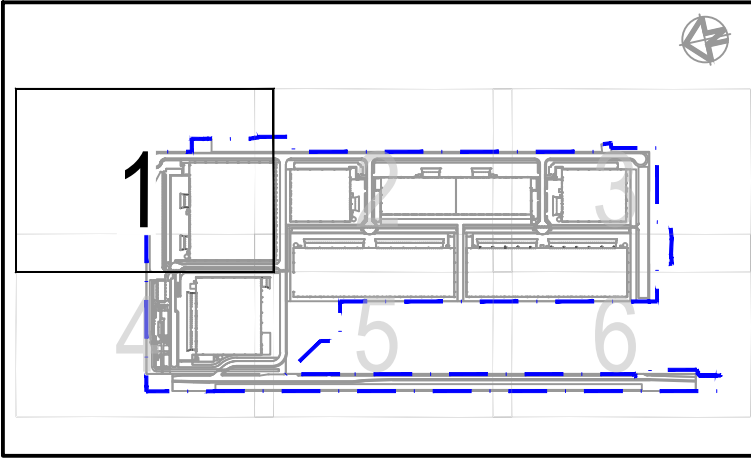
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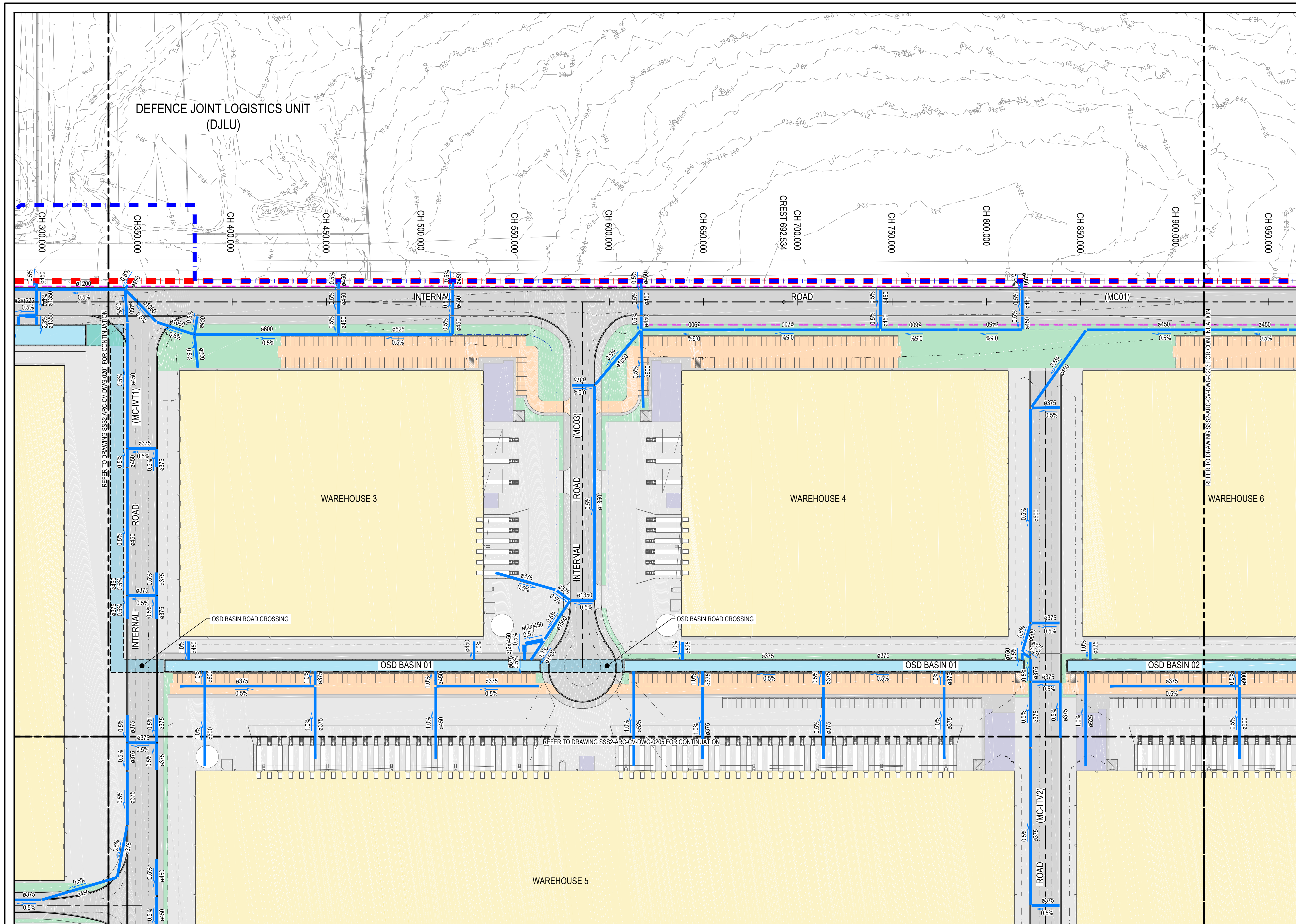
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Project No: **AA009335**

Drawing No: **SSS2-ARC-CV-DWG-0201-** Issue: **05**



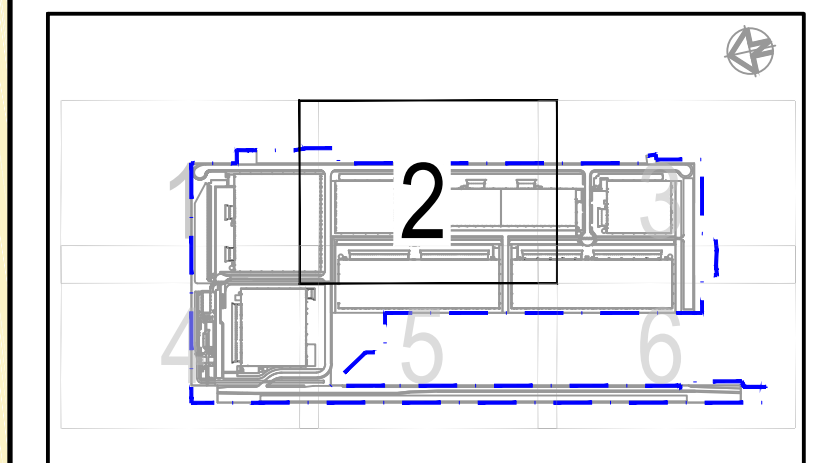


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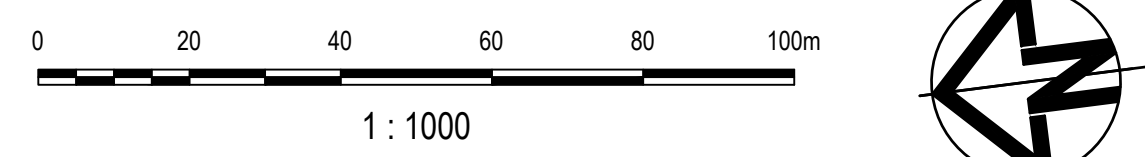
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Current Issue Signatures

Drawn: J.WOOD

Designed: J.WOOD

Checked: K.MCAREAVEY

Approved: M.KEFFORD

Project: **MOOREBANK PRECINCT EAST (MPE) STAGE 2**

Title: **CIVIL AND STORMWATER PLAN SHEET 2**

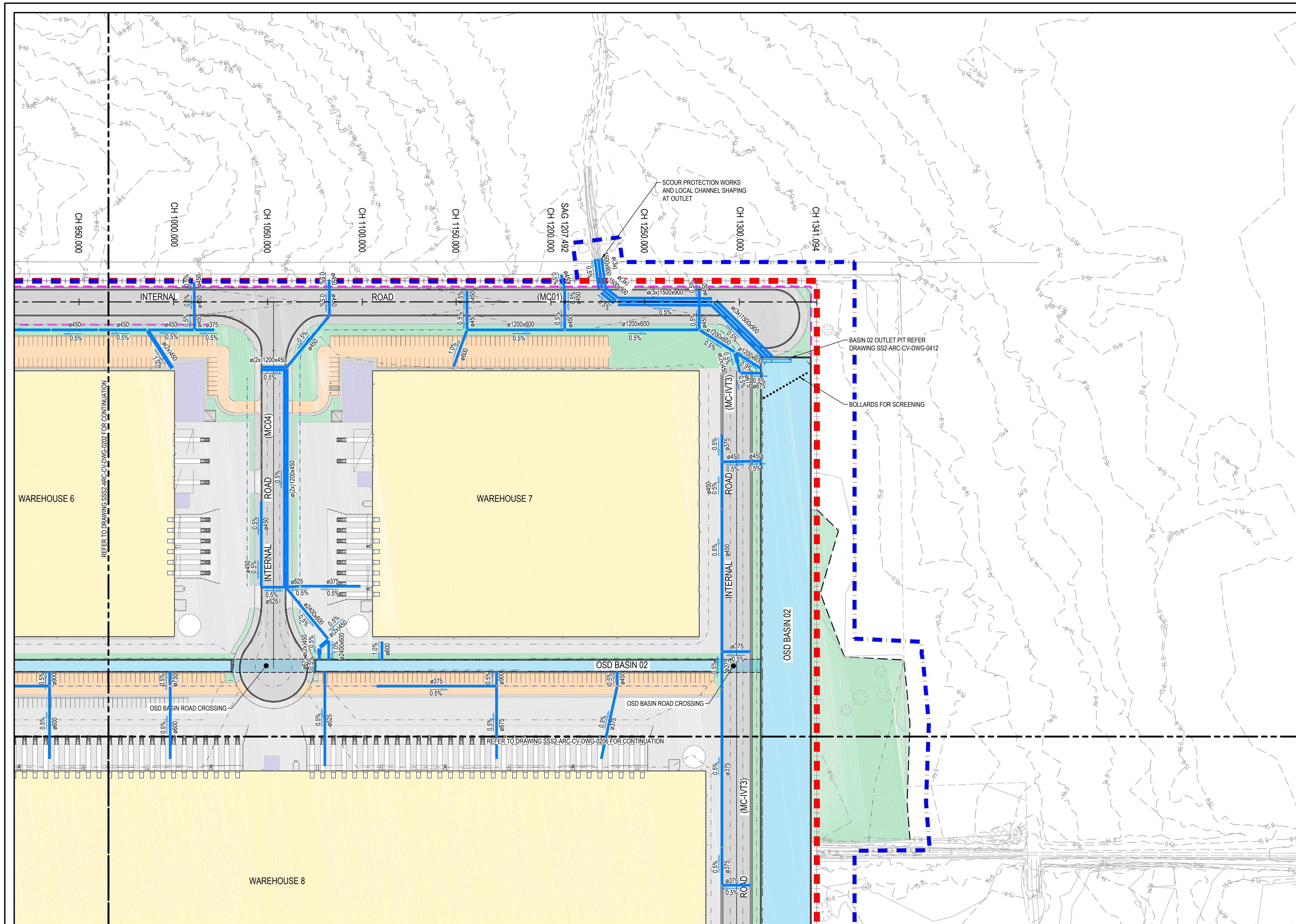
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Project No: **AA009335**

Drawing No: **SSS2-ARC-CV-DWG-0202-**

Issue: **05**

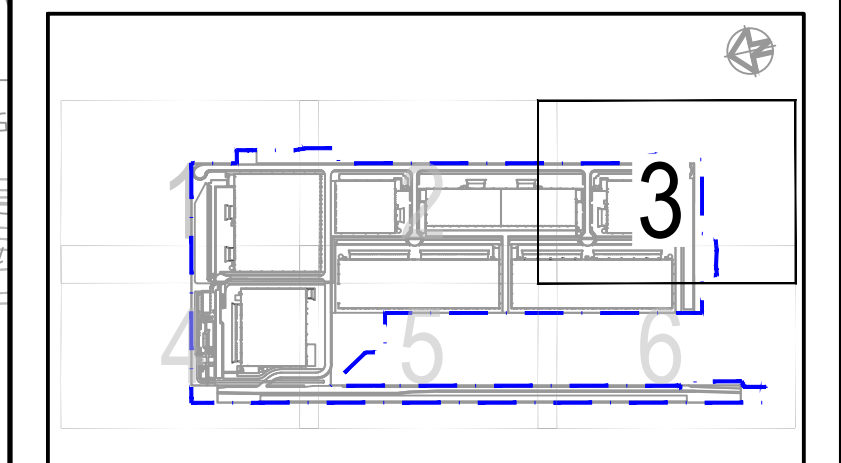


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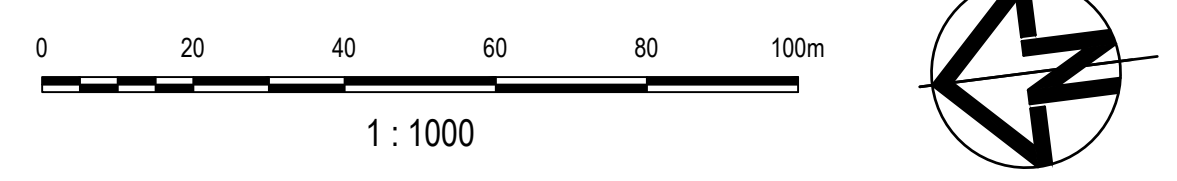
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Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

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Current Issue Signatures	
Drawn	J.WOOD
Designed	J.WOOD
Checked	K.MCAREAVEY
Approved	M.KEFFORD

Project

MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title

CIVIL AND STORMWATER PLAN SHEET 3

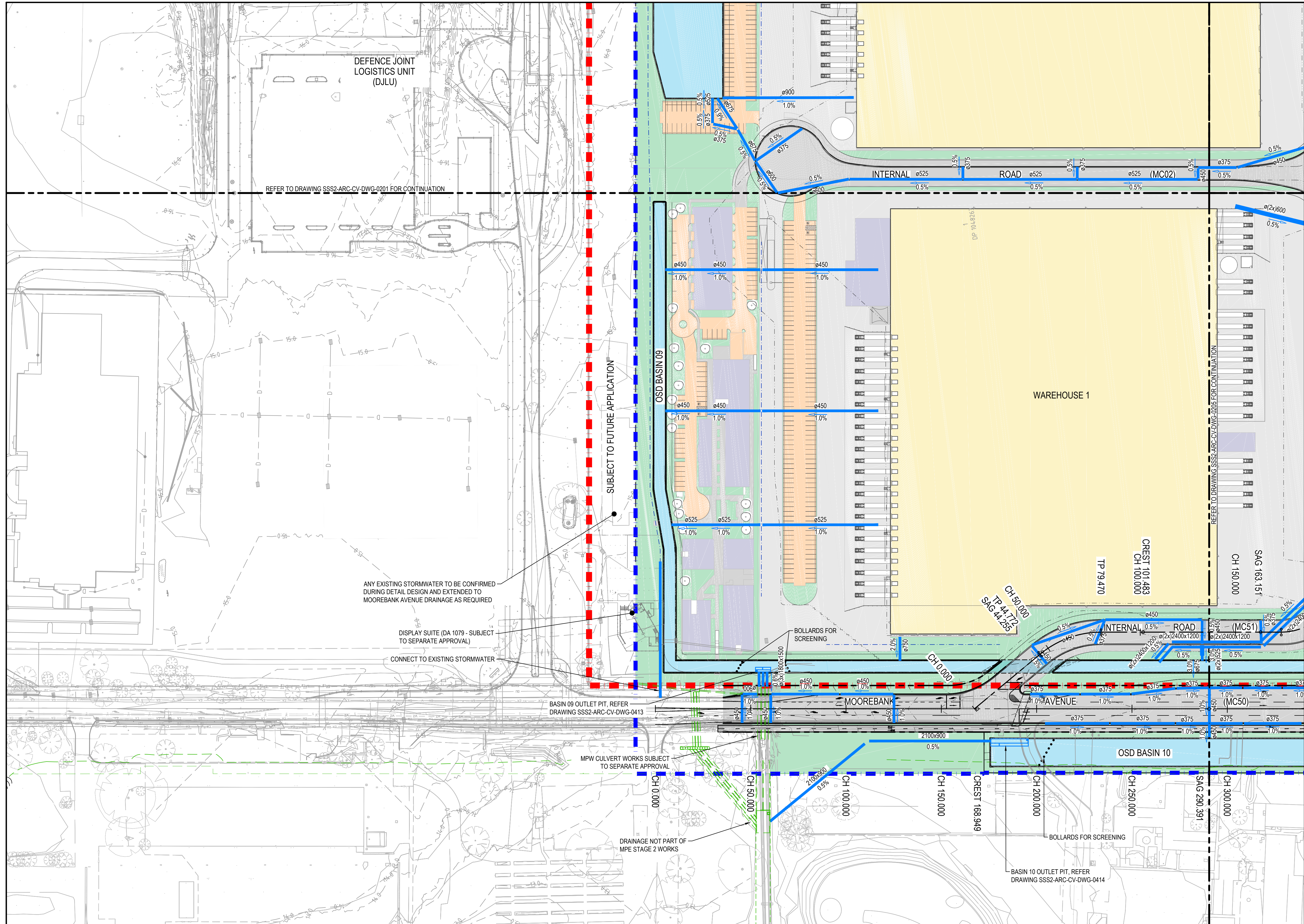
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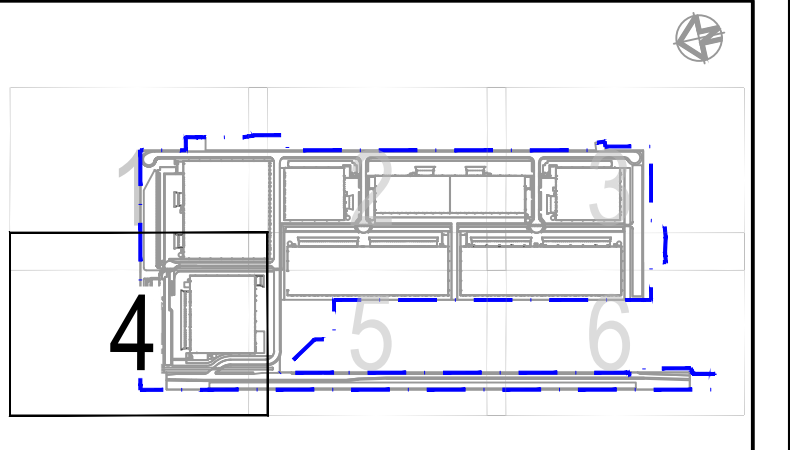


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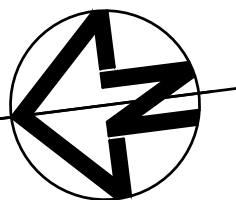
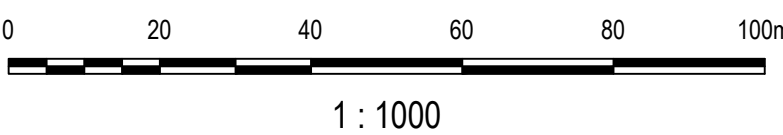
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- MPE STAGE 2 OPERATIONAL BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK (BY OTHERS)
- PROPOSED ON SITE DETENTION BASINS
- RETAINING WALL (EXCLUDES BASIN WALLS)

NOTES

1. REFER TO DRAWING SSS2-ARC-CV-DWG-0003 FOR TYPICAL ROAD CROSS SECTIONS.



Issue	Description	Date
05	PIPE SIZES AND GRADES ADDED	18/09/2020
04	ISSUE FOR SSD APPLICATION (RESPONSE TO SUBMISSIONS)	26/06/2017
03	ISSUE FOR SSD APPLICATION INCORPORATING CLIENT COMMENTS	28/10/2016
02	ISSUE FOR SSD APPLICATION	19/10/2016
01	DRAFT ISSUE FOR SSD APPLICATION	16/09/2016



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status: **NOT FOR CONSTRUCTION**
INDICATIVE / CONCEPT AND SUBJECT TO CONFIRMATION DURING DETAILED DESIGN

Scales	1 : 1000	Current Issue Signatures
Original Size	A1	Drawn J.WOOD
Height Datum	AHD	Designed J.WOOD
Grid	MGA	Checked K.MCAREAVEY
		Approved M.KEFFORD

Filename: SSS2-ARC-CV-DWG-0204-CivilAndStormwaterPlanSheet4.dwg

Project: **MOOREBANK PRECINCT EAST (MPE) STAGE 2**

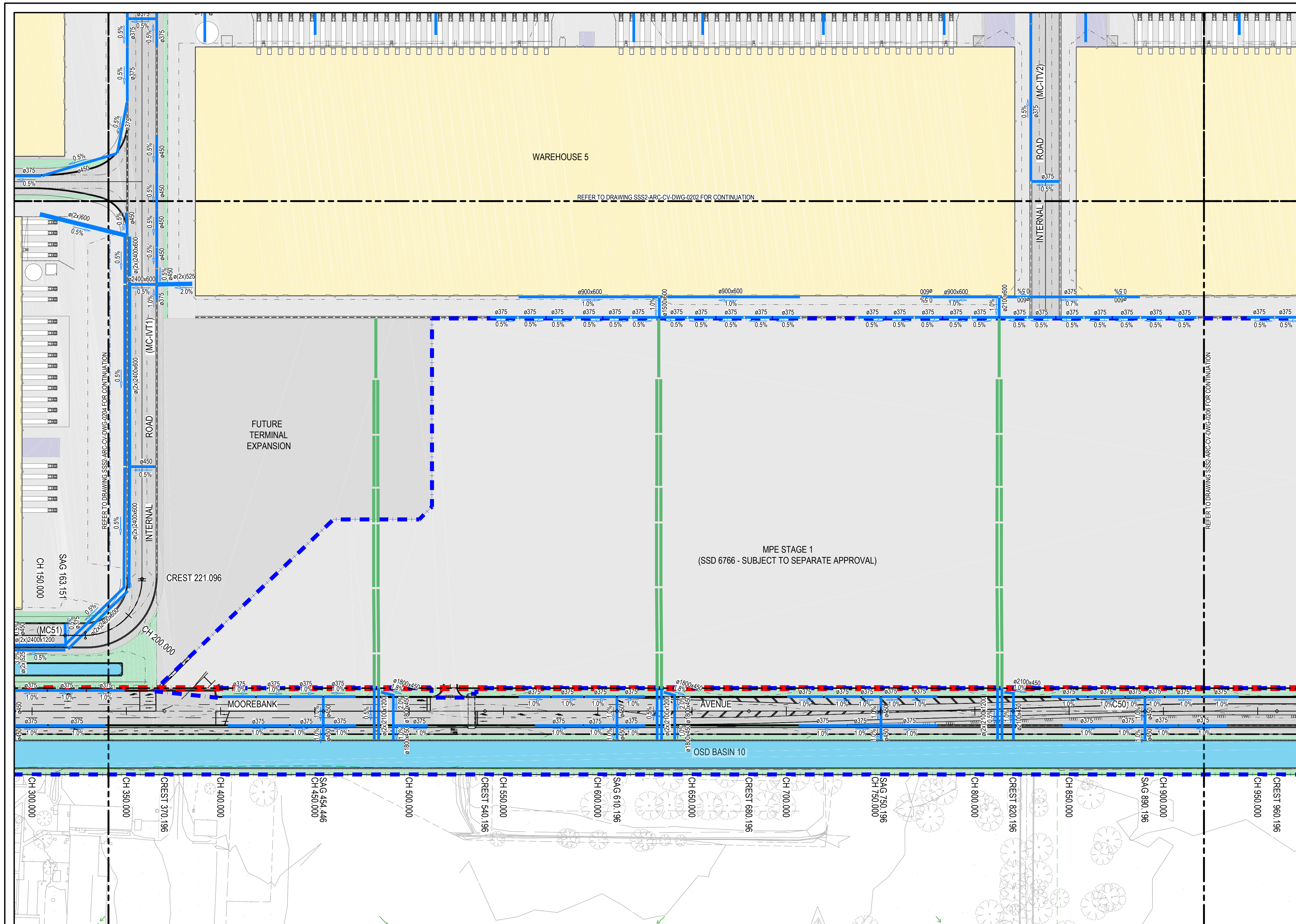
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Project No. **AA009335**

Drawing No. **SSS2-ARC-CV-DWG-0204-** Issue **05**

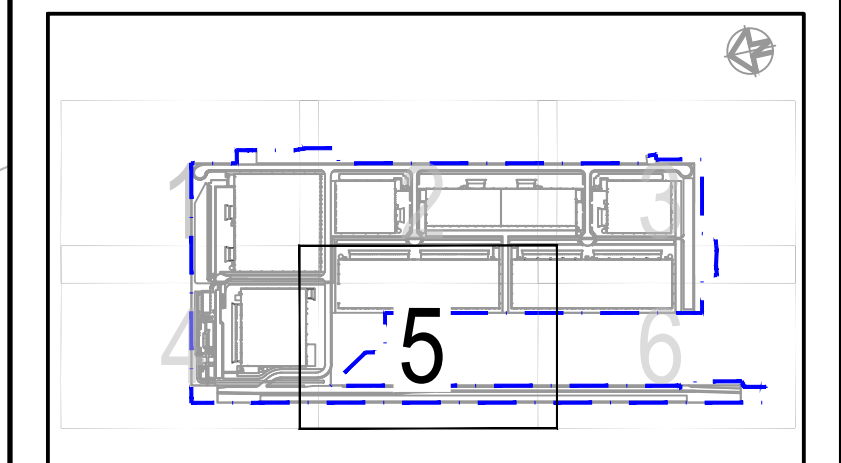


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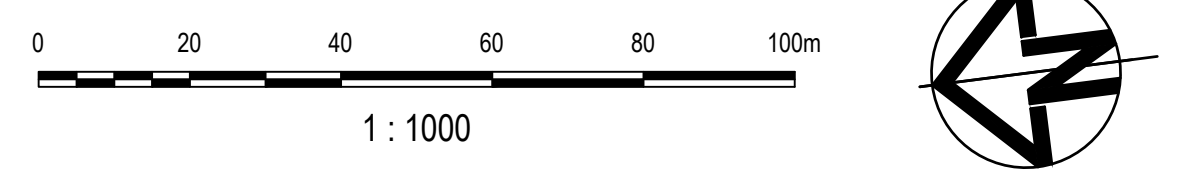
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NOTES

1. REFER TO DRAWING SSS2-ARC-CV-DWG-0003 FOR TYPICAL ROAD CROSS SECTIONS.



Issue	Description	Date
05	PIPE SIZES AND GRADES ADDED	18/09/2021
04	ISSUE FOR SSD APPLICATION (RESPONSE TO SUBMISSIONS)	26/06/2017
03	ISSUE FOR SSD APPLICATION INCORPORATING CLIENT COMMENTS	28/10/2016
02	ISSUE FOR SSD APPLICATION	19/10/2016
01	DRAFT ISSUE FOR SSD APPLICATION	16/09/2016



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status NOT FOR CONSTRUCTION INDICATIVE / CONCEPT AND SUBJECT TO CONFIRMATION DURING DETAILED DESIGN	
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Original Size	A1
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Grid	MGA
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Current Issue Signatures	
Drawn J.WOOD	
Designed J.WOOD	
Checked K.MCAREAVEY	
Approved M.KEFFORD	

Project
MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title
CIVIL AND STORMWATER PLAN SHEET 5

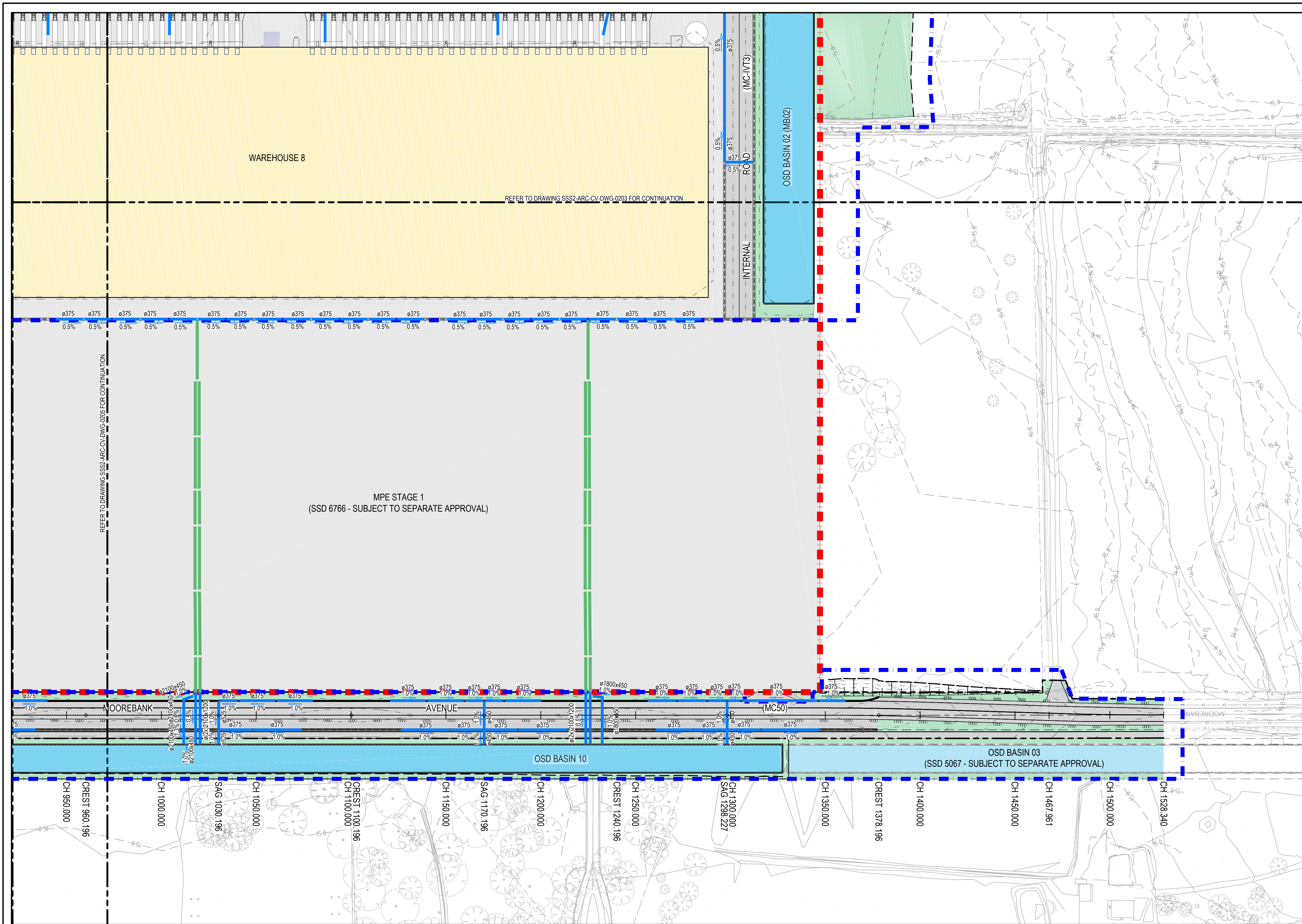
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Project No.
AA009335

Drawing No.
SSS2-ARC-CV-DWG-0205-

Issue
05

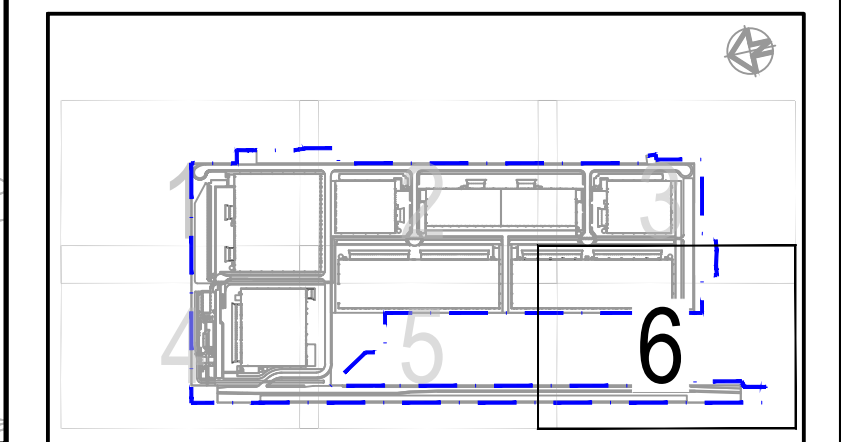


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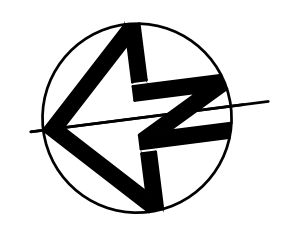
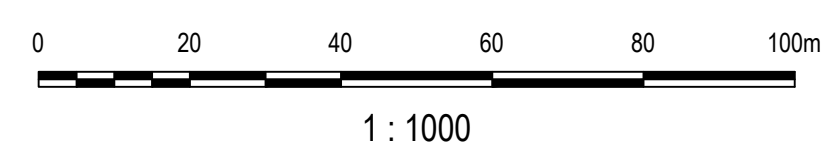
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NOTES

1. REFER TO DRAWING SSS2-ARC-CV-DWG-0003 FOR TYPICAL ROAD CROSS SECTIONS.



Issue	Description	Date
05	PIPE SIZES AND GRADES ADDED	18/09/2022
04	ISSUE FOR SSD APPLICATION (RESPONSE TO SUBMISSIONS)	26/06/2017
03	ISSUE FOR SSD APPLICATION INCORPORATING CLIENT COMMENTS	28/10/2016
02	ISSUE FOR SSD APPLICATION	19/10/2016
01	DRAFT ISSUE FOR SSD APPLICATION	16/09/2016



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status

NOT FOR CONSTRUCTION

INDICATIVE / CONCEPT AND SUBJECT TO CONFIRMATION DURING DETAILED DESIGN

Scales	1 : 1000	Current Issue Signatures
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Height Datum	AHD	Checked K.MCAREAVEY
Grid	MGA	Approved M.KEFFORD

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Project

MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title

CIVIL AND STORMWATER PLAN SHEET 6

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Project No.
AA009335

Drawing No.
SSS2-ARC-CV-DWG-0206-

Issue
05

Attachment C

Moorebank Precinct East - Stage 2 Proposal

Response to Submissions

Appendix I: Consolidated Proposal
Description



SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
Development

Prelude

This section of the RtS has been prepared to provide a consolidated description for the construction and operational activities for which approval is sought. This section combines both the Proposal (presented in the EIS) and the amendments to the Proposal (presented in Section 6 of this RtS) to clearly identify the components which relate to the MPE Stage 2 Proposal and provided a consolidated project description for the Amended Proposal.

The Proposal description (Section 4 of the EIS) has been used as the basis for this section. All amendments to the Proposal description have been identified, with words proposed to be deleted shown in ~~**bold italic strike through**~~ and words to be inserted shown in **underlined bold italics**.

This section replaces, and therefore supersedes, the Proposal description provided in Section 4 of the EIS, as amended by the Proposal amendments in Section 6 of this RtS. For ease of reference, in this section only, the term 'Proposal' has been used below to describe the Amended Proposal (i.e. Proposal including proposed amendments to the Proposal).

4 PROPOSAL DESCRIPTION

SIMTA are seeking approval under Part 4, Division 4.1 of the EP&A Act for the construction and operation of Stage 2 of the MPE Project (the Proposal), comprising warehousing and distribution facilities on the MPE site (the MPE Stage 2 site), and upgrades to approximately ~~4.4~~ **1.5** kilometres of Moorebank Avenue (the Moorebank Avenue upgrade). The Moorebank Avenue upgrade commences from approximately ~~95~~ **35** metres south of the northern boundary of the MPE site to approximately ~~120~~ **185** metres south of the southern MPE site boundary. The Moorebank avenue upgrade is located within the existing Moorebank Avenue road corridor and along the eastern boundary of the MPW site (refer to Section 4.1.1 of this document, for more information on property ownership).

Included within this section of the Response to Submissions is a detailed description of the built form of the Proposal, the indicative construction methodology, and the operational procedures to be implemented. This section should be read in conjunction with the following design drawings, statements and plans:

- *Architectural Drawings* (Reid Campbell, 2016) provided at Appendix D of the EIS **and as amended in Appendix B of this RtS.**
- *Landscape Design Statement and Plans* (Ground Ink, 2016) provided at Appendix E of the EIS **and as amended in Appendix B of this RtS.**
- *Utilities Strategy Report* (Arcadis, 2016) provided at Appendix F
- *Preliminary Construction Environmental Management Plan* (Arcadis, 2016) provided at Appendix G **and the Environmental Work Method Statement (refer to Appendix I of the RtS)**
- *Preliminary Construction Works Drawings* prepared by Arcadis and provided at Appendix H
- *Stormwater and Flooding Impact Assessment* (Arcadis, 2016) and *Civil Works Drawings* (Arcadis, 2016) provided at Appendix P of the EIS **and as amended in Appendix F of this RtS.**

The design of the Proposal has been prepared to progress and further refine the design identified in the MPE Concept Plan Approval (MP 10_0193) (as modified). The design for the Proposal has been altered and updated to maximise the efficiency of the site operations, and reduce the overall impact of the Proposal on the environment, where possible (refer to Section 6 and Sections 7 to 20 of the EIS **and Section 7 of this RtS** for further information).

4.1 Proposal Overview

The Proposal involves the construction and operation of Stage 2 of the MPE Project, comprising warehousing and distribution facilities on the MPE site and upgrades to approximately ~~4.4~~ 1.5 kilometres of Moorebank Avenue from approximately ~~95~~ 35 metres south of the northern boundary of the MPE site to approximately ~~120~~ 185 metres south of the southern MPE site boundary.

Key components of the Proposal include:

- Warehousing comprising approximately 300,000m² GFA and additional ancillary offices
- A freight village, comprising 8,000m² GFA of retail, commercial and light industrial land uses
- Establishment of an internal road network, and connection of the Proposal to the surrounding public road network
- Ancillary supporting infrastructure within the Proposal site, including:
 - Stormwater, drainage and flooding infrastructure
 - Utilities relocation and installation
 - Vegetation clearing, remediation, earthworks, signage and landscaping
- Subdivision of the MPE Stage 2 site
- The Moorebank Avenue upgrade, which comprises the following key components:
 - Modifications to the existing lane configuration, including some widening
 - Earthworks, including construction of embankments and tie-ins to existing Moorebank Avenue road level at the Proposal's southern and northern extents
 - Raking of the existing pavement and installation of new road pavement
 - Establishment of temporary drainage infrastructure, including temporary basins and / or swales
 - Adjusting the vertical alignment by about two metres from the existing levels, including kerbs, gutters and a sealed shoulder
 - Signalling and intersection works
- Upgrading existing intersections along Moorebank Avenue, including:
 - Moorebank Avenue / MPE Stage 2 access
 - Moorebank Avenue / MPE Stage 1 northern access
 - Moorebank Avenue / MPE Stage 2 central access
 - MPW Northern Access / MPE Stage 2 southern emergency access.

The Proposal would interact with the MPE Stage 1 Proposal (SSD_6766) via the transfer of containers between the MPE Stage 1 IMT and the Proposal's warehousing and distribution facilities. This transfer of freight would be via a fleet of heavy vehicles capable of being loaded with containers and owned by SIMTA. The fleet of vehicles would be stored and used on the MPE Stage 2 site, but registered and suitable for on-road use. The Proposal is expected to operate 24 hours a day, seven days per week.

An overview of the Proposal is shown in Figure 4-1.

Construction of the Proposal would occur over a period of approximately 24-36 months. Construction is considered to include all work in respect of the Proposal other than, pre-construction works, namely:

- **works within Works period A (pre-construction activities), including:**
 - **Establishment of site access points**
 - **Importation, stockpiling and placement of clean general fill for site preparation activities**
 - **Installation of site fencing**
 - **Remediation, where required, including unexploded ordnance (UXO), exploded ordnance (EO) and exploded ordnance waste (EOW) management.**
- **survey; acquisitions; or building/ road dilapidation surveys; fencing; investigative drilling, excavation or salvage**
- **clearing any native vegetation within the Amended construction area, with the exception of the southern and eastern swales located outside of the MPE site**
- **establishment of site compounds and construction facilities**
- **installation of environmental mitigation measures**
- **utilities adjustment and relocation that do not present a significant risk to the environment, as determined by the Environmental Representative**
- **other activities determined by the Environmental Representative to have minimal environmental impact.**

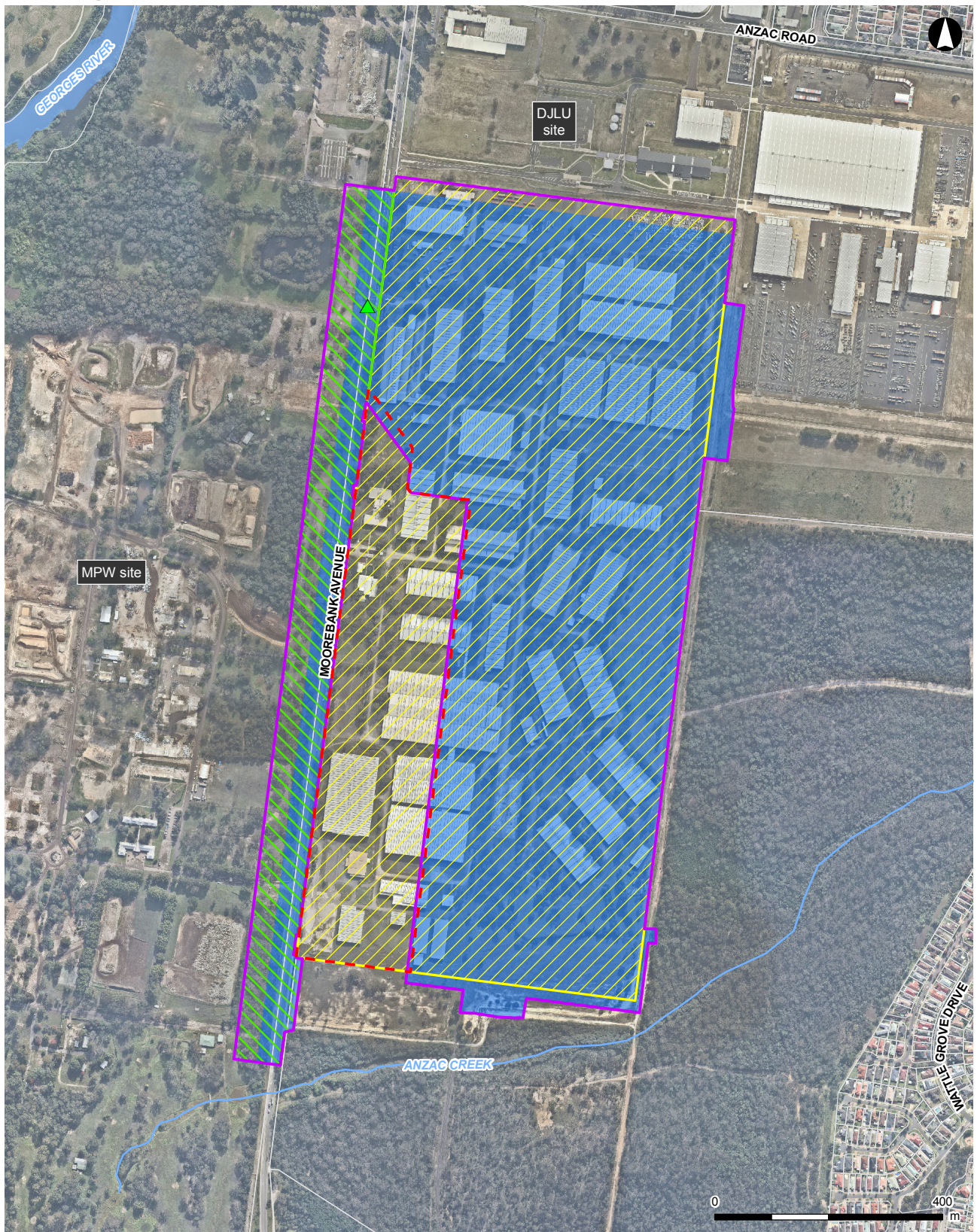
Key construction activities occurring during the construction period include, but are not limited to, the following:

- **Vegetation clearance within the southern and eastern swales**
- **Demolition of existing buildings and infrastructure on the Proposal site**
- **Earthworks (with the exception of importation, stockpiling and placement of clean general fill for site preparation activities undertaken during pre-construction)**
- **Drainage and utilities installation**
- **Establishment of hardstand across the Proposal site**
- **Establishment of a temporary batching plant (potential including concrete, cement and pre-mix and hot-mix works) and materials crushing (inc. grinding and separating) and testing**
- **Construction of a temporary diversion road to allow for traffic management along the Moorebank Avenue site during construction (including temporary signalised intersections adjacent to the existing intersections) (the Moorebank Avenue Diversion Road)**
- **Upgrade of Moorebank Avenue including:**

- *Adjustment of the formation level and levelling of Moorebank Avenue*
- *Road pavement and intersection works along Moorebank Avenue*
- *Establishment of a site vehicle entrance to the MPE Stage 2 site from Moorebank Avenue*
- *Construction of the warehouses and warehouse access roads*
- *Fit-out of warehousing*
- *Construction of warehouses and distribution facilities, ancillary offices and the ancillary freight village*
- *Construction works associated with signage, landscaping, stormwater and drainage works.*

Further detail regarding the construction methodology is provided in Section 4.3 of this document.

MPE Stage 2 Response to Submissions



LEGEND

- | | |
|------------------------------|--------------------------|
| MPE site | Moorebank Avenue Upgrade |
| MPE Stage 1 operational area | Site access |
| Amended operational area | Watercourse |
| Amended construction area | Cadastre |

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 Date issued: July 6, 2017
 Aerial imagery supplied by nearmap (May, 2017)

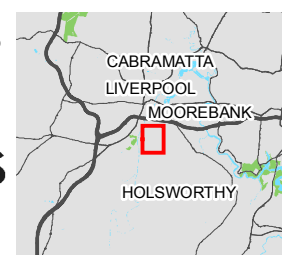


Figure 4-1: Overview of the Proposal

4.1.1 Property ownership and rights

The Proposal site is mostly located within Lot 1 DP1048263, owned by SIMTA and Lot 2 DP 1197707, owned by the Commonwealth of Australia. There are a number of additional lots which will be directly impacted or have the potential to be directly impacted by the Proposal. The land which would be directly impacted by the Proposal is subject to the refinement of the Proposal during detailed design.

A summary of potential lots affected by the Proposal is provided in Table 4-1. The ownership plan relating to these properties is provided in Section 2 of the EIS.

Table 4-1 Properties potentially affected by the Proposal

Lot	DP	Property address / description	Owner	Within MPE Stage 2 site footprint	Within Moorebank Avenue site
1	1048263	The MPE site	SIMTA (Qube Holdings).	✓	✗
1	1197707	The MPW site	Commonwealth of Australia	✗	✓
2	1197707	Moorebank Avenue (south of Anzac Road)	Commonwealth of Australia	✗	✓
4	1197707	Boot Land	Commonwealth of Australia	✓	✗
3002	1125930	DJLU	Commonwealth of Australia	✓	✗

4.2 Built form

The key built form elements of the Proposal include warehouses, the freight village, internal site roads and Moorebank Avenue. In addition, a number of ancillary works will be undertaken, including:

- Water management works
- Landscaping
- Parking
- Utilities
- Lighting
- Signage
- Subdivision of the MPE Stage 2 site.

These elements are described in detail in the following sections (4.2.1 to 4.2.6). When considering the built form of the Proposal, reference should be made to the drawings, statements and plans listed at the beginning of this section of this RtS.

4.2.1 Warehousing

The Proposal would provide up to 300,000m² of warehousing across the MPE Stage 2 site, with ancillary offices attached. The Proposal would include eight warehouses, which would be up to 21 metres in height and would range in size from 20,350m² to ~~61,500m²~~ **57,800m²**. The Proposal would also include some internal fitout of the warehouses, namely the installation of racking and associated services. The Proposal would seek approval for the construction of these warehouses and also the operation of these warehouses by future tenants.

An indicative layout of warehousing on the MPE Stage 2 site is shown in Figure 4-2.

Each individual warehouse would consist of the following:

- A container storage area
- Office and administration facilities
- Amenities
- Car parking
- Truck loading/unloading docks
- Internal parking for pick-up and delivery vehicles (PUD)
- Specialised sortation and conveyor equipment
- Hardstand areas that provide trailer parking spaces, external PUD parking spaces, vehicle manoeuvring areas and access to the main internal site road
- Signage for business identification purposes, including backlit illuminated signage on each warehouse (refer to Architectural drawings at Appendix D)
- Internal fitout, comprising racking and storage.

Associated with this key built form are a number of ancillary works, which include lighting, vegetation removal and landscaping, water management works and utilities.

The Proposal seeks approval for the provision of eight warehouses, located to the north and east of the MPE Stage 1 Proposal, within the MPE site. A summary of the warehousing to be provided within the MPE Stage 2 site as part of the Proposal is provided in Table 4-2 below.

The warehouses included in the Proposal would be of a high design quality. The warehouse materials and finishes would be compatible and blend with surrounding land uses. A schedule of the indicative colour palette for the proposed warehouses and other structures is provided in the *Architectural Drawings* (Appendix D of the EIS **and as amended in Appendix B of this RtS**) and summarised in Table 15-9 of the EIS.

Table 4-2 New warehouses seeking approval as part of the Proposal

Warehouse no.	General location on the MPE Stage 2 site	Size (m ²)	Ancillary office size (m ²)	Car parking spaces
1	In the north-western corner of the MPE Stage 2 site. Warehouse 1 is bounded by a car park and the ancillary freight village in the north, service road 1 in the east, internal road 1 in the south and the MPE Stage 2 site access and Moorebank Avenue in the west.	36,700 <u>35,700</u>	1,000	153 <u>150</u>
2	In the north-eastern corner of the Proposal site. Warehouse 2 is bounded by the northern OSD in the north and east , internal road 2 in the east, internal road 1 in the south and the central OSD to the west.	61,500 <u>57,800</u>	1,000	222 <u>215</u>
3	South of Warehouse 2 and is bounded by internal road 1 in the north, internal road 2 in the east, service road 2 in the south and an internal transfer road, central OSD and car parking in the west.	22,700	1,000	144 <u>101</u>
4	South of Warehouse 3. It is bounded by service road 2 in the north, internal road 2 in the east, warehouse 6 and an internal road in the south and an internal transfer road, and the central OSD and car parking in the west. Warehouse 4 is separated from Warehouse 6 via an inter-tenancy wall.	20,350	1,000	94 <u>106</u>
5	Warehouse 5 is located in the centre of the Proposal site and bounded by internal road 1 in the north, internal transfer road, central OSD and car parking in the east, Warehouse 8 in the south and the Stage 1 IMT facility in the west.	57,000	1,000	205 <u>215</u>
6	Immediately South of Warehouse 4, bounded by Warehouse 4 and an internal road in the north, internal road 2 in the east, service road 3 in the south and an internal transfer road, and the central OSD and car parking in the west.	20,350	1,000	84 <u>95</u>
7	In the south-east corner of the Proposal site and bounded by service road 3 in the north, internal road 2 in the east, the southern OSD in the south and an internal	24,400	1,000	144 <u>115</u>

Warehouse no.	General location on the MPE Stage 2 site	Size (m ²)	Ancillary office size (m ²)	Car parking spaces
	transfer road, central OSD and car parking in the west.			
8	South of Warehouse 5 and bounded by an internal transfer road in the north, internal transfer road, central OSD and car-parking in the east, an internal transfer road and the southern OSD in the south and the Stage 1 IMT facility in the west	57,000	1,000	205 <u>215</u>
Total		300,000 <u>295,300</u>	8,000	1248 <u>1,212</u>

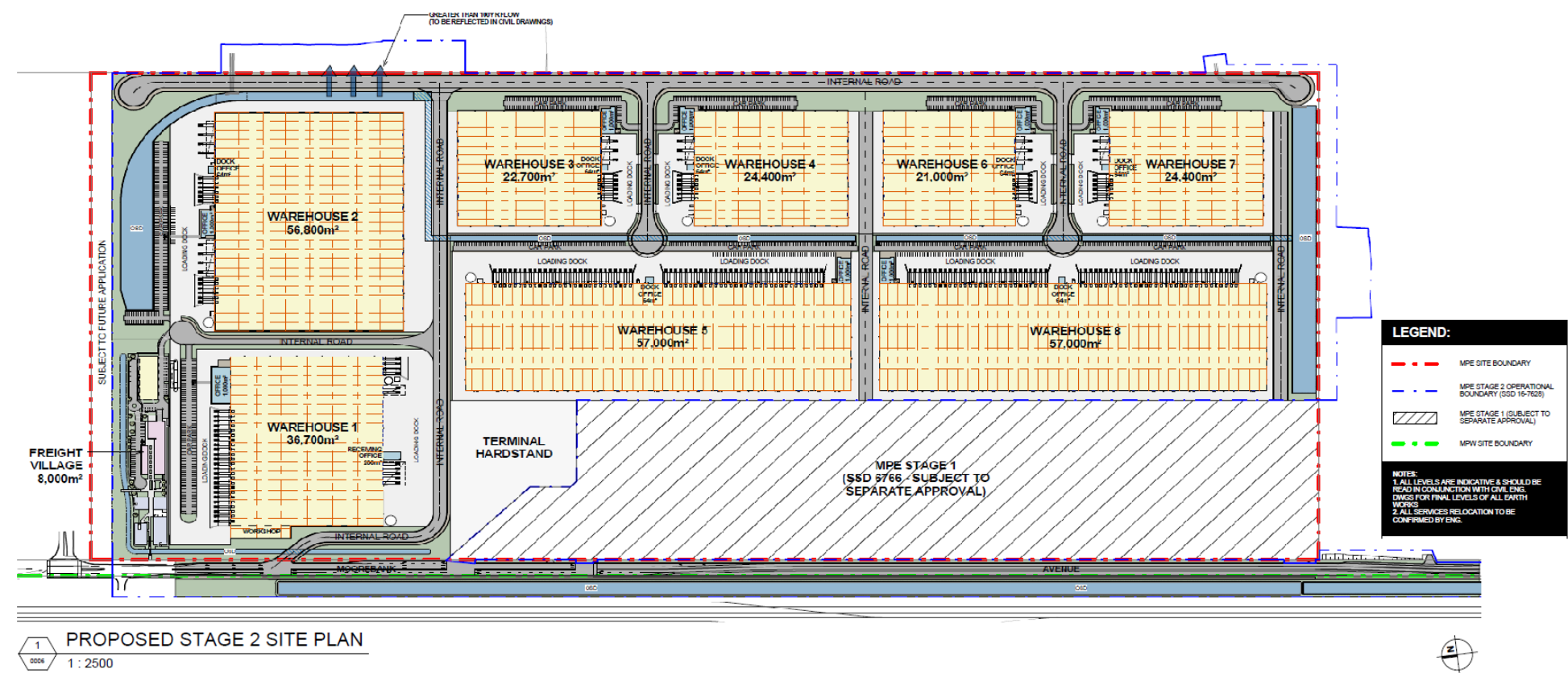


Figure 4-2 Indicative Proposal warehousing layout

4.2.2 Ancillary freight village

The Proposal would include the provision of a freight village on the MPE Stage 2 site. The freight village would be located in the north-western corner of the MPE site, directly north of Warehouse 1 and east of Moorebank Avenue.

The freight village would include five buildings which would provide for a mixture of retail, commercial and light industrial land uses, with a combined GFA of approximately 8,000m². An overview of buildings within the ancillary freight village is provided in Table 4-3. An indicative layout of the freight village is provided in Figure 4-3.

Table 4-3 Overview of buildings within the freight village

Building No.	No. of storeys*	Purpose	GFA (m ²)
A	1	Light industrial	1,080
B1	1	Retail	997
B2	1	Retail	223
C	4	Commercial	4,560
D	3	Commercial	1,143
Total GFA (m ²)			8,003

*Number of storeys in multi-level buildings includes the ground floor

The freight village would include the provision of:

- Food outlets
- Amenities
- Loading dock(s)
- A services area
- A services corridor
- Landscaping
- Car parking (230 spaces), including basement parking.

The indicative layout of the freight village is shown on Figure 4-3.

Buildings and structures within the freight village would be up to 15 m in height and of varying size and design, as detailed in Section 15 (visual amenity, landscape and urban design). The Proposal would also include the internal fitout of these buildings, including utilities and services. The Proposal seeks approval for the construction of this freight village, and the operation of these premises by future tenants.

Associated with this built form are a number of ancillary works, which include materials and finishes, signage, lighting, vegetation removal and landscaping, water management works and utilities, which have been discussed throughout this section of the RtS.

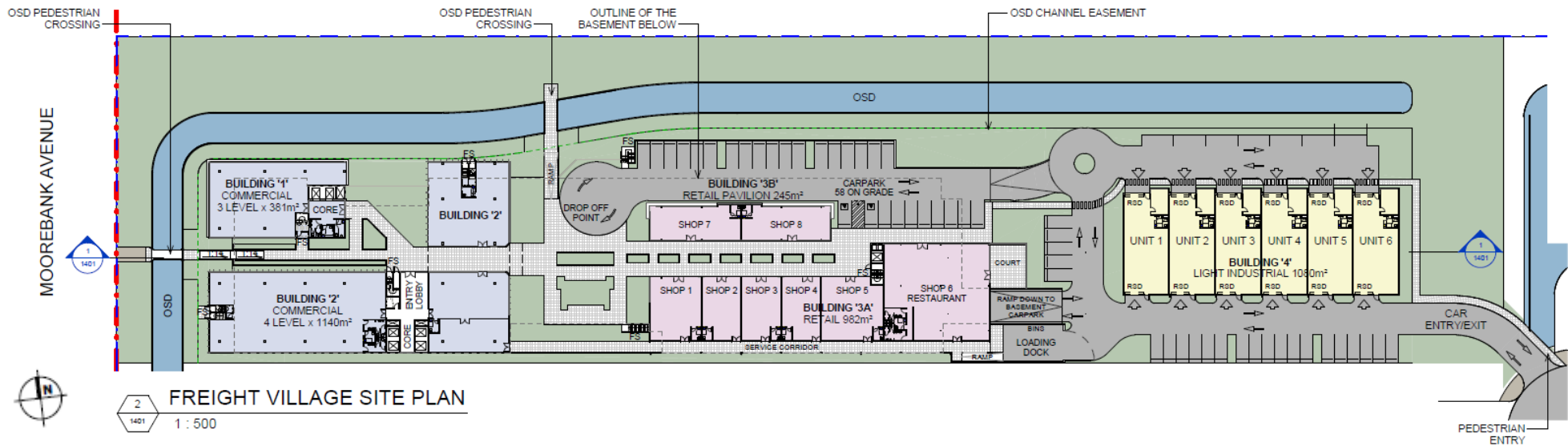


Figure 4-3 Indicative layout of the Freight Village

4.2.3 Vehicle Movement and Access – Internal roads

An internal road network would be provided within the MPE Stage 2 site as part of the Proposal which would:

- Enable the efficient movement of vehicles throughout the MPE Stage 2 site, and for the dispatch of freight from the warehouses
- Facilitate the transport of containers between the Stage 1 IMT facility and the warehouse and distribution facilities within the MPE Stage 2 site.

Traffic circulation throughout the MPE Stage 2 site would be through a combination of internal roads, service roads and internal transfer roads. The road network throughout the MPE Stage 2 site is shown on Figure 4-4.

MPE Stage 2 site access

Access to and from the MPE Stage 2 site would be via the existing Moorebank Avenue intersection with the northern DSNDC site access (at Ch.900 along Moorebank Avenue). The MPE Stage 2 site access is located to the north of the MPE Stage 1 Proposal (refer to Figure 4-1) and would allow for vehicular access to warehouse and distribution facilities to enable the direct delivery and dispatch of goods to the warehouses.

The MPE Stage 2 site access would be signalised, and configured as follows:

- Moorebank Avenue southbound:
 - One left-turning slip lane, providing entry into the MPE Stage 2 site and one through lane along Moorebank Avenue on the northern leg of the intersection
 - Two through lanes continuing along Moorebank Avenue on the southern side of the intersection
- Moorebank Avenue northbound:
 - Two through lanes along Moorebank Avenue on the southern leg of the intersection
 - Two through lanes, merging into one northbound lane along Moorebank Avenue on the northern side of the intersection
- MPE stage 2 site access road:
 - One entry lane, from Moorebank Avenue. Entry to the MPE Stage 2 access road would be provided from the southbound carriageway of Moorebank Avenue via a slip-lane. The MPE Stage 2 site access would be provided from the northbound carriageway of Moorebank Avenue via a right-turn signal provision at the intersection.
 - One exit lane onto Moorebank Avenue. The exit lane would provide for access to both the northbound and southbound carriageways of Moorebank Avenue.

The MPE Stage 2 site access point is shown on Figure 4-1.

Traffic circulation within the MPE Stage 2 site

During the interim stages of operation, the traffic circulation throughout the MPE Stage 2 site would be via a combination of the roads described below (i.e. the final configuration) and the use of modified existing roads. Interim vehicle movement and access throughout the MPE Stage 2 site would be included in the relevant environmental management plans for operation of the Proposal, including the Construction Traffic Management Plan and Operational Traffic Management Plan.

Internal roads

The MPE Stage 2 site includes two main internal roads, which provided the main east-west and north-south traffic movements throughout the MPE Stage 2 site. On entering the MPE Stage 2 site, light and heavy vehicles would travel along an east-west oriented internal road (internal road 1). Internal road 1 would connect at its easternmost point to a second north-south oriented internal road (internal road 2).

Internal roads 1 and 2 would connect to three service roads which would provide vehicle access to warehouses, loading docks and car parking.

Internal road 2 would provide for traffic movements along the entire eastern perimeter of the Proposal, and would have a cul-de-sac at both the northern and southern ends to allow vehicles to turn around. The internal roads would be two lanes wide (one lane in each direction) and would be wide enough to accommodate heavy vehicle turning movements, including B-doubles.

Service roads

Three service roads would connect to the internal roads within the MPE Stage 2 site. The service roads would provide access to loading docks at warehouses for heavy vehicles to park and be packed with materials which have been received and stored within the warehouses. Service roads would also enable access to light vehicle parking for users of the warehouses. Each service road would have a cul-de-sac for vehicles to turn around, which would be able to accommodate turning movements of B-doubles.

Service road 1 would connect to internal road 1 via a T-intersection, and would provide access to Warehouse 1, Warehouse 2 and the ancillary freight village. Two additional service roads would connect to internal road 2 via t-intersections; service road 2 would provide access for warehouses 3, 4 and 5, and service road 3 would provide access to warehouses 6, 7 and 8.

Transfer roads

There would be three Transfer roads within the MPE Stage 2 site. These roads would provide connections between the warehouses and the MPE Stage 1 IMT. It is intended that the transfer of freight between the Stage 1 IMT and warehouses would be via an internal fleet of vehicles which would remain on the MPE Stage 2 site and would not use the external road network.

Transfer road 1 would travel mostly along the same path as internal road 1 and provide access between the Stage 1 IMT facility and Warehouses 1, 2 and 3. Transfer road 2 would travel through the centre of the MPE Stage 2 site and would provide access between the Stage 1 IMT facility and Warehouses 4, 5, 6 and 8. Transfer road 3 would travel along the southern boundary of the MPE site, and provide access between the Stage 1 IMT facility and Warehouses 7 and 8.

With the exception of transfer road 1, which travels along the same path as internal road 1, the movement of internal fleet vehicles along transfer roads would be separated from light and heavy vehicles entering and exiting the MPE Stage 2 site to maintain efficiency and to provide for a safe internal road network.

4.2.4 Roadworks – Moorebank Avenue

As part of the Proposal, Moorebank Avenue would be upgraded for about ~~4.4~~ 1.5 kilometres. The Moorebank Avenue upgrade commences from approximately ~~95~~ 35 metres south of the northern boundary of the MPE site to approximately ~~120~~ 185 metres south of the southern MPE site boundary. The Moorebank avenue upgrade is located within the existing Moorebank Avenue road corridor and along the eastern boundary of the MPW site (refer to Figure 4-1 for extent of works).

The Moorebank Avenue upgrade would be comprised of the following key components:

- Modifications to the existing lane configuration, including some widening
- Signalling and intersection works.
- Adjusting the vertical alignment by about two metres from the existing levels, including kerbs, gutters and a sealed shoulder

An assessment of the traffic and transport-related impacts associated with the Moorebank Avenue upgrade is provided in Section 7 (Traffic and transport) and Appendix K of the EIS, **and Section 7 and Appendix C of this RfS.**

Lane configuration

The Moorebank Avenue upgrade would provide for the integration of the Proposal with the wider Moorebank Precinct works and to tie-in to Moorebank Avenue north of the **Proposal Anzac Road/Moorebank Avenue intersection.**

The arrangement of lanes along Moorebank Avenue as part of the Proposal would include:

- Four lanes from the northern extent of the Moorebank Avenue upgrade to the MPE Stage 1 central access.
- Two lanes between the MPE Stage 1 central access to approximately ~~120~~ 185 metres south of the MPE site.

The lanes would generally be 3.5 metres wide central travel lanes, with 4.2 metres wide kerbside travel lanes with a 4.5 metre verge along both the northbound and southbound carriageways to allow for the relocation and installation of utilities and services.

An indicative cross section of the four-lane section of Moorebank Avenue is shown in Figure 4-5, and an indicative cross section of Moorebank Avenue within the two-lane section is shown in Figure 4-6.

Intersection upgrades

The Proposal includes upgrades to four intersections along Moorebank Avenue:

- The Moorebank Avenue / MPE Stage 2
- Moorebank Avenue / MPE Stage 1 northern access
- Moorebank Avenue / MPE Stage 1 central access
- Moorebank Avenue / MPE Stage 1 southern emergency access.

The Moorebank Avenue / MPE Stage 2 site access intersection would be upgraded to provide additional lanes, and the intersection would be signalised (refer to Section 4.2.3 for more information relating to the upgraded configuration of this intersection).

The upgrades to the following intersections would involve the provision of a wider road pavement, the establishment of kerb and guttering and tie-in works to the revised vertical alignment of Moorebank Avenue:

- Moorebank Avenue / MPE Stage 1 northern access (tie-in works only)
- Moorebank Avenue / MPE Stage 1 central access
- Moorebank Avenue / MPE Stage 1 southern emergency access.

Road alignment

The horizontal alignment of Moorebank Avenue is not expected to change significantly as a result of the Proposal, with the upgraded road remaining primarily within the existing Lot 2 of DP1197707.

As part of the Proposal, the vertical alignment of Moorebank Avenue within the operational footprint of the Moorebank Avenue upgrade (refer to Figure 4-1) would be adjusted by approximately two metres. At the northern and southern extents of this work, the vertical alignment would be graded to tie-in to the remainder of Moorebank Avenue.

Pedestrian and cyclist access

To accommodate pedestrian and cyclist access through the Proposal site, a shared path would be provided on the western side of Moorebank Avenue. Pedestrian and cyclist crossing facilities would be provided at intersections along the Moorebank Avenue upgrade.

Pedestrian and cycling provisions within the MPE Stage 2 site would also be provided for employees. The proposed connectivity between the Proposal site and the surrounding pedestrian and cycling network is described further in Section 7 and Appendix K of the EIS.

Public transport

To improve bus transport access to the Proposal, additional bus stops are proposed near the Moorebank Avenue / MPE Stage 2 site access intersection and on the internal roads in order to provide a reasonable walking distance to all proposed warehouses and offices within the MPE Stage 2 site. The final location of bus stops along Moorebank Avenue would be determined in consultation with Transport for NSW. Additional information regarding public transport provisions is provided in Section 7 and Appendix K of the EIS.

MPE Stage 2 Response to Submissions



LEGEND

- MPE site
- MPE Stage 1 operational area
- Amended operational area
- Road
- Warehousing
- Watercourse

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 Aerial imagery supplied by nearmap (May, 2017)

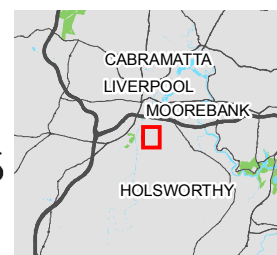


Figure 4-4: Vehicle movement and access within the Proposal site

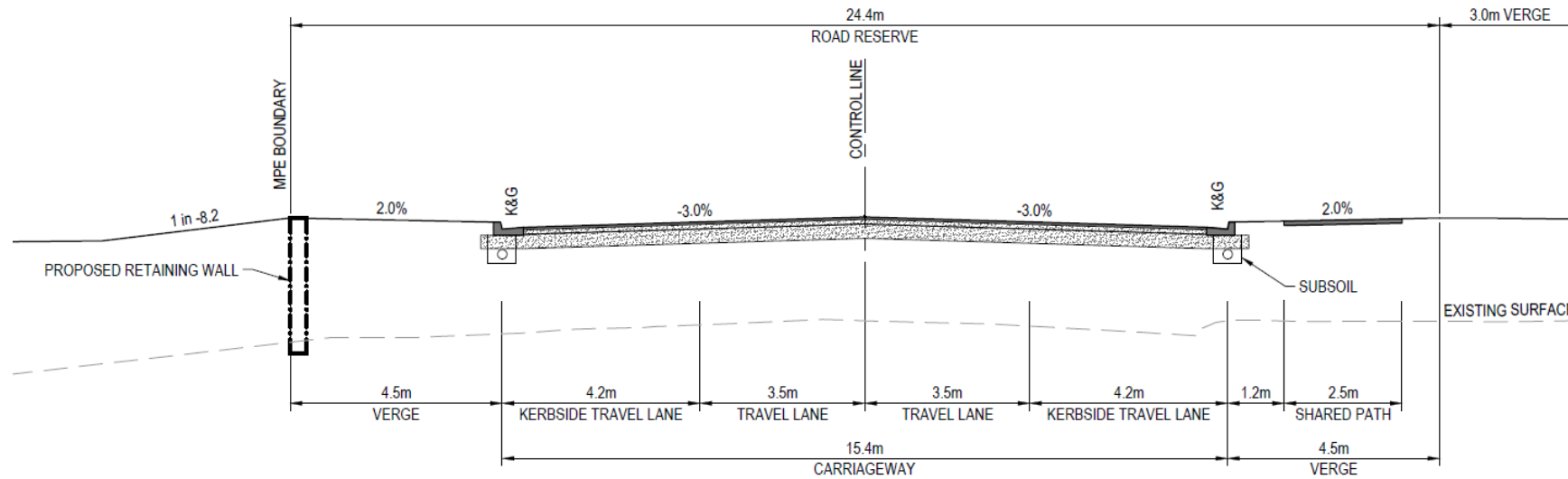


Figure 4-5 Indicative cross section – Moorebank Avenue 4 lane configuration

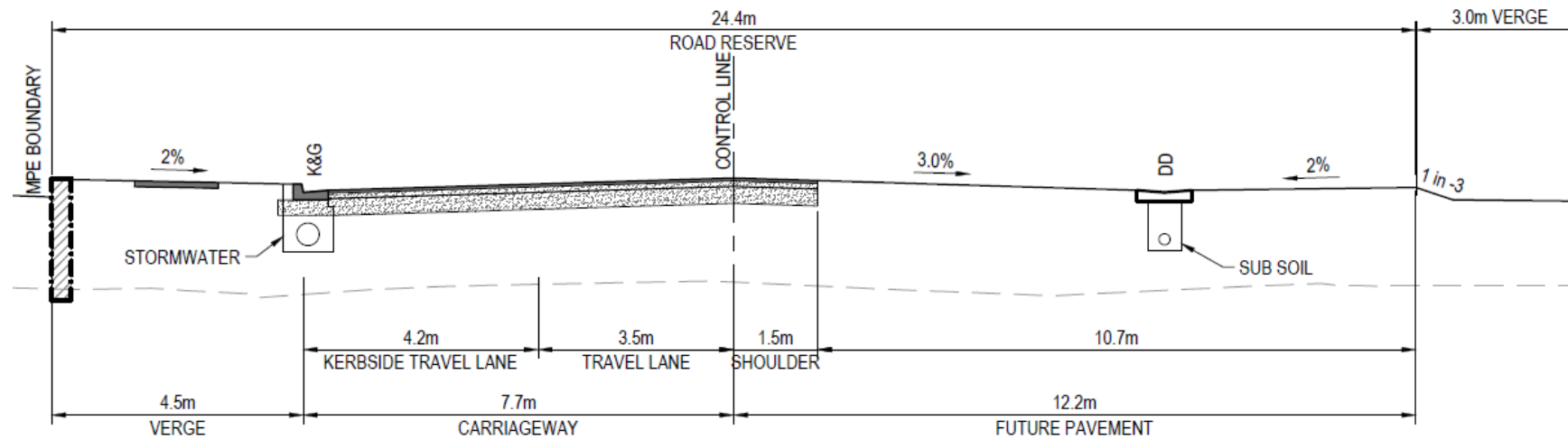


Figure 4-6 Indicative cross section – Moorebank Avenue 2 lane configuration

4.2.5 Ancillary works

Water management works

The Proposal would include the installation of stormwater, drainage and flooding infrastructure throughout and surrounding the Proposal, comprising stormwater infrastructure within the MPE Stage 2 site and along road corridor subject to the Moorebank Avenue upgrade, and the provision of on-site detention basins (OSDs).

The *Stormwater Drainage Design Drawings* provided at Appendix P of the EIS (**as amended in Appendix F of this RtS**) show the layout of the surface water catchment, treatment and drainage systems to be installed across the Proposal site. A summary of the drainage for the Proposal site is shown in Figure 4-2.

Existing MPE Stage 2 site runoff

Currently, stormwater generated on the MPE Stage 2 site is carried through formal open grass lined channels to three discharge points. Flows on the eastern portion of the Proposal site move in an eastward direction to pipes and headwalls under Greenhills Road, discharging to Anzac Creek through two points (Outlet A and B).

Stormwater flows on the western portion of the site (from both the eastern and western side of Moorebank Avenue) are collected in a formal concrete lined channel which runs within the site parallel to Moorebank Avenue. These channel flows discharge via a culvert under Moorebank Avenue (Outlet C) into a channel which leads to Georges River.

Stormwater infrastructure

A pit and pipe system would be installed across the Proposal site to collect and transport stormwater runoff into stormwater drains and culverts. Water would then flow to one of four OSDs prior to being discharged into local waterways via three existing discharge points:

- At the north-eastern boundary of the MPE Stage 2 site, which discharges runoff into Anzac Creek
- At the south-eastern boundary of the MPE Stage 2 site, which discharges runoff into Anzac Creek
- At the north-western boundary of the MPE Stage 2 site, which discharges runoff into the Georges River via a drainage channel that flows through the MPW Site.

Stormwater runoff along the section of Moorebank Avenue being upgraded as part of the Proposal would be conveyed through a pit and pipe system to the western OSD, located to the west of Moorebank Avenue. Water from the OSD would then discharge to a culvert that flows westwards through the MPW site and discharges to the Georges River.

On-site detention

The Proposal would include the use of four OSDs. The four basins are summarised and described in more detail in Section 12 of the EIS.

Table 4-4 Summary of on-site detention to be provided across the Proposal site

OSD No.	Location	Catchment Area (ha ^{m2})	Volume (m ³)
1	OSD 1 is located along the northern boundary and eastern boundaries of the MPE Stage 2 site, immediately north and east of Warehouse 2. OSD 1 also travels through the centre of the MPE Stage 2 site to transfer road 2.	28.99 31.61	27,400 22,750
2	OSD 2 is located along the southern boundary of the MPE Stage 2 site, immediately south of Warehouse 7 and 8. OSD 2 also travels through the centre of the MPE Stage 2 site to transfer road 2.	16.17	16,600
9	OSD 9 is located along the northern boundary of the MPE Stage 2 site, immediately north of the freight village, and along the western boundary of the MPE Stage 2 site, immediately adjacent to the freight village and warehouse 1	11.91	8,000
10	OSD 10 is located within the Moorebank Avenue site and within the MPW site. The OSD is located immediately west of Moorebank Avenue.	42.20	24,000

Vegetation removal and landscaping

It is anticipated that all necessary vegetation would be removed from the construction footprint (refer to Figure 4-8 for construction footprint). The majority of vegetation clearance would be undertaken at the commencement of construction and then periodically throughout the construction of the Proposal.

Landscaping would be undertaken on the site as part of the Proposal. The Landscape Design Statement and Plans (Appendix E of the EIS and as amended in Appendix B of this RtS) provide details on the key landscaping features that would be included as part of the Proposal site. Landscaping would be included on all boundaries of the Proposal site. Specific urban design principles have been developed for the Proposal as part of the MPE Concept Plan Approval. These would be implemented through the landscape design for the Proposal. Further details regarding landscaping is provided in Section 15 (Visual amenity, urban design and landscape).

As the Proposal is located adjacent to areas of established vegetation to the east, the landscape design of the Proposal aims to integrate the Proposal site into the broader environment through the use of species local to the area.

Landscaping along Moorebank Avenue would include extensive tree and shrub planting on road frontages that would provide visual relief from the industrial appearance of the proposal, with a layered approach along the streetscape. This landscaping would include a mix of trees, shrubs and turfed areas.

Tree plantings would be provided around the warehousing and within the car parking areas. The landscape design for the Proposal aims to integrate the site into the broader environment with the following:

- Use of species that are local to the area, hardy and easy to maintain, including those recommended by the Liverpool City Council DCP.
- Use of trees within the site to provide a uniform canopy cover within vegetated areas
- Use of local species as understory planting to support and enhance local habitat values
- Use (where reasonable and feasible) of seeds collected within the local area for planting to reinforce the genetic integrity of the region.

Signage

Signs would be located at a number of locations across the MPE Stage 2 site. These signs would be for the purposes of way finding and access to and from the Warehouses. Each warehouse would also include branded signage which would be backlit illuminated. A Signage Plan has been prepared for primary site identification signage (only) and is included within the *Architectural Drawings* at Appendix D of the EIS **and as amended in Appendix B of this RtS**.

A summary of the type of signs that are to be included within the MPE Stage 2 site is provided in Table 4-5 and in the Architectural Drawings (Appendix D of the EIS **and as amended in Appendix B of this RtS**).

Table 4-5 Proposal signage within the MPE Stage 2 site

Signage type	Dimensions	General locations
Type 1 – Street entry signage	Maximum 6 m height	Main site entrance off Moorebank Avenue
Type 2 – Tenant identification signage	Maximum 5 m height	Warehouse entrances along the internal road
Type 3 – Tenant directional signage	Maximum 3 m height	Within the warehousing area
<u>Type 4 – Corporate signage</u>	<u>:</u>	<u>Affixed to warehousing</u>

Traffic, locational and directional signage would be provided along Moorebank Avenue within the Proposal footprint, where required. All directional signage would be installed in accordance with the Austroads and Roads and Maritime standards, with a focus on providing clear and unambiguous direction to road users.

Lighting

Lighting would be provided around the warehouse entry and exit points, ancillary offices and along the perimeter road and internal transfer roads to allow for 24 hour operations. Lighting design is provided within the Light Spill Assessment (Appendix R). All lighting has been designed in accordance with *AS/NZS 1680.5:2012 Australian and New Zealand Interior and workplace, Part 5: Outdoor workplace lighting* and *AS 4282-1997 Control of the obtrusive effects of outdoor lighting*.

The main lighting for the Proposal would include pole lighting which would be a maximum height of 21m. The lighting specifications are yet to be finalised; however, it is envisaged that lighting would comprise directional flood lighting with horizontal front glass tilted to focus on operational areas within the MPE Stage 2 site to minimise light spill.

Street lighting would be provided along the Moorebank Avenue upgrade, in accordance with *Australian Standard AS / NZS 1158: Lighting for roads and public spaces*.

Fencing

A palisade security fence would be installed along the western boundary of the MPE Stage 2 site, fronting Moorebank Avenue. An example of the fence is provided in Figure 4-7 (refer to the Architectural Drawings at Appendix D and Landscape Design Plans at Appendix E of the EIS for further details). This fence would be integrated into the landscaping proposed for the boundaries of the site.

Chain link security fencing would be installed on all other boundaries of the Proposal site.



Figure 4-7 Palisade security fence example

Utilities relocation and installation

The MPE site has historically been connected to nearby public utility networks through Commonwealth owned assets. These connections would be disconnected and redundant infrastructure would be decommissioned as part of the Proposal. Utilities relocation and installation across the Proposal site would be completed in a staged manner. The existing utility supply to the Proposal site would be maintained until the proposed permanent utilities can be provided.

All external utilities required for the Proposal would be provided through the MPE Stage 1 site. No direct connections from the Proposal to any authority mains would be required. Additional information regarding utility connections, and the further discussion of the demand requirements is provided in Section 19.3 and the Utilities and Services Strategy included at Appendix F of the EIS.

Sustainability initiatives

A broad range of technologies exist that could be employed as part of the Proposal to enhance its sustainability performance. As a new facility, the Proposal would strive for a high level of efficiency, and potential measures to further enhance efficiency and implement the principles of Ecological Sustainable Development (ESD) would be considered at detailed design.

ESD and energy efficiency measures and management strategies would also be reviewed and updated as appropriate for incorporation into the Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP), as required. ESD measures that may be considered during detailed design could include:

- Use of alternate fuels in operational machinery (such as LPG or biofuels)
- Use of natural light and ventilation for office spaces
- The procurement of energy efficient equipment for construction and operation
- Water harvesting, including roof water collection on all warehouses
- Re-use of waste water, e.g. for toilet flushing, landscape irrigation and wash-down areas
- Energy efficiency design measures (such as for lighting types and controls, control systems, compressors, variable speed drives for fans/pumps etc)
- Measures to minimise HVAC demand (such as use of natural cooling vents and doors to control air movement, insulation, routine maintenance, and economy cycles that exchange ambient air to help control indoor temperature)
- Installation of energy efficient conveyors and automatic sortation systems
- Use of warehouse management systems (enabling multi-tasking of mobile equipment, optimising storage locations, and allowing integration of energy management systems and other management systems)
- Review of potential renewable energy sources, such as solar energy, prioritised in accordance with the prioritising the Carbon Management Principles for Emissions Reduction (such that offsetting is considered as a last priority).

4.2.6 Subdivision

It is intended that the MPE Stage 2 site would be subdivided as part of this application. The MPE Stage 2 site would be subdivided into a number of lots for the purpose of segregating the IMT and warehouse and distribution facilities, and also for the tenancing of individual warehouses within the MPE Site. A Draft Plan of Subdivision provided in Appendix I of the EIS and further detail is provided in Table 4-6.

Table 4-6 Subdivision of SIMTA site as part of the Proposal

Lot No.	DP	Size (ha)	General description
1	1048263	11.38	North-western corner of the Proposal Site
2	1048263	18.84	North-eastern corner of the Proposal Site
3	1048263	20.78	Central portion of the Proposal site, excluding land within the Stage 1 IMT facility
4	1048263	10.85	Southern portion of the Proposal site, excluding land within the Stage 1 IMT facility

In addition to this, a 7.5 metre wide water supply easement would traverse the site, through Lot 2 and Lot 3 of DP 1048263.

4.3 Construction

4.3.1 Construction methodology overview

The construction period for the Proposal is anticipated to be approximately 24-36 months and would commence towards the final stages of construction of the MPE Stage 1 Proposal. An overview of the construction layout for the Proposal is shown in Figure 4-8 and is detailed further in the *Preliminary Construction Works Drawings* (refer to Appendix H of the EIS).

Construction works would generally involve the following activities:

- Vegetation clearance within the southern and eastern swales
- Demolition of existing buildings and infrastructure on the Proposal site
- Earthworks (with the exception of importation, stockpiling and placement of clean general fill for site preparation activities undertaken during pre-construction)
- Drainage and utilities installation
- Establishment of hardstand across the Proposal site
- Establishment of a temporary batching plant (potential including concrete, cement and pre-mix and hot-mix works) and materials crushing (inc. grinding and separating) and testing
- Construction of a temporary diversion road to allow for traffic management along the Moorebank Avenue site during construction (including temporary signalised intersections adjacent to the existing intersections) (the Moorebank Avenue Diversion Road)
- Upgrade of Moorebank Avenue including:
 - Adjustment of the formation level and levelling of Moorebank Avenue
 - Road pavement and intersection works along Moorebank Avenue
- Establishment of a site vehicle entrance to the MPE Stage 2 site from Moorebank Avenue
- Construction of the warehouses and warehouse access roads
- Fit-out of warehousing
- Construction of warehouses and distribution facilities, ancillary offices and the ancillary freight village
- Construction works associated with signage, landscaping, stormwater and drainage works.

The construction footprint of the Proposal is shown on Figure 4-8. Further detail regarding the construction methodology is provided in Section 4.3.2 to Section 4.3.10. The construction methodology may be refined during the detailed design phase of the Proposal and / or in response to submissions received during the exhibition of the EIS to minimise environmental impacts.

Detailed construction planning would be carried out prior to the commencement of construction and would be detailed in a Construction Environmental Management Plan (CEMP) for the Proposal. Construction of the Proposal is expected to be undertaken in seven broad construction works periods:

- Works period A: Pre-construction activities
- Works period B: Site preparation activities
- Works period C: Construction of the Moorebank Avenue diversion road
- Works period D: Pavement and intersection works along Moorebank Avenue
- Works period E: Bulk earthworks, drainage and utilities
- Works period F: Construction and internal fit-out of warehousing
- Works period G: Miscellaneous construction and finishing works.

Additional detail regarding the construction program and construction activities for these works periods is provided in Section 4.3.2.

MPE Stage 2 Response to Submissions



LEGEND

- MPE site
- Amended construction area
- MPE Stage 2 construction compound
- Moorebank Avenue Upgrade
- MPE Stage 1 operational area
- Internal haul road
- Rail link (Stage 1 Proposal)
- Watercourse

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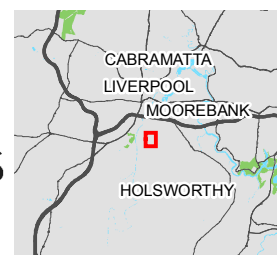


Figure 4-8: Overview of the construction layout for the Proposal

4.3.2 Construction Program and activities

Construction of the Proposal is proposed to take between 24 and 36 months, commencing in the final quarter of 2017, with completion of construction in the third quarter of 2019 (should construction take 24 months). The final construction program will depend on the market demand for warehouses to be constructed on the MPE Stage 2 site.

Construction program

Construction of the Proposal is proposed to take between 24 and 36 months, commencing in the ~~final-first~~ quarter of ~~2017~~**2018**, with the completion of construction in the ~~third-fourth~~ quarter of 2019 (should construction take 24 months). The final construction program will depend on the market demand for warehouses to be constructed on the MPE Stage 2 site.

The indicative construction program is shown in Table 4-7 (based on a 24-month construction period). The construction works have been divided into seven 'works periods' which are interrelated and would potentially overlap. Subject to confirmation from the construction contractor, the order and staging of these construction works periods may change.

Table 4-7 Indicative construction program – **as amended** (based on a 24 month construction period)

Construction works period	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Works period A – Pre-construction activities												
Works period B - Site Preparation activities												
Works Period C - Construction of the Moorebank Avenue diversion road												
Works period D - Bulk earthworks, drainage and utilities												
Works period E – Pavement and intersection works along Moorebank Avenue												
Works period F - Construction and internal fit-out of warehousing												
Works period G – Miscellaneous construction and finishing works												

Construction activities

A summary of the typical indicative construction works periods and their associated activities is provided in Table 4-8.

Table 4-8 Typical construction activities to be undertaken within each construction works period

Construction works period	Activity
Works period A – Pre-construction activities	<ul style="list-style-type: none"> Establishment of site access points Importation, <u>stockpiling and placement</u> of clean general fill for site preparation activities Installation of site fencing Remediation, where required, <u>including unexploded ordnance (UXO), exploded ordnance (EO) and exploded ordnance waste (EOW) management.</u>
Works period B – Site preparation activities	<ul style="list-style-type: none"> Demolition of existing structures Clearing of vegetation Adjusting the building formation of the site (to final operational levels) within which the Main Warehousing Compound would be located Temporary works, including installation of construction environmental management measures (e.g. erosion and sedimentation controls) Establishment of construction compound fencing and hoardings Installation of site offices and amenities Construction of hardstands for staff parking and laydown areas Establishment of temporary batch plant and materials crushing plant Construction of access roads, site entry and exit points and security Establishment of site haulage roads. Establishment of construction compound(s)
Works period C – Construction of the Moorebank Avenue diversion road	<ul style="list-style-type: none"> Stripping of topsoil within footprint of temporary diversion road Installation of temporary drainage Placement of fill and temporary road pavement (e.g. gravel) Construction of interface between temporary diversion road and existing Moorebank Avenue Installation of temporary road signage, street lighting and signalling Transfer of traffic onto temporary diversion road from Moorebank Avenue.

Construction works period	Activity
Works period D – Bulk earthworks, drainage and utilities	<ul style="list-style-type: none"> • Removal of existing pavement and stripping of topsoil within Moorebank Avenue • Importation, stockpiling and placement of approximately 600,000 m³ of imported clean general fill for bulk earthworks • Installation of on-site detention (OSD) and drainage infrastructure within the MPE Stage 2 site • Construction of retaining walls • Creation of a road formation by general earthworks (by constructing fill embankments) • Bulk earthworks and adjusting the building formation of the Proposal site to final level, including the terminal hardstand • Utilities relocation and installation • Establishment of hardstand areas.
Works period E – Pavement works along Moorebank Avenue	<ul style="list-style-type: none"> • Stockpiling and placement of select layer of earthworks material on top of the road formation • Placing and compacting the pavement later (concrete, or concrete and asphalt) over the select layer (consisting of a sub-base and base) and potential sealing with bitumen • Traffic switching from diversion road onto final, upgraded Moorebank Avenue • Removal of construction traffic management and progressive opening of the internal road and warehouse access roads to traffic • Removal of road surface, road signage, street lighting and signalling from temporary diversion road • Commissioning of Moorebank Avenue.
Works period F – Warehouse construction and internal fit-out	<ul style="list-style-type: none"> • Foundation and floor slab installation • Erection of framework and structural walls • Installation of roof • Internal fit-out of warehouses (racking and associated services).

Construction works period	Activity
Works period G – Miscellaneous construction and finishing works	<ul style="list-style-type: none"> • Pavement construction (internal transfer roads and perimeter road), including forming of new kerbs, gutters, medians (where required) and other structures • Line marking, lighting and sign posting • Installation of road furniture, including traffic signs and pavement markers. • Miscellaneous structural construction • Finishing works, including landscaping and general site rehabilitation, where required. • Commissioning of the Proposal • Decommissioning/Demobilisation of the Proposal site, including removal of construction compound(s) and temporary construction environmental controls.

4.3.3 Remediation

A Phase 1 Environmental Site Assessment (ESA) was prepared for the MPE Site as part of the MPE Concept Plan Approval. The Phase 1 ESA noted that a number of areas of potential contamination concern were identified as part of previous investigations across the MPE site; however, these areas of concern would not preclude the continued use of the site for commercial/industrial purposes, if remediated for that use.

Since the preparation of the Phase 1 ESA, additional contamination investigations have been carried out across the Proposal site (refer to Section 13 (Geology, soils and contamination) and Appendix Q (Contamination summary report) of the EIS.

The contamination summary report noted that there are no specific areas within the Proposal site that require direct remediation. The Proposal site is considered to be suitable for the desired commercial / industrial land use and there are no specific areas requiring direct remediation prior to operation of the Proposal.

4.3.4 Earthworks

Earthworks to facilitate construction of the Proposal would include the delivery of imported clean general fill material by truck-and-dog and / or semi-trailer from multiple sources within the Greater Sydney Metropolitan Area.

Where possible, fill material would be sourced from nearby available off-site sources and transported to the site. During peak construction, it is estimated that approximately 22,000m³ of clean general fill would be imported to the Proposal site per day. Potential construction traffic, noise and air quality related impacts associated with earthworks activities are described and assessed in Section 7, Section 8 and Section 9 of the EIS respectively.

Where possible and subject to its geotechnical suitability, soil excavated during construction of the Proposal would be reused for foundation preparation, levelling works and / or maintenance of construction haulage routes.

Excavated soil which is not considered suitable for re-use on the Proposal site would be temporarily stockpiled within the most appropriate construction compound. All excavated soil not suitable for re-use would be tested prior to being transferred off-site for disposal at an appropriately licensed facility.

As part of construction works period D (Bulk earthworks, drainage and utilities), the building formation of the Proposal site would be adjusted to facilitate drainage and flooding infrastructure (refer to Section 12 for more information regarding stormwater and flooding). The earthworks to be undertaken would also include engineering fill to the terminal hardstand area.

The approximate volumes of clean general fill to be imported to facilitate the adjustment to the building formation of the Proposal site, and for the Moorebank Avenue upgrades, is included in Table 4-9. This fill would be placed across the Proposal site and the Moorebank Avenue site to depths ranging from 1.5 metres to 3 metres depending on the topography of the specific area the fill is placed. Preliminary Bulk Earthworks Plans are included in the Stormwater Drainage Design Drawings (refer to Appendix P of the EIS).

Graders and/or bulldozers (or similar equipment) would be used to move the fill across the Proposal site and the fill would be compacted to achieve the required geotechnical requirements for construction. A water cart would be used at points where fill is unloaded to minimise dust generation, as and when required.

This delivery, compaction and conditioning of the imported clean general fill for construction, would continue until the surface level for laying road pavement or hardstand is achieved. On completion of each layer, a soil technician would test for compliance with the geotechnical (including compaction) requirements.

Table 4-9 Preliminary earthworks volumes

Type	Preliminary volume (m ³) (total)	
	MPE Stage 2 site	Moorebank Avenue site
Imported clean general fill material	631,900	63,200
Volume of topsoil strip	53,450	7,000
Cut	220,000	44,700
Fill	882,000	58,500

4.3.5 Soil Management and water diversion

Erosion and sediment control

Sedimentation and Erosion Control Plans for the Proposal are provided within the Stormwater Drainage Design Drawings (refer to Appendix P of the EIS **and Appendix F of this RtS**).

MPE Stage 2 site/ MPW site

Temporary construction sediment basins would be constructed within the location of the proposed permanent operational OSDs to capture and store construction surface water prior to being discharged. Sediment fences would be placed around the perimeter of the MPE Stage 2 site and part of the MPW site to guide run-off and limit sediment transportation off-site.

Where possible, operational water capture and treatment infrastructure, including swales, open concrete lined drainage channels and OSDs would be established early during construction. During construction, water captured in swales and/ or drainage channels would flow to the temporary construction sediment basins prior to discharge from the Proposal site.

Construction surface water runoff would be discharged from the Proposal site from three existing drainage outlet points; one which flows westwards through the MPW site from the north-western corner and into the Georges River, or from two outlets which flow eastwards into Anzac Creek (one in the north-eastern corner and one in the south-east).

Moorebank Avenue site

Temporary construction erosion and sediment control measures to be implemented during construction of the Moorebank Avenue upgrade would typically include sediment fences along the western perimeter of Moorebank Avenue, sedimentation ponds and hay bales around existing stormwater pit inlets.

At the end of each day, or if rain is expected, the surface of the direct placement area would be sealed using a smooth drum roller and the surface trimmed using a grader to direct rain run off toward sediment and erosion control infrastructure.

4.3.6 Construction Workforce and hours

Construction workforce

It is anticipated that construction of the Proposal would require approximately 600 construction personnel across the duration of the construction program (refer to Section 4.3.2). The total construction workforce includes tradesman and construction personnel, subcontractor construction personnel and engineering, functional and administrative staff. During peak construction, the Proposal would require around 200 construction personnel on-site per day (Approximately 150 for construction of the Proposal on the MPE Stage 2 site/MPW site, and 50 for the construction of the Moorebank Avenue upgrade).

Construction hours

Construction works would generally be undertaken during standard daytime construction working hours, being:

- 7 am to 6 pm Monday to Friday
- 8 am to 1 pm Saturday
- No works on Sunday or Public Holidays.

Bulk earthworks activities and construction works to facilitate the Moorebank Avenue upgrade during peak construction periods may be undertaken outside of standard construction hours, but not during the night-time (i.e. 10pm to 7am).

The proposed construction hours for activities associated with bulk earthworks and construction of the Moorebank Avenue upgrade are summarised in Table 4-10.

Table 4-10 Construction hours for activities associated with bulk earthworks and the Moorebank Avenue upgrade

Construction activity	Construction hours	
	Weekdays	Saturdays
Material Delivery	6am-10pm	7am-6pm
Direct placement	7am-10pm	8am -6pm
Stockpiling	7am-6pm	7am-6pm
Crushing	7am-6pm	8am-1pm
Moorebank Avenue upgrade	6am – 10pm	7am – 6pm

Some additional construction works would be undertaken outside of standard daytime construction working hours, subject to consultation with the relevant authorities and in accordance with the *Interim Construction Noise Guidelines* (DECC, 2009), including:

- Any works which would not result in audible noise emissions at any nearby sensitive receptors.
- The delivery of oversized plant and/or structures that police or other authorities determine require special arrangements to transport along public roads
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or consideration of worker safety do not allow work within standard construction hours.
- Public infrastructure works that shorten the length of the project and are supported by noise-sensitive receivers.
- Construction works where it can be demonstrated and justified that these works are required to be undertaken outside of standard construction hours.
- Any other work as approved through the Construction Noise and Vibration Management Plan.

4.3.7 Plant and Equipment

A range of plant and equipment would be required for the construction of the Proposal. A summary of the indicative plant and equipment likely to be utilised is provided in Table 4-11.

Table 4-11 Indicative construction plant and equipment for the Proposal

Equipment	Construction works period						
	Works period A – Pre-construction activities	Works period B – Site Preparation activities	Works period C – Construction of the Moorebank Avenue diversion road	Works period E – Road and intersection works to facilitate the Moorebank Avenue Upgr.	Works period D – Bulk earthworks, drainage and utilities	Works period F – Construction and internal fit-out of warehousing	Works period G – Miscellaneous construction and finishing works
Loaders		✓			✓	✓	✓
Static and vibratory rollers, and high energy impact compaction	✓	✓	✓	✓	✓	✓	
Mobile cranes	✓	✓			✓	✓	
Excavators	✓	✓	✓	✓	✓	✓	
Excavators with hammers		✓			✓		
Backhoes		✓			✓	✓	✓
825 Compactor			✓	✓			
Crushing plant		✓			✓		
Batch plant					✓	✓	
Concrete agitators (or similar)		✓			✓	✓	✓
Concrete pumps		✓			✓	✓	✓
Concrete saws					✓	✓	✓
Air compressors					✓	✓	✓
Jackhammers						✓	✓
Dozers		✓	✓	✓	✓		

Equipment	Construction works period						
	Works period A – Pre-construction activities	Works period B – Site Preparation activities	Works period C – Construction of the Moorebank Avenue diversion road	Works period E – Road and intersection works to facilitate the Moorebank Avenue Upgr.	Works period D – Bulk earthworks, drainage and utilities	Works period F – Construction and internal fit-out of warehousing	Works period G – Miscellaneous construction and finishing works
Mulchers		✓					
20-40 tonne articulated tipper trucks	✓	✓			✓		
Scrapers		✓			✓		
Graders	✓	✓	✓	✓	✓	✓	
Water trucks	✓	✓	✓	✓	✓	✓	✓
Piling rigs					✓	✓	
Forklifts					✓	✓	✓
Small earthmoving equipment	✓				✓	✓	✓
Welder					✓	✓	✓
Road profiler			✓	✓			
Rubber Roller			✓	✓			

4.3.8 Traffic movement and site access

MPE Stage 2 site

Access to and egress from the MPE Stage 2 site during construction would be via the existing DSNDN northern access, to the north of the MPE Stage 1 Proposal. At the completion of construction, this access point would transition to the main operational entry point for vehicles accessing and egressing the MPE Stage 2 site's warehouse and distribution facilities (refer to Section 4.3 for more information about the operation of the project, including the built form).

Construction traffic would generally use the future internal road network within the MPE Stage 2 site as construction haulage routes (refer to Section 4.2.3 for more information) (i.e. internal roads, service roads and internal transfer roads). Once entering the MPE Stage 2 site, heavy vehicles would generally travel along internal road 1, internal road 2 and service roads 2 and 3 for access to the Main Warehousing compound.

During construction, these roads would be comprised of a compacted gravel base, hardstand or similar material and would be two lanes wide (one lane in each direction). The estimated construction traffic movements (includes ingress and egress from the site, i.e. includes both trips) associated with construction works within the MPE Stage 2 site are presented in Section 7 and Appendix K of the EIS.

Moorebank Avenue

Construction works to facilitate the Moorebank Avenue upgrade would not commence until the Moorebank Avenue diversion road is operational.

Construction vehicles (including general light and heavy construction vehicles, and heavy vehicles importing clean general fill material) would typically access the Moorebank Avenue site from the north, via a gated access point off Moorebank Avenue. During construction hours, a 'gateman' or construction traffic controller, would direct construction vehicles from the access gate to either the Moorebank Avenue Compound (MPW site) or to the road formation for the direct placement of fill material.

Vehicles would exit the Moorebank Avenue site via a second gated egress point at the southernmost extent of the Moorebank Avenue upgrade, or be directed to make a u-turn within the construction area and exit the site via the northern gate. Construction vehicles would then travel northwards along the Moorebank Avenue diversion road and Moorebank Avenue towards the M5 Motorway.

Construction vehicle movements within the Moorebank Avenue site would follow the procedures outlined in the Construction Traffic Management Plan (CTMP) (refer to Appendix K of the EIS). The estimated construction traffic movements (includes ingress and egress from the site, i.e. includes both trips) associated with the Moorebank Avenue are presented in Section 7 and Appendix K of the EIS.

Traffic movements along Moorebank Avenue diversion road during construction

To facilitate the Moorebank Avenue upgrade, the Moorebank Avenue diversion road would be constructed within the MPW site (refer to Figure 4-1) to maintain traffic movements along Moorebank Avenue. It is envisaged that construction within the Moorebank Avenue site would comprise five key stages:

- Construction of the Moorebank Avenue diversion road, temporary intersections and traffic management infrastructure
- Switching of traffic from the existing Moorebank Avenue to the Moorebank Avenue diversion road
- Construction of the Moorebank Avenue upgrade
- Switching of traffic from the Moorebank Avenue diversion road to the upgraded Moorebank Avenue
- Decommissioning and rehabilitation (where required) of the Moorebank Avenue diversion road.

Throughout construction of the Moorebank Avenue upgrade, the temporary intersections to be constructed would provide the same turning movements and accessibility to the MPE and MPW sites as the existing intersections along Moorebank Avenue.

There is the potential that the Moorebank Avenue upgrade may be completed in a number of stages, which would also result in a series of staged traffic switches. Staged construction of the Moorebank Avenue upgrade would be investigated further during the detailed design stage of the Proposal.

During construction, a construction zone speed limit of 40 kilometres per hour would apply along the Moorebank Avenue diversion road. Impacts of the Proposal on road network performance are described further in Section 7 (Traffic and transport) and Appendix K of the EIS **and Section 7 and Appendix C of this RtS.**

4.3.9 Construction compounds

Temporary construction compounds would be required to support construction of the Proposal. The locations of these compounds are indicative and subject to confirmation by the construction contractor, once appointed.

It is envisaged that construction of the Proposal would require the use of two main construction compounds:

- The Warehousing Compound, within the MPE Stage 2 site
- The Moorebank Avenue Compound, within the MPW site and immediately west of Moorebank Avenue.

The location and indicative layout of the construction compounds are shown in Figure 4-8.

Construction compound and stockpile sites would be temporary in nature and removed / decommissioned at the completion of construction. Residual land where the construction compounds are not situated within the footprint of the operational area would be rehabilitated upon completion of the works to the pre-construction standard or as otherwise agreed with the relevant landowner.

In the event that other compounds are required, the following site selection criteria would be applied to their location:

- Access to the local road network.
- Relatively level land.
- Greater than 40 m from a watercourse.
- Greater than 20 m from threatened species and endangered ecological communities.
- Greater than 100 m from a residential dwelling.
- No requirement to remove any native vegetation beyond that otherwise being undertaken for the proposal.
- No requirement to undertake any significant ground disturbing works.
- No direct impact on any heritage items (Indigenous or non-Indigenous).
- Not unreasonably affect the land use of adjacent properties.

Consideration to each of the above factors would be undertaken prior to the establishment of any additional construction compound or stockpiles for the purpose of the Proposal.

Warehousing Compound

The main construction compound for the Proposal (herein referred to as the Warehousing Compound) would be located within land proposed to be used as the Stage 1 Proposal's main IMT compound on the MPE Stage 2 site (refer to Figure 4-8).

It is expected that some additional satellite compounds would be required during the construction of each individual warehouse on the Proposal site; however, the Warehousing Compound would be used for the majority of construction works.

The Warehousing Compound would include:

- A site office(s)
- Staff amenities
- Car parking
- Storage and laydown areas
- Materials testing facilities
- Material crushing facilities
- A concrete batching plant.

The indicative layout of the Warehousing Compound is shown on Figure 4-8.

Concrete batching plant

A concrete batching plant would be located within the Warehousing Compound during construction. For the purposes of this environmental assessment, the concrete batching plant has been assumed to be located within the southernmost extent of the Warehousing Compound (refer to Figure 4-8), however this is subject to confirmation from the construction contractor.

Materials crushing

Materials crushing facilities would also be located within the Warehousing Compound during construction. Similar to the concrete batching plant, for the purposes of this environmental assessment, the materials crushing equipment required for construction of the proposal has been assumed to be located immediately north of the concrete batching plant at the southernmost extent of the Warehousing Compound (refer to Figure 4-8); however, this is subject to confirmation from the construction contractor.

Car parking

At the commencement of construction, car parking for construction personnel would be provided within the Warehousing Compound (refer Figure 4-8). Car parking facilities would be accessed and egressed via the MPE site access and a construction compound access road and gate.

Moorebank Avenue Compound

The Moorebank Avenue Compound would be located on the western side of Moorebank Avenue, in an existing area of hardstand within the MPW site. This area was previously used as a staff car park and as such, is characterised by large areas of level paved / hardstand surfaces and narrow garden beds that support a small number of trees.

The Moorebank Avenue Compound would include, site offices, car parking, and equipment storage and laydown areas, with some materials such as pre-cast culverts being temporarily stored within the compound area on occasion. The entrance to this compound would be generally at the location of the existing intersection off Moorebank Avenue, from within the Moorebank Avenue site.

The indicative location of the Moorebank Avenue Compound is shown on Figure 4-8.

4.3.10 Environmental Works Method Statement

An Environmental Works Method Statement (EWMS) has been prepared by Arcadis (Appendix I of this RtS). The purpose of this EWMS is to provide environmental management controls to facilitate for, and guide, the works to be undertaken as part of pre-construction (Works period A) for the Proposal. This EWMS would be implemented prior to pre-construction works being undertaken for the Proposal.

4.3.11 Construction Environmental Management Plan

A Preliminary Construction Environmental Management Plan (PCEMP) has been prepared for the Proposal (refer to Appendix G of the EIS). The purpose of this PCEMP is to provide the preliminary overarching framework for the management of all potential environmental impacts resulting from construction activities.

A number of other preliminary construction related management plans have also been prepared for the Proposal, including:

- Preliminary Construction Traffic Management Plan (Appendix K of the EIS)
- Air Quality Management Plan (Appendix M of the EIS)
- Preliminary Erosion and Sediment Control Plan (Appendix P of the EIS)
- Bulk Earthworks Plan (Appendix P of the EIS)

This PCEMP and these management plans would form the basis of the Construction Environmental Management Plan (CEMP) and associated plans to be prepared for the Proposal, prior to construction.

4.4 Operation

4.4.1 Warehousing

Heavy and light vehicles would access the warehouses via the main site access off Moorebank Avenue, as detailed in Section 4.2.3 of the EIS. Light vehicles would park in the allocated parking area adjacent to each warehouse, and heavy vehicles would progress to the truck loading/unloading areas alongside each warehouse. Once in location these trucks would be loaded/unloaded via manual handling equipment. Once loaded the trucks would then be distributed to markets via the nearby major road network or transported directly to the IMT facility for dispatch via port shuttles to a Sydney-based port (e.g. Port Botany).

The extent of dangerous goods to be handled in warehouses, and the associated hazard and risk assessment is discussed in the Section 14 of the EIS.

Use

Approval is sought for the use of individual warehouses by future tenants. Detailed information relating to use of the warehouses is provided throughout the EIS, namely:

- Internal layout – refer to Section 4.2.1 of the EIS
- Operational workforce – refer to Section 4.4.3 of the EIS
- Hours of operation - refer to Section 4.4.3 of the EIS
- Access and car parking – refer to Sections 4.2.3 of the EIS
- Signage – refer to Section 4.2.5 of the EIS.

Individual tenants would be confirmed post-approval, however their operation would be consistent with the details provided in the EIS (refer to comments above) and described in more detail in the Operational Environmental Management Plan (OEMP) for the Proposal.

4.4.2 Freight village

Vehicles would access the freight village via the main site access off Moorebank Avenue and the internal road network. Light vehicles would access and egress the area directly via the allocated parking area within the freight village.

Use

Approval is sought for the use of the freight village by future tenants. Detailed information relating to use of the precinct amenities area is provided throughout the EIS, namely:

- Internal layout – refer to Section 4.2.2 of the EIS
- Operational workforce – refer to Section 4.4.3 of the EIS
- Hours of operation - refer to Section 4.4.3 of the EIS
- Access and car parking – refer to Sections 4.2.3 of the EIS
- Signage – refer to Section 4.2.5 of the EIS.

Individual tenants would be confirmed post-approval, however their operation would be consistent with the details provided in the EIS and described in more detail in the Operational Environmental Management Plan (OEMP) for the Proposal.

Any food premises located within the freight village would be constructed and operated to meet Australian Standards (as relevant), including:

- AS 4674-2004: Construction and fit out of food premises
- AS 4322-1995: Quality and performance of commercial electrical appliances - Hot food storage and display equipment
- AS ISO 22000—2005: Food safety management systems—Requirements for any organisation in the food chain.

In addition, operations for food premises within the freight village would comply with the Australia New Zealand Food Standards Code.

4.4.3 Operational workforce and hours

The operational workforce for the Proposal would comprise of approximately 1,408 full time equivalent staff, who would work in three shifts. The Proposal would operate 24 hours per day and seven days per week, which would allow for an increased number of freight related movements to occur outside of peak traffic periods.

The operational hours of the freight village would be 7am to 6pm, five to seven days per week, and there would be a total of 25 staff members during operation. Traffic movements, access and parking

Road traffic

As described in Section 4.2.3, heavy vehicles would access and egress the MPE Stage 2 site via the new site access off Moorebank Avenue. Cars would also access the MPE Stage 2 site via the main access off Moorebank Avenue. Car parking spaces would be available on-site for the operational workforce and visitors.

In addition, internal roads within the site would enable heavy and light vehicle movements around the warehousing area. Car parking would also be provided for each warehouse at a ratio of 1:300 per GFA of warehousing and 1:40 per GFA for offices. Car parking spaces would be calculated based on projected staffing numbers for warehouses, and would take into account overlap for change of shift.

A summary of the truck and car numbers for the operation of the Proposal are provided in Table 4-12. The potential traffic and transport impacts associated with the operational truck and car movements are detailed further in Section 7 and Appendix K of the EIS **and as amended in Section 7 and Appendix C of this RtS.**

Table 4-12 Operational truck and car movements

Trip type		Vehicle movements per day (2-way round trip)		
		External (i.e. using the external road network)	Internal (i.e. movement within the MPE Stage 2 site only)	Total
Truck movements	External truck trips via external road network	564	582	1,146
Car movements	Warehouses/freight village	3,872	N/A 3,992*	3,872

The following daily traffic volumes (2-way round trip) have been forecast in 2019 (i.e. year of opening) at the following locations along internal road 1:

- **Next to warehouse 1 (this location would service both external and internal movements): 3,992.**
- **Next to warehouse 3: 2,685.**
- **Next to warehouse 6: 1,354.**

4.5 Site security

The Proposal includes a number of on-site security measures to provide for the protection and safety of the Proposal site, its employees and authorised visitors. Security at the Proposal site would include:

- Fencing around the perimeter of the Proposal site, which is envisaged to include palisade fencing and chain-link fencing along the Moorebank Avenue boundary and chain-link at other locations (refer to Section 4.2.5 of this RtS)
- A closed-circuit television (CCTV) security system at key locations including site entrances and along boundaries
- An integrated telecommunications system which involves connection to all main buildings and structures.

4.6 Operational Environmental Management Plan

An Operational Environmental Management Plan (OEMP) would be prepared to provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the Proposal.

A number of operational related management plans have been prepared for the Proposal, including:

- Preliminary Operational Traffic Management Plan prepared by Arcadis (refer to Appendix K of the EIS)
- Air Quality Management Plan (refer to Appendix M of the EIS)
- Stormwater and Drainage Design Drawings (refer to Appendix P of the EIS **and Appendix F of this RtS**).

These management plans, along with others, would form the basis of the OEMP to be prepared for the Proposal, prior to operation.

This Proposal also seeks approval for ongoing maintenance which would be undertaken periodically throughout operations.

Maintenance would include, but not be limited to:

- Pavements: Ongoing surface and joint repair depending on the pavement type, with subgrade repair where necessary
- Stormwater: Regular sediment and pollutant clean out and repairs to drainage infrastructure, including six monthly maintenance of gross pollutant traps (GPTs)
- **Vegetation: Ongoing vegetation management and weed control**
- Electrical and Communications equipment: Ongoing maintenance and replacement where necessary. Equipment includes light poles, distribution boards, CCTV, boom gates, card readers etc.
- Line marking and other ancillary road furniture: Line marks would be re-lined and road furniture repaired or replaced as necessary
- Fencing and gates: Ongoing fence and gate repair
- Warehouses: Ongoing infrastructure and plant/equipment repair and replacement as necessary

Relevant activities and management measures would be detailed in the OEMP.

Attachment D

Attachment C - response to the issues raised by TfNSW in “Notice of Exhibition – Moorebank Precinct East (MPE): Stage 2 Application SSD 7628”

Aspect	Issue	Response	Reference
Letter			
Cumulative traffic assessment	The proponent has indicated that it is yet to finalise the cumulative assessment of the subject application and will provide a draft response to TfNSW in July 2017 (noting that this month has now passed). The need for a cumulative assessment and agreed mitigation framework has been a consistent theme of TfNSW representations as recognised by the Planning Assessment Commission (PAC).	<p>An assessment of the cumulative traffic impacts of the MPE Stage 2 Proposal was included in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS. No additional cumulative traffic assessment for the construction and/ or operation of the Proposal is required, relevant to Stage 2 of the MPE Project.</p> <p>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling and an agreed mitigation framework relating to broader road network impacts are ongoing. Notwithstanding this, these are separate to the MPE Stage 2 approval process and therefore not relevant to assessment of the MPE Stage 2 Proposal (SSD 7628).</p> <p>Although related to the whole-of-precinct modelling, the traffic and transport assessment of the MPE Stage 2 Proposal, as presented in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS are relevant to the impacts of Stage 2 of the MPE Project and is not dependent on the abovementioned whole-of-precinct modelling.</p>	<p>Section 7 and Appendix K of the MPE Stage 2 EIS.</p> <p>Section 7 and Appendix C of the MPE Stage 2 RtS.</p>
Operational traffic impacts	Analysis by the proponent in Sections 3.3 and 5.7 of the Operational Traffic and Transport Impact Assessment found that the broader road network in the study area would need to be upgraded to cater for the forecast traffic increases from the proposed development and general background growth. Despite this, the proponent is not proposing any mitigation works beyond those along Moorebank Avenue, referring to the broader contributions being determined once the ultimate development cumulative assessment is completed.	<p>As described in Section 7 and Appendix K of the EIS, in determining the intersection improvements required to mitigate the impact of Proposal traffic, a “no-worsening of without Proposal traffic” approach was adopted. This approach identified improvements directly attributable to the Proposal i.e. not due to growth in background traffic. This was also consistently applied to the updated cumulative traffic assessment undertaken as part of the MPE Stage 2 RtS.</p> <p>Section 7.4.2 of the MPE Stage 2 EIS noted that with the implementation of assumed network upgrades, intersection performance at all key intersections near the Proposal modelled as part of this assessment in 2029 during the PM peak would operate at an acceptable LoS, with the exception of the M5 Motorway / Heathcote Road intersection, which would continue to operate at a LoS F, although the average delay would be reduced.</p>	<p>Section 7 and Appendix K of the EIS.</p> <p>Section 7 and Appendix C of the MPE Stage 2 RtS</p>

Aspect	Issue	Response	Reference
		<p>Although this intersection would operate at a LoS F, its performance is no worse than the performance expected in 2029 without the operation of the Proposal in the AM Peak, and is, therefore, considered acceptable in the context of impacts as a result of the MPE Stage 2 Proposal. No nearby intersections would require upgrading to cater for traffic as a result of the MPE Stage 2 Proposal.</p> <p>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling and an agreed mitigation framework relating to broader road network impacts are ongoing. Notwithstanding this, these are separate to the MPE Stage 2 approval process and therefore not relevant to assessment of the MPE Stage 2 Proposal (SSD 7628).</p>	
Cumulative impacts, mitigation framework and deferred commencement.	Without the proponent's assessment of cumulative impacts and agreement of a mitigation framework, TfNSW could only conditionally support the application. The condition requested is a deferred commencement of any approval granted to Stage 2 construction until such time as the proponent has finalised the cumulative development modelling assessment. This includes agreement from TfNSW on the mitigation measures and staging triggers associated with the cumulative development modelling assessment.	<p>An assessment of the cumulative traffic impacts of the MPE Stage 2 Proposal was included in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS. No additional cumulative traffic assessment for the construction and/ or operation of the Proposal is required, relevant to Stage 2 of the MPE Project.</p> <p>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling and an agreed mitigation framework relating to broader road network impacts are ongoing. Notwithstanding this, these are separate to the MPE Stage 2 approval process and therefore not relevant to assessment of the MPE Stage 2 Proposal (SSD 7628).</p> <p>Although related to the whole-of-precinct modelling, the traffic and transport assessment of the MPE Stage 2 Proposal, as presented in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS are relevant to the impacts of Stage 2 of the MPE Project and is not dependent on the abovementioned whole-of-precinct modelling.</p> <p>As all information relating to the traffic impacts associated with this MPE Stage 2 Proposal has been provided, the need for deferred commencement is not considered necessary.</p>	<p>Section 7 and Appendix K of the MPE Stage 2 EIS</p> <p>Section 7 and Appendix C of the MPE Stage 2 RtS.</p>

Aspect	Issue	Response	Reference
Deferred commencement	<p>The deferred commencement condition requested should require the proponent to address the following to TfNSW satisfaction:</p> <ul style="list-style-type: none"> 1. Finalise an agreement for State Road Network mitigation for the cumulative impacts associated with the current stages, prior to Stage 2 construction on the site. 2. Address the matters identified in Annexure A of this letter. 3. Suggested standard conditions of consent are in Annexure B of this letter 	<p>In summary, SIMTA's response is as follows:</p> <ol style="list-style-type: none"> 1. Discussions between SIMTA and Transport for NSW (inclusive of Roads and Maritime) are ongoing with regards to mitigation for the whole of precinct cumulative impacts. As mentioned above, as no nearby intersections would require upgrading to cater for traffic as a result of the MPE Stage 2 Proposal, deferred commencement until an agreement for State Road Network mitigation is not considered necessary. Further, it is anticipated that an agreement would be made between SIMTA and Roads and Maritime for the Moorebank Avenue upgrade proposed within the MPE Stage 2 Proposal, prior to construction of this upgrade. 2. The matters identified in Annexure A have been addressed below. 3. Suggested standard conditions have been reviewed in light of the information provided throughout the EIS and RtS process. Amendments to the suggested conditions have been proposed in the relevant sections of this table. 	This table
Annexure A – Summary of TfNSW issues			
Cumulative assessment	Noting the proponent's cumulative assessment is still in progress, TfNSW has considered the impacts relating solely to the Stage 2 Development Application and raise the following issues to be addressed by the proponent	Noted. It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling and an agreed mitigation framework relating to broader road network impacts are ongoing. Notwithstanding this, these are separate to the MPW Stage 2 approval process and therefore not relevant to assessment of the MPW Stage 2 Proposal (SSD 7628).	N/A

Aspect	Issue	Response	Reference
Traffic modelling	<ul style="list-style-type: none"> The proponent is requested to provide all traffic modelling in support of the application for TfNSW review. 	<p>Traffic modelling relevant to the environmental assessment of the MPE Stage 2 Proposal (EIS) has been provided to Roads and Maritime in mid-March 2017. Additional operational traffic modelling was also discussed in the RtS, with modelling provided to Roads and Maritime in early September 2017. No traffic modelling relevant to the assessment of the MPE Stage 2 Proposal is currently outstanding.</p> <p>It is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling and an agreed mitigation framework relating to broader road network impacts are ongoing. However, although related to the whole-of-precinct modelling, the traffic and transport assessment of the MPE Stage 2 Proposal, as presented in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS are relevant to the impacts of Stage 2 of the MPE Project and is not dependent on the abovementioned whole-of-precinct modelling.</p>	Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS
Construction and operational traffic data	<ul style="list-style-type: none"> The proponent is requested to develop a simplified table detailing the key assumptions for each construction and operational stage, along with likely accumulative trip generation. The figures should take into account and include an updated delivery schedule aligned with the trip generation numbers of the approved and proposed development applications for both the MPE and MPW sites. <p>A summary table was submitted by the proponent on 16 June 2017 for review by TfNSW. The summary table indicates that the anticipated cumulative trip generation for the MPE and MPW concept plan approvals (MP10_0193 and SSD 5066 respectively) are 9,337 light vehicle movements and 10,798 heavy vehicles movements per day (2 way). The predicted cumulative trip generation for the Stage 1 and 2 MPE applications and Stage 2 MPW application is 6,808 light vehicle movements and 2,540 heavy vehicles movements per day (2 way).</p> <p>If the applicant seeks future approval for additional warehousing the predicted cumulative trip generation is 11,128 light vehicle movements and 4,978 heavy vehicles movements per day (2 way). It is not clear how</p>	<p>The key assumptions for each construction and operational stage, as well as cumulative trip generation has been provided in Attachment C(ii) of this letter. This information was previously provided in Response to Submissions report which included a response to the TfNSW submission that originally requested this information in June 2017, received following the EIS exhibition that closed in February 2017. The Response to Submission Report was submitted to DPE on 31 July 2017.</p> <p>The approval of additional warehousing above that included in the current Proposals and Concept Approvals is not relevant to the assessment of this Proposal. Nevertheless, one of the strategic benefits of the Moorebank Precinct is in the collocation of the warehousing and intermodal facilities in one precinct. This allows for one link of the freight supply chain to be internalised to the Development's internal road network, thus reducing the trips required on the external road network. The differences in trip generation numbers is not a reduction in overall trips for the operation of the Development, but is instead a reduction in the overall external road network trips, with the remaining trips being internalised to the Precinct's privately owned and operated road network.</p>	Attachment C(ii) of this letter

Aspect	Issue	Response	Reference
	250,000sqm of additional warehousing would reduce external heavy vehicle trips, and thus reducing heavy vehicle movements by 5,820 when compared to the cumulative trip generation for the MPE and MPW concept plan approvals.		
Traffic generation information for the proposed retail, commercial and light industrial land uses	<ul style="list-style-type: none"> Section 5.1 and Appendix B of the Operational Traffic and Transport Impact Assessment report provides trip generation assumptions for the warehouse and intermodal terminal components. However the applicant has not provided traffic generation information for the proposed retail, commercial and light industrial land uses. The applicant is requested to provide additional information regarding the trip generation and traffic distribution for the retail, commercial and light industrial components and should include these in the cumulative assessment. 	<p>Section 4.1 of the MPE Stage 2 RtS provided a response to the issues raised regarding the MPE Stage 2 EIS by TfNSW in their <i>Notice of Exhibition — Joint Exhibition of Four (4) State Significant Development Applications (SSDA)</i> letter, dated 10 June 2017. The following information was provided in the MPE Stage 2 RtS in relation to traffic generation from the freight village:</p> <p><i>The traffic generation rates used to undertake the traffic analysis has been based on previous traffic surveys undertaken by Parsons Brinckerhoff (PB) at industrial estates in Erskine Park and Eastern Creek which contain comparable retail/ commercial components, as well as light industrial land uses (Analysis of warehouse traffic surveys (Parsons Brinckerhoff, January 2016 (ref: 2189293E-ITP-MEM-Surveys-Updated)).</i></p> <p><i>As such, the traffic generation rates have included consideration of the land uses of the freight village (refer to Appendix B of the MPE Stage 2 Operational Traffic and Transport Impact Assessment (OTTIA), Appendix K of the MPE Stage 2 EIS).</i></p> <p>As such, no additional traffic modelling is required.</p>	Section 4.1 of the MPE Stage 2 RtS Appendix B of the MPE Stage 2 Operational Traffic and Transport Impact Assessment (OTTIA), Appendix K of the MPE Stage 2 EIS
Operational traffic impact assessment results	<ul style="list-style-type: none"> Table 5-6 of the Operational Traffic and Transport Impact Assessment report provides intersection analysis results with and without the proposal in 2019. The do-minimum scenario indicated that delays on the state road network for intersections I-2, I-3, I-4, I-6, and I-8 are expected to be less for the AM and PM peaks 'with the Proposal' than 'without the Proposal'. Given that the same intersection layout was modelled, the applicant is requested to clarify how the intersections perform better with the Proposal than without. 	<p>In the assessment of the operational traffic impacts of the MPE Stage 2 Proposal (Appendix L of the MPE Stage 2 EIS), AIMSUN modelling software was used to determine the intersection performance (i.e. delay and LoS).</p> <p>The AIMSUN model took into consideration dynamic traffic assignment and network wide impacts in response to network congestion and traffic changes. The road network congestion was different under those two scenarios (with and without the Proposal), which resulted in different traffic assignment and distribution at certain parts of the road network. Therefore, the performance of intersections could vary (improve or worsen) according to the road network congestion changes. For example, more traffic demand (with the Proposal) could cause heavier traffic congestion at one part of the road network and less traffic</p>	Appendix L of the MPE Stage 2 EIS

Aspect	Issue	Response	Reference
		<p>travelling through at another part of the road network resulting in intersection performance improvement.</p> <p>The intersection result differences between the scenarios (with and without the Proposal) in Table 5-6 is generally considered minor due to the nature of dynamic traffic modelling. To understand the full traffic impact of the scenario, the performance of all intersections and the full network statistics should be considered.</p>	
Operational traffic impact assessment results	<ul style="list-style-type: none"> Table 5-7 of the Operational Traffic and Transport Impact Assessment report provides intersection analysis results with and without the proposal in 2029. The do-minimum scenario indicated that delays on the state road network for intersections I-2, I-3, I-4, I-6, and I-8 are expected to be less for the AM and PM peaks 'with the Proposal' than 'without the Proposal'. Given that the same intersection layout was modelled, the applicant is requested to clarify how the state road network is expected to perform better with the Proposal than without at these intersections. 	<p>In the assessment of the operational traffic impacts of the MPE Stage 2 Proposal (refer to Appendix L of the MPE Stage 2 EIS), the AIMSUN modelling software was used to determine the intersection performance (i.e. delay and LoS).</p> <p>The AIMSUN models took into consideration of dynamic traffic assignment and network wide impacts in response to network congestion and traffic changes. The road network congestion was different under those two scenarios (with and without the Proposal), which resulted in different traffic assignment and distribution at certain parts of the road network. Therefore, the performance of intersections could vary (improve or worsen) according to the road network congestion changes. For example, more traffic demand (with the Proposal) could cause heavier traffic congestion at one part of the road network and less traffic travelling through at another part of the road network resulting in intersection performance improvement.</p> <p>The intersection result differences between the scenarios (with and without Proposal) in Table 5-7 is generally considered minor due to the nature of dynamic traffic modelling. To understand the full traffic impact of the scenario, the performance of all intersections and the full network statistics should be considered.</p>	Appendix L of the MPE Stage 2 EIS
Additional information – Moorebank Avenue upgrade	Section 1.8 of the Operational Traffic and Transport Impact Assessment report states that Moorebank Avenue would be upgraded for 1.4km, commencing from approximately 95m south of the northern boundary of the MPE site to approximately 120m south of the southern MPE site boundary. A preliminary layout of the proposed Moorebank Avenue upgrade has been provided in Appendix D of the Operational	Section 6 of the MPE Stage 2 RtS includes an amendment to the extent of works proposed for Moorebank Avenue (refer to Section 6 of the MPE Stage 2 RtS). The Moorebank Avenue upgrade is proposed to approximately 1.5 kilometres of Moorebank Avenue from approximately 35 metres south of the northern boundary of the MPE site to approximately 185 metres south of the southern MPE site boundary. A detailed impact assessment for these works	Sections 6 and 7 of the MPE Stage 2 RtS

Aspect	Issue	Response	Reference
	Traffic and Transport Impact Assessment report, however further details are requested regarding the following:	from both a construction and operational traffic impact assessment has been provided in Section 7 of the MPE Stage 2 RtS.	
Lane configuration – Moorebank Avenue Upgrade	i. Lane configurations – how will the proposed lane widening works affect existing signalised intersections and approved construction access arrangements for MPE Stage 1 and MPW Concept Plan and Early Works applications.	<p>The temporary Moorebank Avenue diversion road would maintain access to existing intersections along Moorebank Avenue required for construction of the MPE Stage 1 Project and MPW Stage 2 Proposal. The MPW Early Works phase of the MPW Project would be complete prior to the commencement of construction, and access to facilitate this component of works within the Moorebank Precinct is not required. Access to construction intersections for the MPE Stage 1 Project, MPW Stage 2 Proposal and the Proposal would be maintained throughout construction.</p> <p>Throughout construction of the Moorebank Avenue upgrade, the temporary intersections to be constructed would provide the same turning movements and accessibility to the MPE and MPW sites as the existing intersections along Moorebank Avenue.</p> <p>There is the potential that the Moorebank Avenue upgrade may be completed in a number of stages, which would also result in a series of staged traffic switches. Staged construction of the Moorebank Avenue upgrade would be investigated further during the detailed design stage of the MPE Stage 2 Proposal. Preliminary indicative construction staging of the Moorebank Avenue upgrade has been provided as Attachment C(iii). A description of the indicative construction stages are also included in Attachment C(iii).</p> <p>This indicative staging is one potential method for how the construction of the Moorebank Avenue upgrade could be staged. It is anticipated that the construction contractor (once appointed), may potentially identify alternative staging for the construction of the Moorebank Avenue upgrade which may alter from the staging plans provided in Attachment C(iii); however, any alternative construction staging would be included in the final Construction Traffic Management Plan, and would be subject to additional construction traffic modelling to demonstrate that the construction methodology would have the same or improved traffic performance and is able to maintain access and two lanes throughout the entire duration of construction of the Moorebank Avenue Upgrade.</p>	Attachment C(iii) of this letter

Aspect	Issue	Response	Reference
Intersection upgrades – Moorebank Avenue upgrade	ii. Intersection upgrades – the proponent should provide details of traffic signal plans and staging details for the four intersections that are going to be upgraded.	<p>MPE Stage 2 Indicative Preliminary Road Upgrade Staging Plans have been provided at Attachment C(iii) of this letter, and provide additional construction information for the Moorebank Avenue upgrade works.</p> <p>Temporary and/ or permanent signal locations are also shown in the Preliminary Road Upgrade Staging Plans at Attachment C(iii) of this letter.</p> <p>This indicative staging is one potential method for how the construction of the Moorebank Avenue upgrade could be staged. It is anticipated that the construction contractor (once appointed), may potentially identify alternative staging for the construction of the Moorebank Avenue upgrade which may alter from the Preliminary Road Upgrade Staging plans provided in Attachment C(iii); however, any alternative construction staging would be included in the final Construction Traffic Management Plan.</p>	Attachment C(iii) of this letter
Road alignment – Moorebank Avenue upgrade	iii. Road alignment – further details regarding the proposed change in level of Moorebank Avenue by up to 2 metres is required, including but not limited to; cross-sections, verge treatment, hydrology and stormwater management, service impacts, boundary levels and tie-ins. Staging plans will need to demonstrate how 2 lanes of traffic will be maintained along Moorebank Avenue, whilst the road is raised by 2 metres.	<p>Attachment E of the Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter, issued to DPE on 11 September 2017 included cross sections, showing the proposed levels across MPE Stage 1, MPE Stage 2, MPW Stage 2 and Moorebank Avenue. This information has been extracted from this previous submission and provided as Attachment C(iv) of this letter.</p> <p>Details regarding drainage along Moorebank Avenue were provided as part of the MPE Stage 2 RtS in Appendix E. This information has been extracted from this previous submission and provided as Attachment C(v) of this letter.</p> <p>Impacts to services along the Moorebank Avenue upgrade footprint were detailed in the Utilities Strategy Report, at Appendix F of the MPE Stage 2 EIS.</p> <p>Tie-in locations at the northernmost and southernmost extent of the Moorebank Avenue upgrade are shown on the revised Civil and Drainage Design Drawings, at Appendix E of the MPE Stage 2 RtS.</p> <p>Further detailed design development as the project progresses would provide additional, updated information regarding verge</p>	<p>Appendix F of the MPE Stage 2 EIS</p> <p>Appendix E of the MPE Stage 2 RtS</p> <p>Attachment C(iv) and Attachment C(v) of this letter</p>

Aspect	Issue	Response	Reference
		treatments, boundary levels and tie-ins and the overall design of the Moorebank Avenue upgrade.	
Traffic impact mitigation	iv. Traffic impact mitigation – how will traffic impacts associated with the proposed works along Moorebank Avenue be mitigated for all key project phases of the Moorebank Intermodal development.	<p>Traffic impacts associated with the Moorebank Avenue upgrade as part of the MPE Stage 2 Proposal would be mitigated through the implementation of the revised mitigation measures, as included in Section 8 of the MPE Stage 2 RtS, in particular, mitigation measure 1A:</p> <p>A Construction Traffic Management Plan (CTMP) would be prepared, based on the PCTMP prepared as part of the EIS (refer to Appendix K of the EIS). The CTMP would detail the management controls to be implemented to avoid, minimise and mitigate impacts of construction of the Amended Proposal to traffic performance on the surrounding road network, pedestrian and cyclist access, and the amenity of the surrounding environment and would include the following key initiatives:</p> <ul style="list-style-type: none"> • Review of speed restrictions along Moorebank Avenue and additional signposting of speed limitations to reinforce reduced speed limits during construction of the Amended Proposal • Restriction of haulage routes through signage and education to ensure, where possible, that construction vehicles do not travel through nearby residential areas to access the Amended construction area, in particular Moorebank (Anzac Road) or the Wattle Grove residential areas • Inform local residents (in conjunction with the Community Information and Awareness Strategy) of the proposed construction activities and road access restrictions that the construction traffic must adhere to and establish communication protocols for community feedback on issues relating to construction vehicle driver behaviour and construction related matters • Installation of specific warning signs on approach to, and at entrances to, the construction site to warn existing road users of entering and exiting construction traffic • Establishing pedestrian exclusion zones and walking routes/crossing points which integrate within the existing pedestrian network 	<p>Section 8 of the MPE Stage 2 RtS.</p> <p>Appendix K of the MPE Stage 2 EIS</p>

Aspect	Issue	Response	Reference
		<ul style="list-style-type: none"> • Distribution of day warning notices to advise local road users of scheduled construction activities and associated traffic movements. • Installation of appropriate traffic controls and warning signs for areas identified where potential safety risk issues exist • The promotion of car-pooling for construction staff and other shared transport initiatives during the construction phase • Management and coordination of the transportation of materials to maximise vehicle loads and therefore minimise vehicle movements • Monitoring of traffic on Moorebank Avenue during peak periods to ensure that queuing at intersections does not impact on other road users • Reducing, where reasonable and feasible, the volumes of construction vehicles travelling during peak periods, especially if the increase in traffic generated by construction activities impedes on the operation of Moorebank Avenue. 	

Annexure B – Standard Conditions			
	<p>i) The construction of new or modification to existing traffic lights along Moorebank Avenue will require consent from Roads and Maritime under Section 87 of the <i>Roads Act, 1993</i>. Proposed traffic control light and/or modifications shall be designed to meet Roads and Maritime requirements prior to the commencement of construction works.</p> <p>The Traffic Control Signal (TCS) plans shall be drawn by a suitably qualified person and endorsed by a suitably qualified practitioner. The submitted designs shall be in accordance with Austroads Guide to Road Design in association with relevant Roads and Maritime supplements (available on www.rms.nsw.gov.au). The certified copies of the signal/civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to the release of a Construction Certificate by the Principal Certifying Authority and commencement of road works.</p>	<p>The following amendments (with additions bold and underlined and deletions bold underlined and struck through) to the Recommended condition of approval are proposed by SIMTA:</p> <p>i. The construction of new or modification to existing traffic lights along Moorebank Avenue will require consent from Roads and Maritime under Section 87 of the Roads Act, 1993. Proposed traffic control light and/or modifications shall be designed to meet Roads and Maritime requirements prior to the commencement of construction works.</p> <p>The Traffic Control Signal (TCS) plans shall be drawn by a suitably qualified person and endorsed by a suitably qualified practitioner. The submitted designs shall be in accordance with Austroads Guide to Road Design in association with relevant Roads and Maritime supplements (available on www.rms.nsw.gov.au). The certified copies of the civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to the release of the</p>	N/A

Aspect	Issue	Response	Reference
	<p>Roads and Maritime fees for administration, plan checking, civil works inspections and project management shall be paid by the developer prior to the commencement of works.</p> <p>The proponent will be required to enter into a Works Authorisation Deed (WAD) for the abovementioned works. Please note that the WAD will need to be executed prior to Roads and Maritime assessment of the detailed signal/civil design plans.</p>	<p><u>Construction Certificate by the Principal Certifying Authority and the commencement of road works for the Moorebank Avenue Upgrade.</u></p> <p>Roads and Maritime fees for administration, plan checking, civil works inspections and project management shall be paid by the developer prior to the commencement of works.</p>	
	<p>ii) The proponent may be required to dedicate land or provide an easement for the maintenance of the traffic control lights. Further details will be included in the WAD process.</p>	<p>The specific location for permanent traffic signals for the Moorebank Avenue upgrade and associated intersection has yet to be determined. Should these signals be located on land included within the Moorebank Precinct, SIMTA would facilitate for suitable access arrangements to be provided to Roads and Maritime Services for maintenance. These access arrangements would be discussed as part of the WAD process however neither a dedication of land or easements are considered necessary and inconsistent with the current arrangement for access to existing signalling within the Moorebank Precinct (on Moorebank Avenue, south of Anzac Road).</p> <p>SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	N/A
	<p>iii) The proposed road upgrade, road raising and widening works by the proponent along Moorebank Avenue shall be designed to meet Roads and Maritime requirements, and endorsed by a suitably qualified practitioner. The design requirements shall be in accordance with AUSTROADS and other Australian Codes of Practice. The certified copies of the civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to the release of the Construction Certificate by the Principal Certifying Authority and commencement of road works.</p>	<p>The Moorebank Avenue upgrade works are only one aspect of the MPE Stage 2 Proposal, with other works to be undertaken on the Proposal site that do not specifically relate to this upgrade. As indicated within the traffic impact assessment (Section 3.6, Appendix K of the MPE Stage 2 EIS) access to the Proposal site during construction would be initially (Works period A and B) from the existing Moorebank Avenue (existing MPE warehousing entrance). The Moorebank Avenue diversion road (Works periods C-E) and Moorebank Avenue upgrade (Works periods F and G) would be utilised in later stages of construction.</p> <p>In particular, access to the Proposal site, during the initial stages of construction, would be via the existing MPE warehouse entrance which would not result in unreasonable traffic impacts on the surrounding road network. As a result, it is considered suitable that this intersection could function for the construction of the Proposal prior to the Moorebank Avenue upgrade design being approved by Roads and Maritime. As a result, it is not considered</p>	Section 3.6, Appendix K of the MPE Stage 2 EIS

Aspect	Issue	Response	Reference
		<p>appropriate that the release of the Construction Certificate, which is broadly applicable to all of the Proposal, be linked to the Moorebank Avenue upgrade, when an initial entrance could be utilised for construction access</p> <p>In consideration of the above, the following amendments (with additions bold and underlined and deletions bold underlined and struck through) should be made to the Recommended condition of approval:</p> <p>The proposed road upgrade, road raising and widening works by the proponent <u>for the Moorebank Avenue upgrade and associated intersections along Moorebank Avenue</u> shall be designed to meet Roads and Maritime requirements, and endorsed by a suitably qualified practitioner. The design requirements shall be in accordance with AUSTROADS and other Australian Codes of Practice. The certified copies of the civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to <u>the release of the Construction Certificate by the Principal Certifying Authority</u> <u>and</u> commencement of road works <u>for the Moorebank Avenue upgrade and associated intersections.</u></p>	
	iv) The works associated with traffic lights and road upgrade works are to be designed and delivered at no cost to TfNSW or Roads and Maritime Services.	<p>The apportionment of costs associated with traffic lights and road upgrades for the MPE Stage 2 Proposal (SSD 7628) is subject to agreement between TfNSW, Roads and Maritime Services and SIMTA. This apportionment is to be confirmed prior to approval of the MPE Stage 2 Proposal.</p> <p>Given the status of these discussions, SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	N/A
	v) The Applicant is to ensure that the construction and operation of the proposed development will not prevent the existing use of Moorebank Avenue as a public road to a standard commensurate to its current use prior to the development. A staging plan should be submitted for review and approval to Roads and Maritime Services and TfNSW prior to construction works commencing, to ensure adequate capacity including a requirement to maintain two lanes open to traffic along Moorebank Avenue at all times.	<p>The MPE Stage 2 Proposal includes an upgrade to Moorebank Avenue and provides mitigation measures to ensure the following:</p> <ul style="list-style-type: none"> • Staging Report would be submitted to the Secretary (should this package be delivered separately) as indicated in the Final Compilation of Mitigation Measures (FCMM) No. 0D in the MPE Stage 2 RtS 	Section 8 of the MPE Stage 2 RtS Attachment C(iii) of this letter

Aspect	Issue	Response	Reference
		<ul style="list-style-type: none"> Management of traffic along Moorebank Avenue would be in accordance with an approved Construction Traffic Management Plan – FCMM No. 1A in the MPE Stage 2 RtS). <p>These mitigation measures, are considered suitable to ensure that the MPE Stage 2 Proposal would not prevent the existing use of Moorebank Avenue as a public road to a standard commensurate to its use prior to the development.</p> <p>Further, Indicative Preliminary Road Upgrade Staging Plans have been prepared and include at Attachment C(iii) of this letter. Further details relating to the staging of construction would be included in a subsequent staging plan (provided to the Secretary) or within the CTMP for the MPE Stage 2 Proposal.</p> <p>In consideration of the above, the following amendments (with additions bold and underlined and deletions bold underlined and struck through) should be made to the Recommended condition of approval:</p> <p>On the basis of this recommended condition being unnecessary in the context of the mitigation measures which would ensure that we maintain Moorebank Avenue as a publicly accessible private road, SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	
	<p>vi) Prior to the issue of any Construction Certificate, the proponent is required to undertake a Road Safety Audit for the proposed construction vehicle assess on Moorebank Avenue by an independent TfNSW accredited road safety auditor in accordance with the relevant Austroads guidelines to identify the safety issues for the proposed construction vehicle access. The proponent shall recommend corrective actions for the identified safety issues and propose appropriate traffic management measures (i.e. temporary traffic signals and other traffic management measures) in consultation and approval from the relevant Council, TfNSW and Roads and Maritime.</p> <p>The Road Safety Audit report should be submitted to the relevant Council and Roads and Maritime for review and comment.</p>	<p>The Proposal includes one construction access point from Moorebank Avenue, which will become an operational site access for the Proposal. The operational access will undergo a Road Safety Audit as part of the design approval process.</p> <p>In addition to this, a Road Safety Audit for Moorebank Avenue / Cambridge Avenue has previously been undertaken for the MPE Stage 1 Project (SSD 14-6766) with part of the recommendations of this audit implemented. As a result, the undertaking of additional road safety audits along the whole length of Moorebank Avenue is not considered relevant for the construction of the MPE Stage 2 Proposal.</p> <p>SIMTA therefore does not agree with the inclusion of this amended condition, and proposes the extent of the road safety</p>	Section 8 of the MPE Stage 2 RtS

Aspect	Issue	Response	Reference
		<p>audit be reduced to include only the new intersection works as proposed below:</p> <p>i. Prior to <u>the opening of the construction access at the Moorebank Avenue/ MPE Stage 2 site access intersection, issue of any Construction Certificate</u>, the proponent is required to undertake a Road Safety Audit for the proposed construction vehicle assess at this location by an independent TfNSW accredited road safety auditor in accordance with the relevant Austroads guidelines to identify the safety issues for the proposed <u>new</u> construction vehicle access. The proponent shall recommend corrective actions for the identified safety issues and propose appropriate traffic management measures (i.e. temporary traffic signals and other traffic management measures) in consultation and approval from the relevant Council, TfNSW and Roads and Maritime.</p> <p>The Road Safety Audit report should be submitted to the relevant Council and Roads and Maritime for review and comment</p>	
	<p>vii) A Construction Traffic and Access Management Plan detailing staging of works, construction vehicle routes, construction traffic generation, construction traffic impacts, impacts to pedestrians / cyclists, local property access, hours of operation, parking for workers, access arrangements, cumulative construction impacts, mitigation measures and traffic control should be developed in consultation with the relevant Council, TfNSW and Roads and Maritime Services.</p> <p>The Construction Traffic and Access Management Plan should be submitted to the relevant Council, TfNSW and Roads and Maritime for approval prior to the commencement of construction works.</p>	<p>A Construction Traffic Management Plan is to be prepared for the MPE Stage 2 Proposal (refer to FCMM No. 1A in the MPE Stage 2 RtS). Notwithstanding this, SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 (SSD 7628) approval instrument.</p> <p>Standard practice is for construction documentation to be approved by the Secretary rather than government agencies. The recommended condition of approval, already identifies consultation ensuring that Council, TfNSW and Roads and Maritime would have an opportunity to comment on the Construction Traffic and Access Management Plan and therefore approval is considered unnecessary.</p> <p>In summary, this recommended condition of approval is considered inconsistent with standard practice and consultation (with Council, TfNSW and Roads and Maritime) is provided in the initial part of the recommended condition of approval. On this basis, SIMTA therefore does not agree with the inclusion of this</p>	Section 8 of the MPE Stage 2 RtS

Aspect	Issue	Response	Reference
		amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.	
	<p>viii) The proponent is to generate and provide a report each six months (in a format agreed with TfNSW and Roads and Maritime) that advises:</p> <ul style="list-style-type: none"> • The number of actual and standard twenty foot equivalent shipping containers despatched and received during the period; • The number of days in the period that the truck gate was open for despatching trucks 24 hours a day, 7 days a week. Detail any exceptions and advise actual hours of operation; • A record of every vehicle entry by class, date and time; • The number of light vehicles turning right into the driveway/s and the number of light vehicles turning left from the driveway/s for a representative day; and • The despatch location or origin address. 	<p>Operational traffic monitoring is to be undertaken for the MPE Stage 2 Proposal as part of FCMMs (refer to FCMM 1D, Section 8 of the MPE Stage 2 RtS). This monitoring is to be identified within the Operational Environmental Management Plan (OEMP) for the MPE Stage 2 Proposal. The specific monitoring to be undertaken would be determined prior to the operation of the MPE Stage 2 Proposal.</p> <p>In addition to the above, the MPE Stage 2 Proposal includes an upgrade of Moorebank Avenue to accommodate traffic from the Moorebank Precinct and background traffic until 2029. This upgrade is considered suitable to mitigate the potential traffic congestion impacts of the MPE Stage 2 Proposal.</p> <p>The objective of the monitoring proposed in the recommended condition of approval is unclear and the level of monitoring requested is not considered commensurate with the level of impact identified for the MPE Stage 2 Proposal. The monitoring requested, in particular vehicle class, date and time and also dispatch location or origin address has the potential to impact on the competitive nature of SIMTA's operations and also, if provided publicly, the security of the MPE Stage 2 Proposal's facilities.</p> <p>SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Section 8 of the MPE Stage 2 RtS
	ix) The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements in relation to landscaping and/or fencing, aisle widths, aisle lengths, and parking bay dimensions) should be in accordance with AS 2890.1- 2004, AS2890.6-2009 and AS 2890.2 – 2002 for heavy vehicle usage.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	N/A
	x) The swept path of the longest vehicle entering and exiting the subject site, as well as manoeuvrability through the site, shall be in accordance with AUSTROADS requirements. In this regard, a plan shall be submitted to the consent authority and	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	N/A

Aspect	Issue	Response	Reference
	Roads and Maritime for approval, which shows that the proposed development complies with this requirement.		
	xi) All vehicles are to enter and leave the site in a forward direction.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	N/A
	xii) All vehicles are to be wholly contained on site before being required to stop	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	N/A
	xiii) A Road Occupancy Licence is to be obtained from the Transport Management Centre for any works that may impact on traffic flows on Moorebank Avenue or the adjoining state road network during construction activities.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	N/A
	xiv) All demolition and construction vehicles are to be contained wholly within the site and vehicles must enter the site before stopping. A construction zone will not be permitted on Moorebank Avenue without the express approval of RMS.	<p>The MPE Stage 2 Proposal would involve an upgrade of Moorebank Avenue (refer to Section 6 of the MPE Stage 2 RtS). There is potential for a construction zone to be required on Moorebank Avenue for the safe undertaking of these works. It is noted that as a result of this recommended condition that a construction zone would not be permitted without Roads and Maritime Services however SIMTA wanted to note the potential for this zone.</p> <p>Further, impact assessment of the Moorebank Avenue upgrade has been indicated within the Construction Traffic Impact Assessment (Appendix K of the MPE Stage 2 EIS).</p> <p>SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.</p>	<p>Appendix C of the MPE Stage 2 EIS</p> <p>Section 6 of the MPE Stage 2 RtS</p>
	xv) The developer shall be responsible for all works required by public utility adjustment/relocation works, necessitated by the above work and as required by the various public utility authorities and/or their agents.	<p>The apportionment of costs associated with public utility adjustment/relocation works for the MPE Stage 2 Proposal would be subject to separate discussions with utilities providers.</p> <p>In light of the status of these discussions, SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	N/A
	xvi) All works/regulatory signposting associated with the proposed development are to be approved by Roads and Maritime Services.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	N/A

Attachment C(ii) – Construction and operational traffic data

Application	Description	Concept Approval	Approval to build	Terminal Approval to operate	Cumulative Approval to build	Cumulative Terminal Approval to Operate	Traffic Movements				Cumulative Trip Generation	Comments	Mitigations within application
							Construction		Operation				
							Daily	Peak	Daily	Peak			
MP10_0193 (determined 29 September 2014)	MPE Concept approval	300,000 m2 warehousing IMEX terminal up to 500,000 TEU	Nil	Nil	Nil	Nil					LV = 9,337 HV = 10,798	Cumulative trip data presented as representative of concept applications as approved.	Road infrastructure upgrades and timing linked to TEU throughput and commencement of warehouse operations are included in the Statement of Commitments and roperational performance is required to be progressively demonstrated not to exceed the capcity of the transport network in future detailed stages of development applications.
SSD 5066 (determined 3 June 2016)	MPW Concept Approval	300,000m2 warehousing Interstate terminal 500,000 IMEX terminal 1M TEU	Demolition & Early Works	Nil	Nil	Nil							Road infrastructure upgrades and associated timing are linked to TEU throughput and commencement of operations and operational performance is required to be progressively demonstrated not to exceed the capacity of the transport network in future detailed stages of development applications.
SSD 6766 (determined 12 December 2016)	MPE Stage 1	n/a	IMEX terminal	IMEX 250,000 TEU	IMEX Terminal	IMEX 250k	LV = 750 HV = 112	LV (AM) - 210 trips per hour LV (PM) - 180 trips per hour HV (AM) - 6 trips per hour HV (PM) - 6 trips per hour	LV = 80 HV = 670	LV (AM) - 15 trips per hour LV (PM) - 14 trips per hour HV (AM) - 52 trips per hour HV (PM) - 62 trips per hour	LV = 80 HV = 670	Cumulative trip data representative of MPE Stage 1 only	Impact assessment demonstrated that the capacity of the transport network would not be exceeded and therefore no mitigation measures/upgrades are required.
SSD 16_7709	MPW Stage 2	n/a	215,000m ² warehousing Interstate terminal	Interstate 500,000 TEU	IMEX Terminal Interstate terminal 215,000m ² warehousing	IMEX 250k Interstate 500k Warehouse 215,000m ²	LV = 570 HV = 810	LV (AM) - 0 trips per hour LV (PM) - 274 trips per hour HV (AM) - 112 trips per hour HV (PM) - 112 trips per hour	LV = 2,670 HV = 1,458	LV (AM) - 252 LV (PM) - 80 HV (AM) - 99 HV (PM) - 105	LV = 2,815 HV = 2,778	Cumulative trip data representative of MPE Stage 1 and MPW Stage 2	Should the Proposal be approved by NSW DP&E, all infrastructure works identified in that approval , plus any identified as required under the impact of this application (including external cumulative impacts), taking into consideration cumulative impacts of approval SSD-6766. The infrastrucutre works included in the Proposal are to upgrade the intersection of Moorebank Avenue and Anzac Road.
SSD 16_7628	MPE Stage 2	n/a	300,000m ² warehousing Precinct amenity (retail)	n/a	IMEX Terminal Interstate terminal 515,000m ² warehousing	IMEX 250k Interstate 500k Warehouse 515,000m ²	LV = 428 HV = 1,022	LV (AM) - 0 trips per hour LV (PM) - 102 trips per hour HV (AM) - 67 trips per hour HV (PM) - 67 trips per hour	LV = 3,993 HV = 564	LV (AM) - 377 trips per hour LV (PM) - 120 trips per hour HV (AM) - 51 trips per hour HV (PM) - 33 trips per hour	LV = 6,808 HV= 2,540	Cumulative trip data representative of MPE Stage 1, MPE Stage 2 and MPW Stage 2. Reduction in HVs associated with the provision of additional warehousing which reduces external trips.	Should the Proposal be approved by NSW DP&E, all infrastructure works identified in that approval, plus any identified as required under the impact of this application (including external cumulative impacts), taking into consideration cumulative impacts of approval SSD-7709. The infrastrucutre works included in the Proposal are to upgrade Moorebank Avenue from two lanes to four from the entry of the IMEX terminal to the northern boundary of the MPE site, along with upgrading the remaining portion of the road from the IMEX terminal to the southern boundary to comply with current standards.
n/a	Future application (remainder concept plans)		85,000m ² warehousing	IMEX 800,000TEU	IMEX Interstate 600,000m ² warehousing	IMEX 1,050k Interstate 500k warehouse 600,000m2					LV = 9,337 HV = 10,798	Cumulative trips from Concept Approvals.	Traffic related mitigation measures associated with any future application(s) under the Concept Approvals would be subject to additional project-specific traffic modelling and agreement with TfNSW and NSW DP&E. Mitigation measures would take into consideration cumulative impacts of preceding approvals.

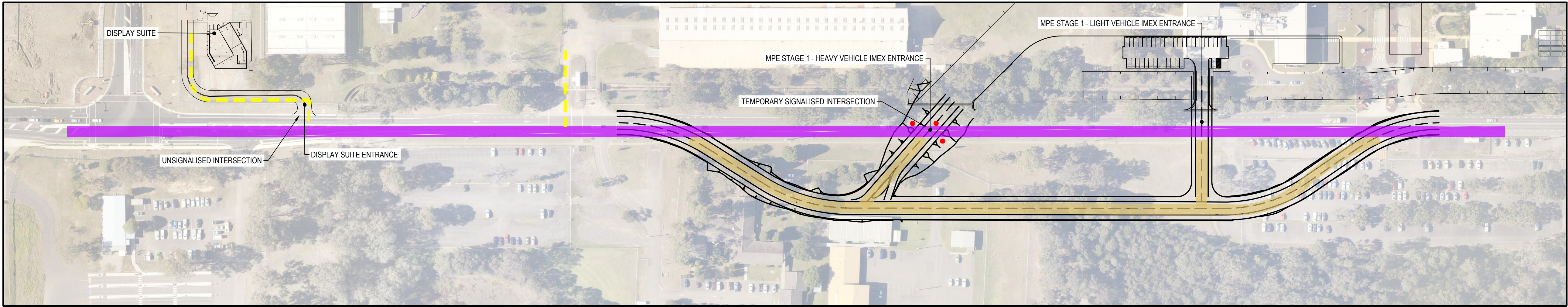
Attachment C(iii) – Preliminary indicative construction staging – Moorebank Avenue Upgrade

Description of indicative construction staging of the Moorebank Avenue upgrade

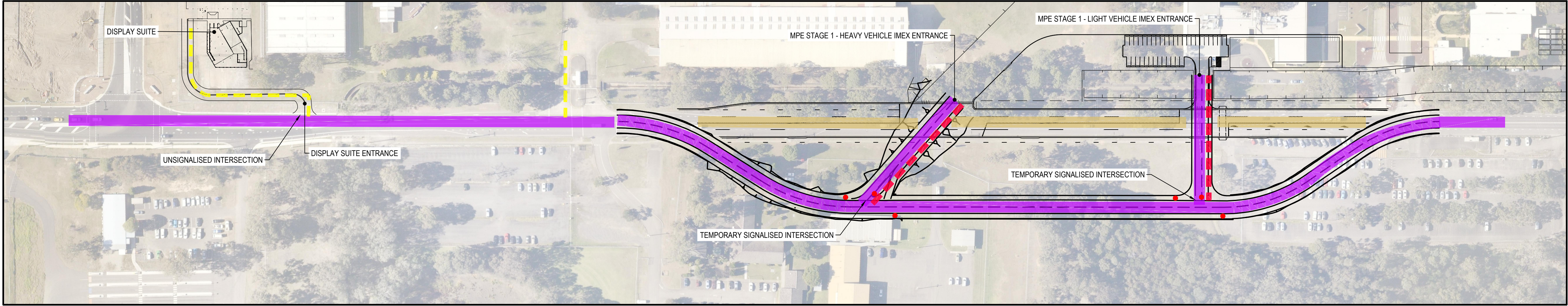
Stage	Live road	Offline construction works	Access
1	<ul style="list-style-type: none"> Existing Moorebank Avenue 	<ul style="list-style-type: none"> A portion of Moorebank Avenue Diversion Road from the south of the MPE Stage 2 site access intersection to the south of the MPE Stage 1 Light Vehicle access. Temporary intersections along the Moorebank Avenue Diversion Road for construction vehicle access to MPE Stage 1 heavy vehicle and MPE Stage 1 light vehicle site access 	<ul style="list-style-type: none"> MPE Stage 2 site – existing Moorebank Avenue (operational vehicles only) MPE Stage 1 heavy vehicle access - existing Moorebank Avenue (construction vehicles only) MPE Stage 1 light vehicle access – existing Moorebank Avenue (construction vehicles only) MPE Stage 1 emergency access MPW Stage 2 Chatham Avenue – Existing Moorebank Avenue (Construction vehicles only)
2	<ul style="list-style-type: none"> Existing Moorebank Avenue: <ul style="list-style-type: none"> to the south of the Moorebank Avenue/ MPE Stage 2 site access intersection To the south of the MPE Stage 1 light vehicle access to the southernmost extent of the Moorebank Avenue upgrade works Moorebank Avenue Diversion Road from south of the Moorebank Avenue/ DJLU intersection to the south of the MPE Stage 1 Light Vehicle access Temporary intersections for construction vehicle access to MPE Stage 1 heavy vehicle and MPE Stage 1 light vehicle access 	<ul style="list-style-type: none"> A portion of the Moorebank Avenue upgrade from the south of the MPE Stage 2 site access intersection to the south of the MPE Stage 1 Light Vehicle access. 	<ul style="list-style-type: none"> MPE Stage 2 site – existing Moorebank Avenue (operational vehicles only) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (construction vehicles only) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (construction vehicles only) MPE Stage 1 emergency access – existing Moorebank Avenue MPW Chatham Avenue – existing Moorebank Avenue

Stage	Live road	Offline construction works	Access
3	<ul style="list-style-type: none"> Existing Moorebank Avenue: <ul style="list-style-type: none"> to the south of the Moorebank Avenue/ MPE Stage 2 site access intersection To the south of the MPE Stage 1 light vehicle access to the southernmost extent of the Moorebank Avenue upgrade works Moorebank Avenue Diversion Road from south of the Moorebank Avenue/ MPE Stage 2 site access intersection to the south of the MPE Stage 1 Light Vehicle access Temporary intersections for construction vehicle access to MPE Stage 1 heavy vehicle and MPE Stage 1 light vehicle access Temporary intersection for operational vehicle access to MPE Stage 2 site 	<ul style="list-style-type: none"> A portion of the Moorebank Avenue upgrade from the south of the Moorebank Avenue/ DJLU intersection to the south of the MPE Stage 1 Light Vehicle access. A portion of the Moorebank Avenue Diversion Road from the south of the Moorebank Avenue/ Defence Joint Logistics Unit (DJLU) intersection, connecting to the section of the Moorebank Avenue Diversion Road constructed in Stage 1 Temporary intersection from the Moorebank Avenue Diversion Road for operational vehicle access to the MPE Stage 2 site 	<ul style="list-style-type: none"> MPE Stage 2 site – existing Moorebank Avenue (operational vehicles only) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road MPE Stage 1 emergency access MPW Chatham Avenue – Existing Moorebank Avenue
4	<ul style="list-style-type: none"> Moorebank Avenue Diversion Road from south of the Moorebank Avenue/ DJLU intersection to south of the MPE Stage 1 light vehicle access Existing Moorebank Avenue from south of the MPE Stage 1 Light vehicle access to the southernmost extent of the Moorebank Avenue upgrade works Temporary intersections for construction and operational vehicles from the Moorebank Avenue Diversion Road to: <ul style="list-style-type: none"> MPE Stage 2 site access MPE Stage 1 heavy vehicle access MPE Stage 1 light vehicle access 	<ul style="list-style-type: none"> The Moorebank Avenue Upgrade from the south of the Moorebank Avenue/ DJLU intersection to the south of the MPE Stage 1 Light Vehicle access. 	<ul style="list-style-type: none"> MPE Stage 2 site – temporary intersection from Moorebank Avenue diversion Road (construction and operational vehicles) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (construction and operational vehicles) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (construction and operational vehicles) MPE Stage 1 emergency access – existing Moorebank Avenue MPW Chatham Avenue – existing Moorebank Avenue

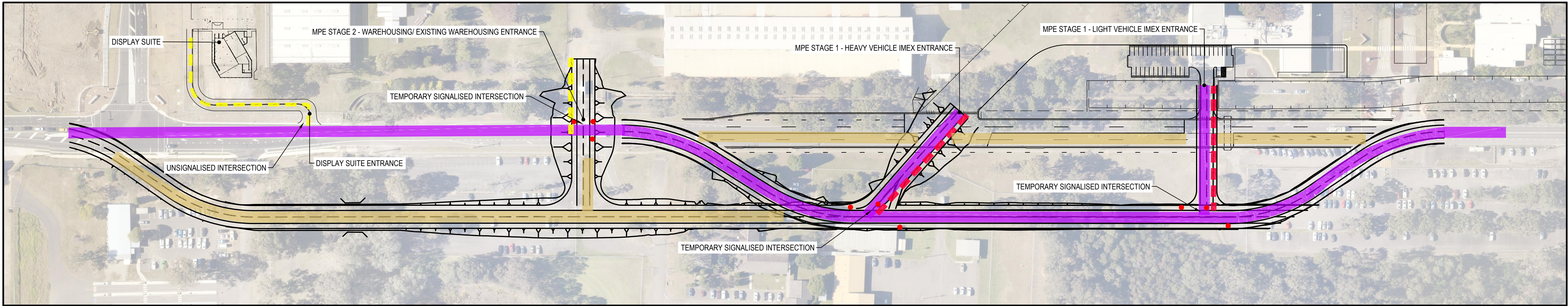
Stage	Live road	Offline construction works	Access
5	<ul style="list-style-type: none"> Completed Moorebank Avenue upgrade from the south of the Moorebank Avenue/ DJLU intersection to south of the MPE Stage 2 site access Moorebank Avenue Diversion Road from south of the Moorebank Avenue/ MPE Stage 2 site access intersection to the south of the MPE Stage 1 light vehicle access intersection Existing Moorebank Avenue from south of the MPE Stage 1 light vehicle access to the southernmost extent of the Moorebank Avenue upgrade works 	<ul style="list-style-type: none"> Moorebank Avenue Diversion Road from the south of the MPE Stage 1 light vehicle access intersection to the southernmost extent of the Moorebank Avenue upgrade Temporary intersection from the Moorebank Avenue Diversion Road for the MPE Stage 1 emergency access 	<ul style="list-style-type: none"> MPE Stage 2 site – completed intersection from the Moorebank Avenue upgrade (construction and operational vehicles) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (operational vehicles only) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (operational vehicles only) MPE Stage 1 emergency access – existing Moorebank Avenue (operational vehicles only) MPW Chatham Avenue – access no longer required (all access for construction of the MPW Stage 2 Proposal would be via the Moorebank Avenue/ Anzac Road intersection (MAAI).
6	<ul style="list-style-type: none"> Completed Moorebank Avenue upgrade from the south of the Moorebank Avenue/ DJLU intersection to south of the MPE Stage 2 site access Moorebank Avenue Diversion Road from south of the Moorebank Avenue/ MPE Stage 2 site access intersection to the southernmost extent of the Moorebank Avenue upgrade 	<ul style="list-style-type: none"> Moorebank Avenue upgrade from south of the MPE Stage 1 light vehicle access to the southernmost extent of the Moorebank Avenue upgrade 	<ul style="list-style-type: none"> MPE Stage 2 site – completed intersection from the Moorebank Avenue upgrade (construction and operational vehicles) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (operational vehicles only) MPE Stage 1 heavy vehicle access – temporary intersection from Moorebank Avenue diversion Road (operational vehicles only) MPE Stage 1 emergency access – temporary intersection from Moorebank Avenue diversion Road (operational vehicles only) MPW Chatham Avenue – access no longer required (all access for construction of the MPW Stage 2 Proposal would be via MAAI.
7	Traffic switching to allow for the operation of completed Moorebank Avenue Upgrade	N/A	All sites accesses would be via the Moorebank Avenue upgrade.



STAGE 1
SCALE 1:1250



STAGE 2
SCALE 1:1250



STAGE 3
SCALE 1:1250

LEGEND

LIVE ROAD

ROADWORKS COMPLETE

ROADWORKS UNDER CONSTRUCTION

CONSTRUCTION VEHICLES ONLY

OPERATIONAL VEHICLES ONLY

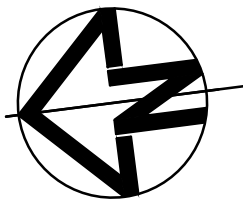
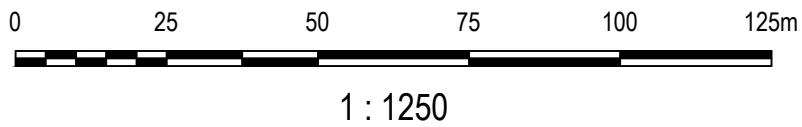
CONSTRUCTION AND OPERATIONAL

TRAFFIC SIGNAL POLES

NOTE

THE PLANS DO NOT SHOW TRAFFIC MANAGEMENT TO BE UNDERTAKEN FOR CONSTRUCTION ACTIVITY IN AREAS UNDER CONSTRUCTION. THIS IS TO BE IMPLEMENTED UNDER AN APPROVED CONSTRUCTION TRAFFIC MANAGEMENT PLAN DURING CONSTRUCTION.

A	ISSUE FOR INDICATIVE PURPOSES ONLY	29.09.17
Issue	Description	Date



Client

SIMTA

SYDNEY
INTERMODAL
TERMINAL
ALLIANCE

TACTICAL

GROUP

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION	
Scales	1 : 1250	Current Issue Signatures
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Height Datum	AHD	Designed R.PHILLIPS
Grid	MGA	Checked R.LENFERNA
		Approved M.KEFFORD
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Project

MOOREBANK AVENUE
UPGRADE WORKS (MAUW)

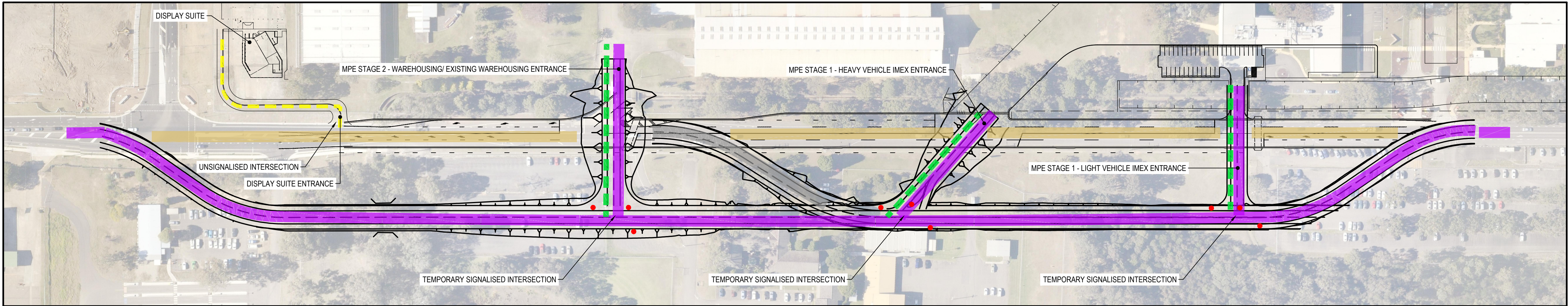
Title

INDICATIVE PRELIMINARY
ROAD UPGRADE
STAGING PLAN

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NORTH SYDNEY NSW 2060
ABN 76 104 485 289
Tel No: +61 2 8907 9000
Fax No: +61 2 8907 9001
arcadis.com

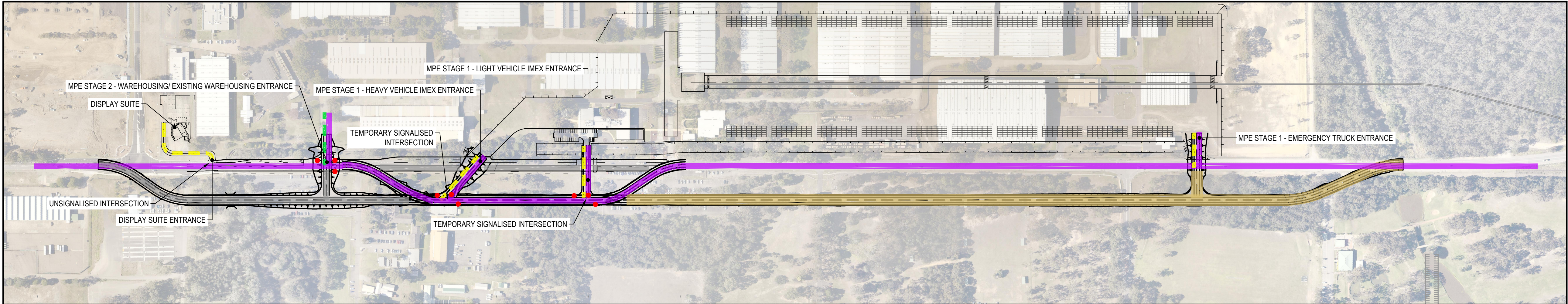
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Project No.
AA009335
Drawing No.
MAUW-ARC-CV-DWG-1601-
Issue
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STAGE 4
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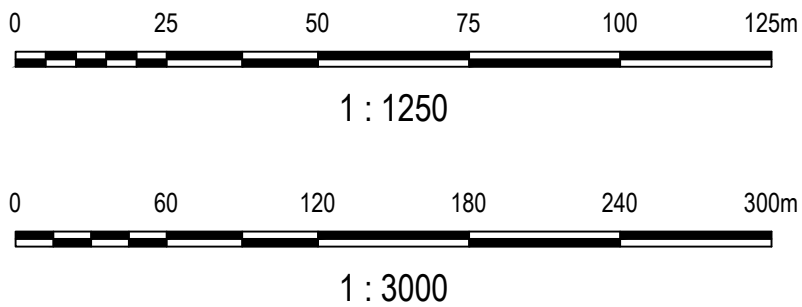
- LEGEND**
- LIVE ROAD
 - ROADWORKS COMPLETE
 - ROADWORKS UNDER CONSTRUCTION
 - CONSTRUCTION VEHICLES ONLY
 - OPERATIONAL VEHICLES ONLY
 - CONSTRUCTION AND OPERATIONAL
 - TRAFFIC SIGNAL POLES

NOTE
THE PLANS DO NOT SHOW TRAFFIC MANAGEMENT TO BE UNDERTAKEN FOR CONSTRUCTION ACTIVITY IN AREAS UNDER CONSTRUCTION. THIS IS TO BE IMPLEMENTED UNDER AN APPROVED CONSTRUCTION TRAFFIC MANAGEMENT PLAN DURING CONSTRUCTION.



STAGE 5
SCALE 1:3000

A	ISSUE FOR INDICATIVE PURPOSES ONLY	29.09.17
Issue	Description	Date



Client




SYDNEY
INTERMODAL
TERMINAL
ALLIANCE



TACTICAL
GROUP

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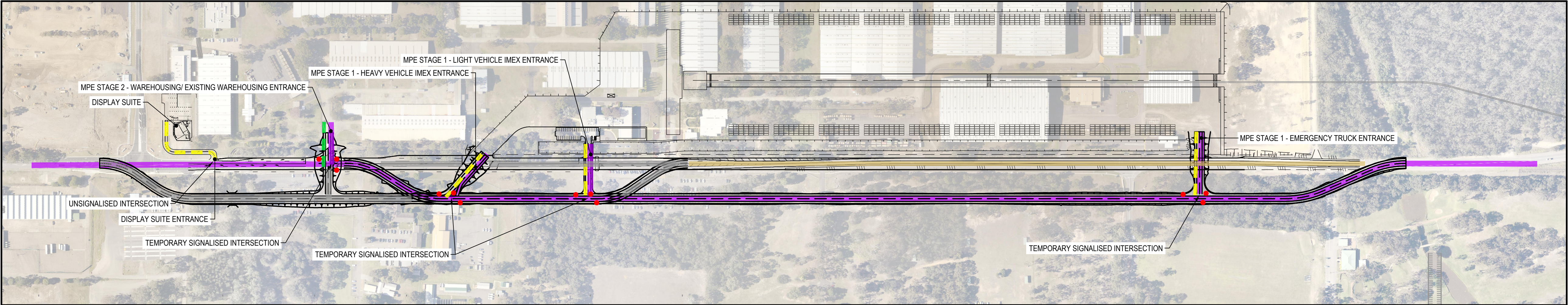


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Volume No.
01

Project No.
AA009335



STAGE 6
SCALE 1:3000

LEGEND

- LIVE ROAD
- ROADWORKS COMPLETE
- ROADWORKS UNDER CONSTRUCTION
- CONSTRUCTION VEHICLES ONLY
- OPERATIONAL VEHICLES ONLY
- CONSTRUCTION AND OPERATIONAL
- TRAFFIC SIGNAL POLES

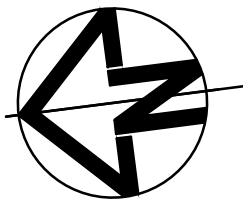
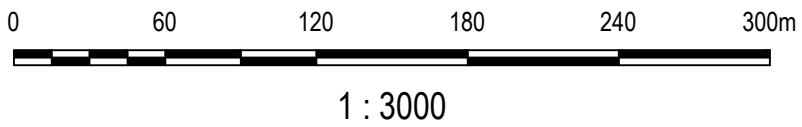
NOTE

THE PLANS DO NOT SHOW TRAFFIC MANAGEMENT TO BE UNDERTAKEN FOR CONSTRUCTION ACTIVITY IN AREAS UNDER CONSTRUCTION. THIS IS TO BE IMPLEMENTED UNDER AN APPROVED CONSTRUCTION TRAFFIC MANAGEMENT PLAN DURING CONSTRUCTION.



STAGE 7
SCALE 1:3000

A	ISSUE FOR INDICATIVE PURPOSES ONLY	29.09.17
Issue	Description	Date



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

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Project	MOOREBANK AVENUE UPGRADE WORKS (MAUW)
Title	INDICATIVE PRELIMINARY ROAD UPGRADE STAGING PLAN

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Fax No: +61 2 8907 9001
arcadis.com

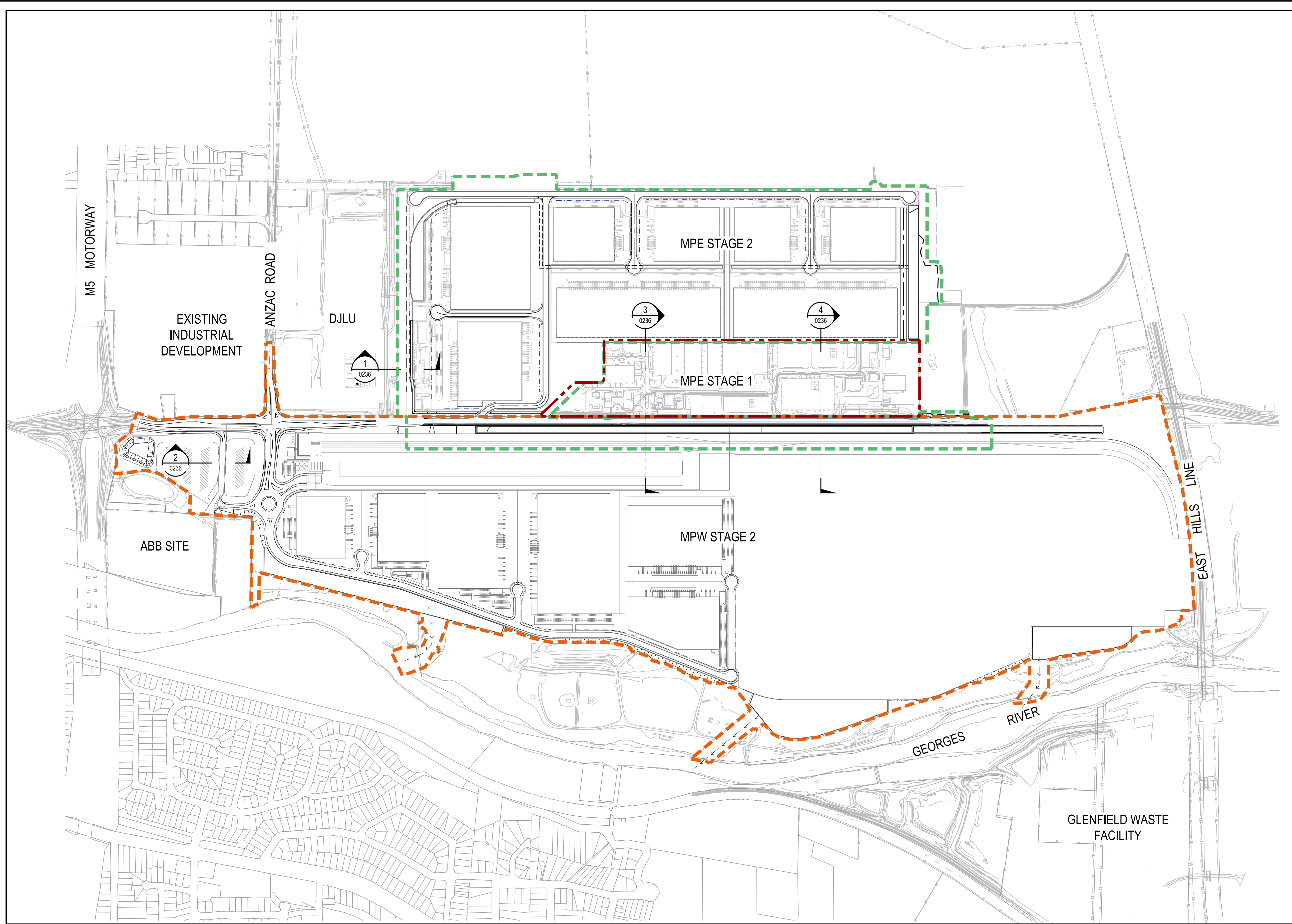
Volume No.
01

Project No.
AA009335

Drawing No.
MAUW-ARC-CV-DWG-1603-

Issue
A

Attachment C(iv) – cross sections

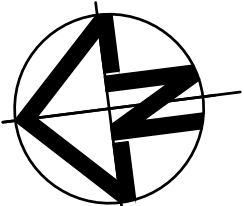
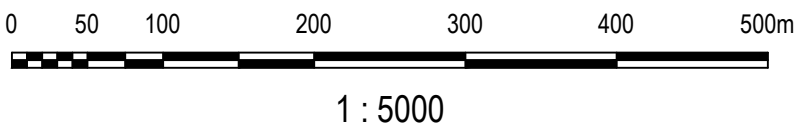


LEGEND

--- MPW STAGE 2 CONSTRUCTION BOUNDARY

--- MPE STAGE 2 CONSTRUCTION BOUNDARY

01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status	SKETCH NOT TO BE USED FOR CONSTRUCTION	
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Grid	MGA	Checked K.MCAREAVEY
Filename:	PREC-ARC-CV-SKC-0235-GeneralArrangementPlan.dwg	
	Approved M.KEFFORD	

Project	MOOREBANK INTERMODAL OVERALL PRECINCT
Title	GENERAL ARRANGEMENT PLAN

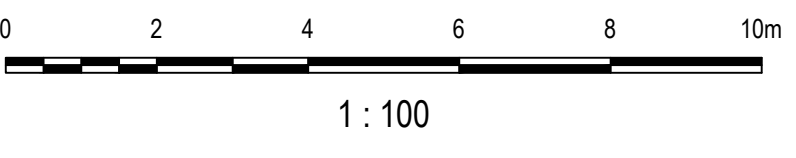
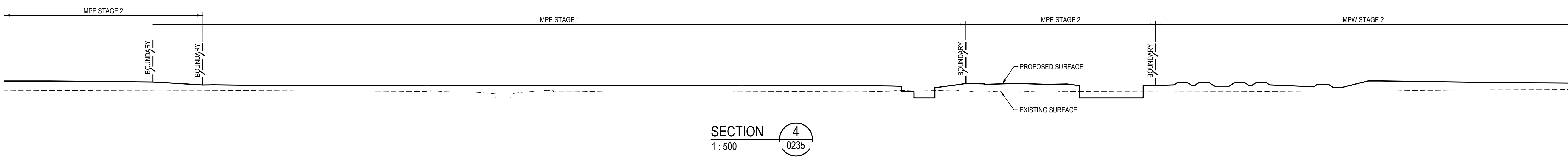
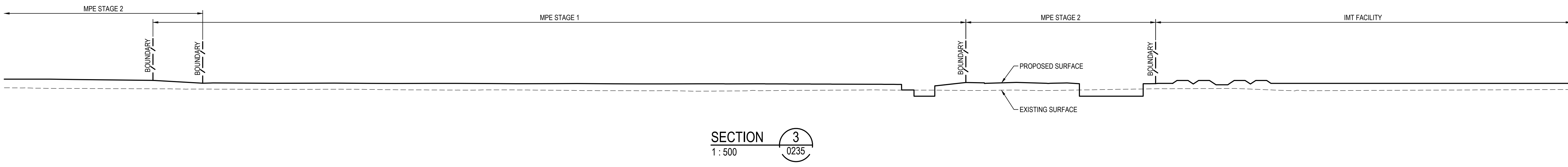
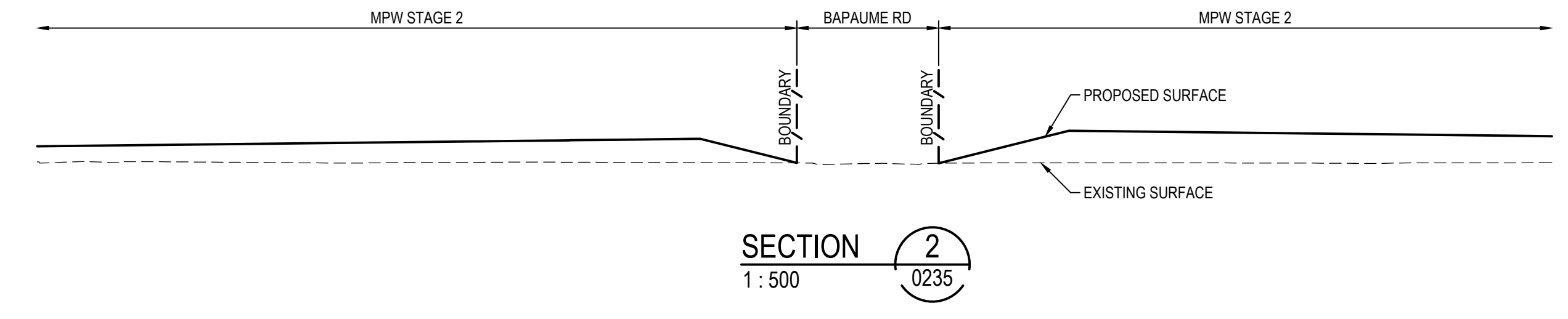
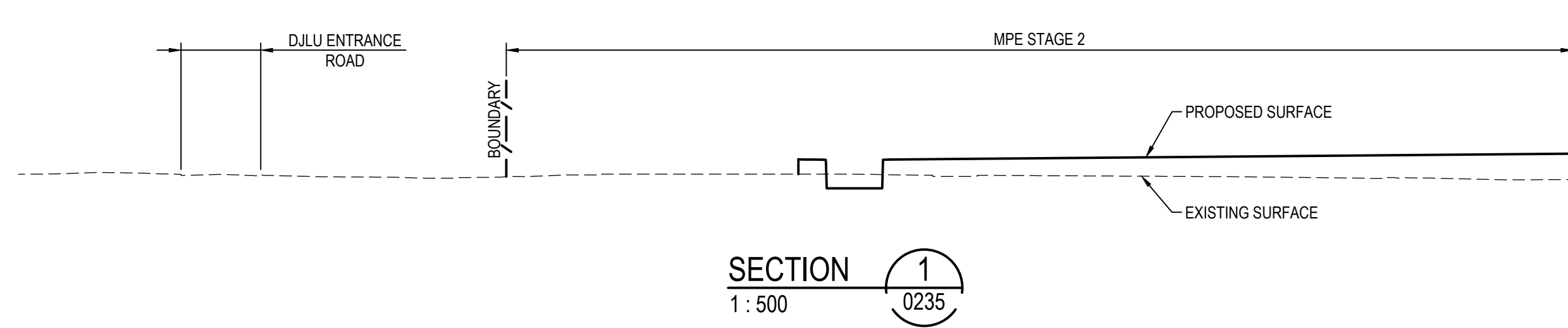
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Fax No: +61 2 8907 9001
arcadis.com

Project No.
AA009335

Drawing No.
PREC-ARC-CV-SKC-0235-

Issue
01



01	ISSUE FOR INFORMATION	07/09/2017
Issue	Description	Date

Client




SYDNEY
INTERMODAL
TERMINAL
ALLIANCE



TACTICAL
GROUP

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Original Size	A1	Designed M.O'CALLAGHAN	
Height Datum	AHD	Checked K.MCAREAVEY	
Grid	MGA	Approved M.KEFFORD	
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Project		MOOREBANK INTERMODAL OVERALL PRECINCT	
Title		SITE SECTIONS	



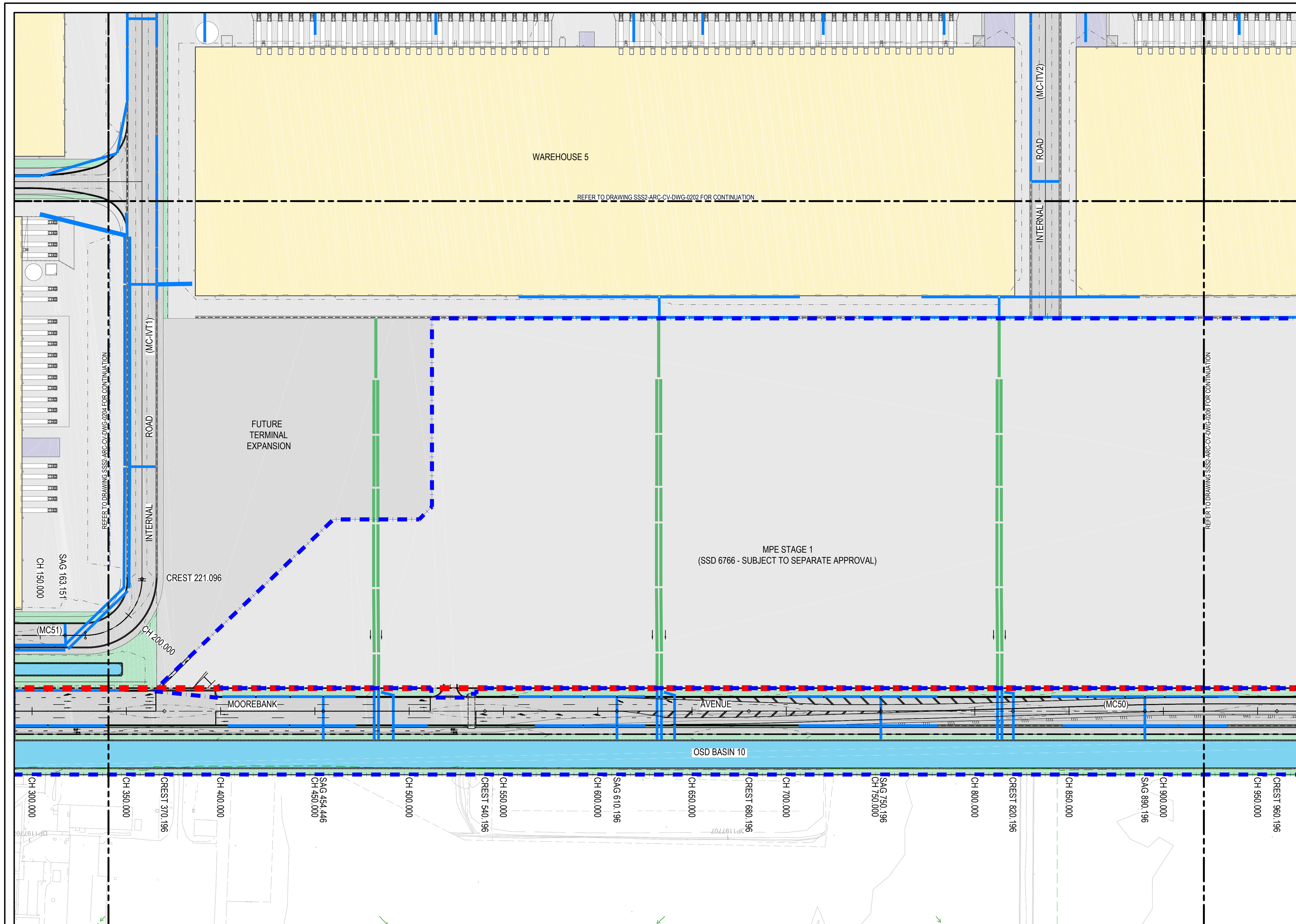
Arcadis Australia Pacific Pty Limited
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arcadis.com

Project No.
AA009335

Drawing No.
PREC-ARC-CV-SKC-0236-

Issue
01

Attachment C(v) – Drainage along Moorebank Avenue

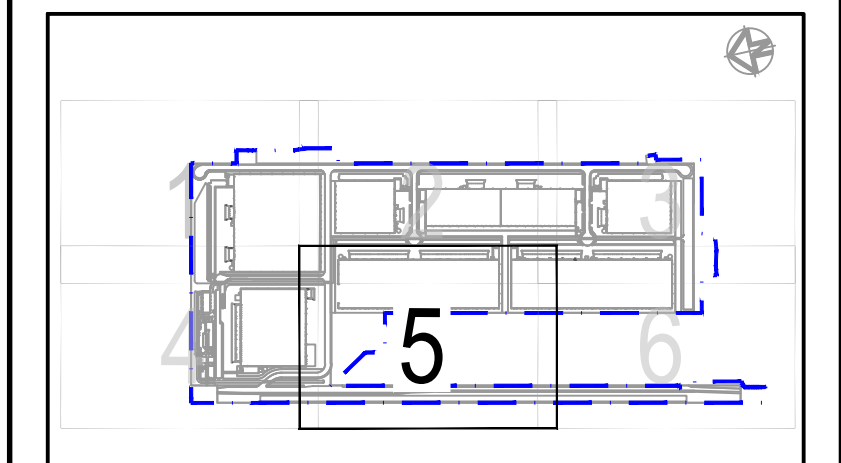


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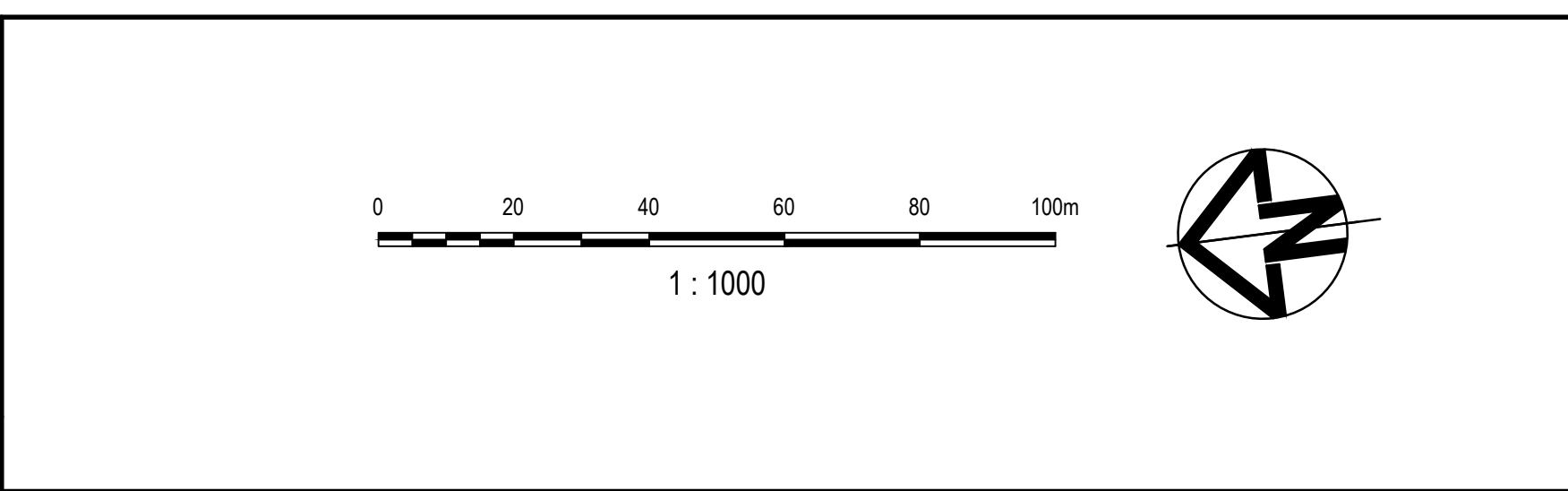
- MPE SITE BOUNDARY
- MPE STAGE 2 OPERATIONAL BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK (BY OTHERS)
- PROPOSED ON SITE DETENTION BASINS
- RETAINING WALL (EXCLUDES BASIN WALLS)

NOTES

1. REFER TO DRAWING SSS2-ARC-CV-DWG-0003 FOR TYPICAL ROAD CROSS SECTIONS.



Issue	Description	Date
04	ISSUE FOR SSD APPLICATION (RESPONSE TO SUBMISSIONS)	26/06/2017
03	ISSUE FOR SSD APPLICATION INCORPORATING CLIENT COMMENTS	28/10/2016
02	ISSUE FOR SSD APPLICATION	19/10/2016
01	DRAFT ISSUE FOR SSD APPLICATION	16/09/2016



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	
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Original Size	A1	Drawn J.WOOD
Height Datum	AHD	Designed J.WOOD
Grid	MGA	Checked K.MCAREAVEY
		Approved M.KEFFORD
Filename: SSS2-ARC-CV-DWG-0205-CivilAndStormwaterPlanSheet5.dwg		

Project

MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title

CIVIL AND STORMWATER PLAN SHEET 5

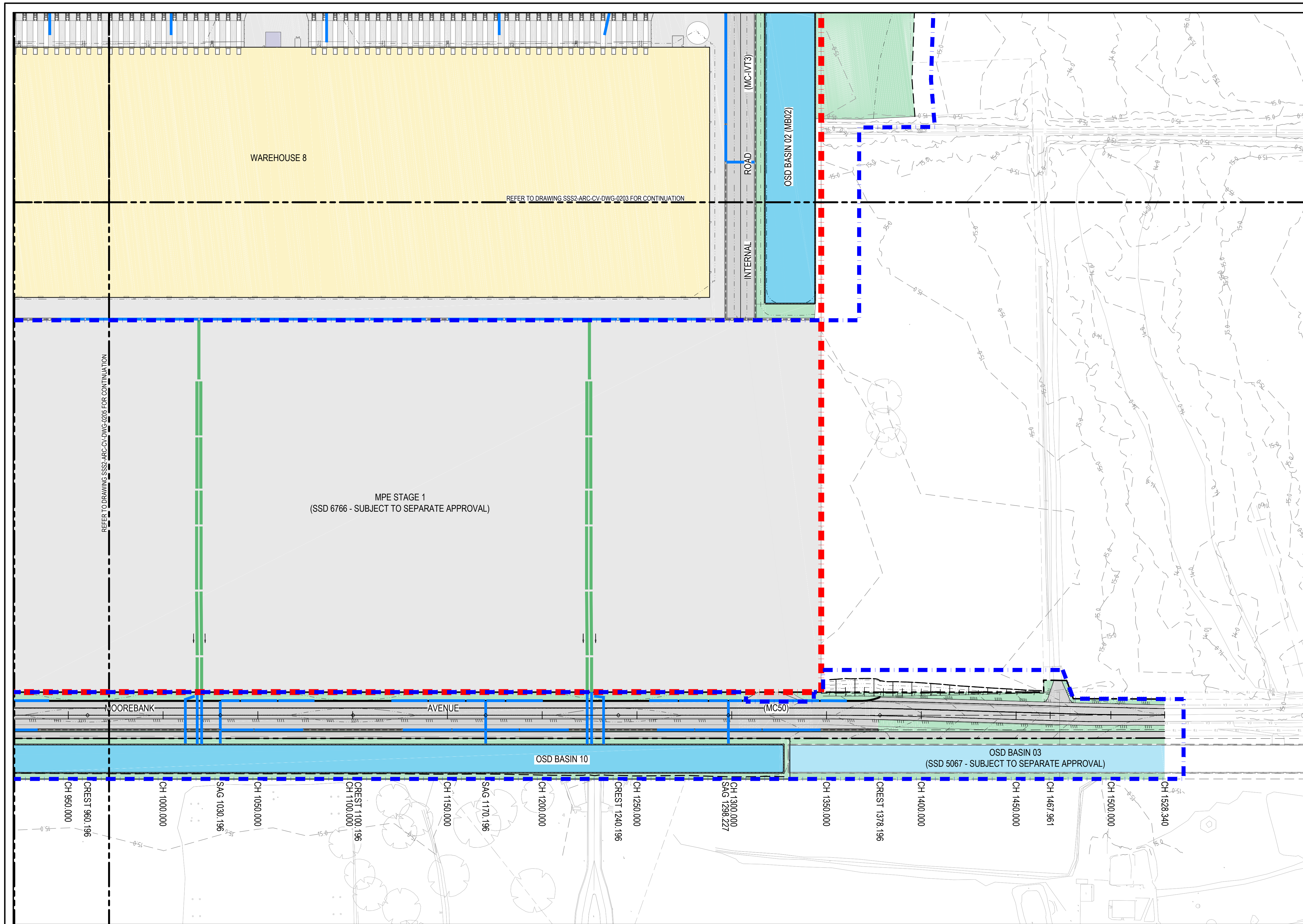
ARCADIS

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Project No. AA009335

Drawing No. SSS2-ARC-CV-DWG-0205-04

Issue

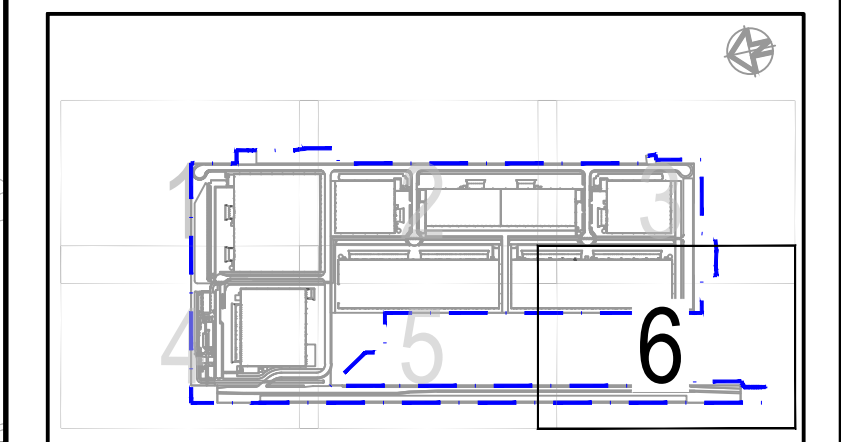


LEGEND

- MPE SITE BOUNDARY
- MPE STAGE 2 OPERATIONAL BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK (BY OTHERS)
- PROPOSED ON SITE DETENTION BASINS
- RETAINING WALL (EXCLUDES BASIN WALLS)

NOTES

- REFER TO DRAWING SSS2-ARC-CV-DWG-0003 FOR TYPICAL ROAD CROSS SECTIONS.



Issue	Description	Date
04	ISSUE FOR SSD APPLICATION (RESPONSE TO SUBMISSIONS)	26/06/2017
03	ISSUE FOR SSD APPLICATION INCORPORATING CLIENT COMMENTS	28/10/2016
02	ISSUE FOR SSD APPLICATION	19/10/2016
01	DRAFT ISSUE FOR SSD APPLICATION	16/09/2016

Scale: 1 : 1000

North Arrow

Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status: PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

Scales: 1 : 1000

Original Size: A1

Height Datum: AHD

Grid: MGA

Filename: SSS2-ARC-CV-DWG-0206-CivilAndStormwaterPlanSheet6.dwg

Project: MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title: CIVIL AND STORMWATER PLAN SHEET 6

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Project No: AA009335

Drawing No: SSS2-ARC-CV-DWG-0206- Issue: 04

Attachment E

Attachment A – NSW Rural Fire Service letter (dated 20 September 2017) response

MPW Stage 2 (SSD 7709)

NSW RFS comment	SIMTA Response	Reference
<p>Reference is made to the correspondence dated 5 September 2017 seeking comments in relation to the bush fire assessments prepared in relation to the above State Significant Developments [MPE Stage 2 (SSD 7628) and MPW Stage 2 (SSD 7709)] in accordance with the <i>Environmental Planning and Assessment Act 1979</i>.</p> <p>The New South Wales Rural Fire Service (NSW RFS) has reviewed the information provided and advises that it has no objection to the proposals subject to the following conditions:</p>	Noted.	N/A
<p>1. The entire development sites be managed as an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of the Planning for Bush Fire Protection 2006 and NSW Rural Fire Service's document <i>Standards for asset protection zones</i>.</p>	<p>A Bushfire Assessment was provided with the MPW Stage 2 EIS (Appendix W). The Bushfire Assessment for the MPW Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the Planning for Bushfire Protection 2006 (refer to Section 4 of Appendix W of the EIS). The assessment concluded that the MPW Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>In particular, the assessment made the following recommendations for the MPW Stage 2 Proposal:</p> <ul style="list-style-type: none"> The Defendable Space located between the warehousing area and the conservation area shall be maintained as an Inner Protection Area [IPA] and managed to the standards as required by <i>Planning for Bushfire Protection 2006</i> and the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'. The remainder of the Proposal site shall be maintained to a standard that reduces dry fuel loads to 5 – 8 tonnes per hectare [Outer Protection Area [OPA]]. 	<p>Appendix W of the MPW Stage 2 EIS</p> <p>Section 8 of the MPW Stage 2 RfS</p>

NSW RFS comment	SIMTA Response	Reference
	<p>In addition to this, the MPW Stage 2 Response to Submissions (RtS, Arcadis, 2017- Section 8) included a number of additional mitigation measures for bushfire management during both construction and operation of the MPW Stage 2 Proposal. These are as follows:</p> <ul style="list-style-type: none"> • (No. 13A – construction) A bushfire management strategy, or equivalent, will be prepared as part of the CEMP for the Amended Proposal. The strategy will include: <ul style="list-style-type: none"> – Emergency response plans and procedures – Restrictions on activities (namely hot works) that cannot be undertaken on total fire ban days within areas of high Bushfire Hazard Rating, unless otherwise advised by the NSW Rural Fire Service. – All construction site offices and temporary buildings will be located outside buffer areas to ensure minimum setbacks of 10 m. – All construction site offices will be accessible via access roads suitable for firefighting appliances similar to NSW Rural Fire Service category 1 tankers. • (No. 13B – operation) A bushfire management strategy, or equivalent, would be prepared as part of the OEMP for the Amended Proposal. In particular, the strategy would ensure management of landscaped areas within the Stage 2 site would be undertaken to maintain minimum dry fuel loads. <p>It is noted that Section 4.1 of the <i>Planning for Bushfire Protection 2006</i> refers only to ‘planning controls for residential and rural subdivision’, both of which are not included in the MPW Stage 2 Proposal. Section 4.3.6 (f) of the <i>Planning for Bushfire Protection 2006</i> applies to buildings which are classed 5-8 under the BCA, which includes the building proposed within the MPW Stage 2 Proposal.</p>	

NSW RFS comment	SIMTA Response	Reference
	<p>In summary, the MPW Stage 2 Proposal satisfactorily addresses the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> and includes a number of mitigation measure for bushfire management.</p> <p>In consideration of the above, the following amendments (with additions bold and underlined and deletions bold underlined and struck through) should be made to the Recommended condition of approval:</p> <p>The entire development sites area between the western boundary of the conservation area and the western boundary of the perimeter road would be managed as <u>to the standards of an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of</u> the Planning for Bush Fire Protection 2006 and NSW Rural Fire Service's document <i>Standards for asset protection zones</i>.</p> <p><u>The remainder of the Proposal site would be maintained to a standard that reduces dry fuel loads to 5-8 tonnes per hectare [Outer Protection Area] as identified in the Planning for Bush Fire Protection 2006 and NSW Rural Fire Service's document Standards for asset protection zones.</u></p>	
<p>2. Public road access shall comply with section 4.1.3 (1) of <i>Planning for Bush Fire Protection 2006</i> except for the requirement for through access.</p>	<p>A Bushfire-Assessment was provided with the MPW Stage 2 EIS (Appendix W). The Bushfire Assessment for the MPW Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix W of the EIS). The assessment concluded that the MPW Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>It is noted that Section 4.1 of the Planning for Bushfire Protection 2006 refers only to 'planning controls for residential and rural subdivision', both of which are not included in the MPW Stage 2 Proposal. Section 4.3.6 (f) of the Planning for Bushfire Protection 2006 applies to buildings which are classed</p>	<p>Appendix W of the MPW Stage 2 EIS</p>

NSW RFS comment	SIMTA Response	Reference
	<p>5-8 under the BCA, which includes the building proposed within the MPW Stage 2 Proposal.</p> <p>In consideration of the above, the following amendments (with additions bold and underlined and deletions bold underlined and struck through) should be made to the Recommended condition of approval:</p> <p>Public road access shall comply with <u>the aims and objectives</u> section 4.1.3 (1) of <i>Planning for Bush Fire Protection 2006</i> except for the requirement for through access.</p>	
<p>3. The provision of water, electricity and gas shall comply with section 4.1.3 of <i>Planning for Bush Fire Protection 2006</i>'</p>	<p>A Bushfire Assessment was provided with the MPW Stage 2 EIS (Appendix W). The Bushfire Assessment for the MPW Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix W of the EIS). The assessment concluded that the MPW Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>SIMTA has no objection to the inclusion of this recommended condition of approval within the MPW Stage 2 approval instrument.</p>	<p>Appendix W of the MPW Stage 2 EIS</p>

MPE Stage 2 (SSD 7628)

NSW RFS comment	SIMTA Response	Reference
<p>Reference is made to the correspondence dated 5 September 2017 seeking comments in relation to the bush fire assessments prepared in relation to the above State Significant Developments [MPE Stage 2 (SSD 7628) and MPW Stage 2 (SSD 7709)] in accordance with the <i>Environmental Planning and Assessment Act 1979</i>.</p> <p>The New South Wales Rural Fire Service (NSW RFS) has reviewed the information provided and advises that it has no objection to the proposals subject to the following conditions:</p>	<p>Noted.</p>	<p>N/A</p>
<p>1. The entire development sites be managed as an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of the Planning for Bush Fire Protection 2006 and NSW Rural Fire Service's document <i>Standards for asset protection zones</i>.</p>	<p>A Bushfire Impact Assessment was provided with the MPE Stage 2 EIS (Appendix U). The Bushfire Impact Assessment for the MPE Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix W of the EIS). The assessment concluded that the MPE Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>In particular, the assessment identifies that 'the continued maintenance of the existing vegetation on the land to the east and south of the warehouses, within the Proposal site, provides a satisfactory reduction of fuel loads within these defensible spaces' (refer to Section 4.1 of Appendix U of the EIS).</p> <p>In addition to this, the MPE Stage 2 Response to Submissions (RtS, Arcadis, 2017- Section 8) included a number of additional mitigation measures for bushfire management during both construction and operation of the MPE Stage 2 Proposal. These are as follows:</p> <ul style="list-style-type: none"> • (No. 13A – construction) A bushfire management strategy, or equivalent, will be prepared as part of the CEMP for the Amended Proposal. The strategy will include: <ul style="list-style-type: none"> – Emergency response plans and procedures – Restrictions on activities (namely hot works) that cannot be undertaken on total fire ban days within areas of high 	<p>Appendix U of the MPE Stage 2 EIS Section 8 of the MPE Stage 2 RtS</p>

NSW RFS comment	SIMTA Response	Reference
	<p>Bushfire Hazard Rating, unless otherwise advised by the NSW Rural Fire Service.</p> <ul style="list-style-type: none"> – All construction site offices and temporary buildings will be located outside buffer areas to ensure minimum setbacks of 10 m. – All construction site offices will be accessible via access roads suitable for firefighting appliances similar to NSW Rural Fire Service category 1 tankers. • (No. 13B – operation) A bushfire management strategy, or equivalent, would be prepared as part of the OEMP for the Amended Proposal. In particular, the strategy would ensure management of landscaped areas within the Stage 2 site would be undertaken to maintain minimum dry fuel loads. <p>It is noted that Section 4.1 of the <i>Planning for Bushfire Protection 2006</i> refers only to 'planning controls for residential and rural subdivision', both of which are not included in the MPE Stage 2 Proposal. Section 4.3.6 (f) of the <i>Planning for Bushfire Protection 2006</i> applies to buildings which are classed 5-8 under the BCA, which includes the building proposed within the MPE Stage 2 Proposal.</p> <p>In summary, the MPE Stage 2 Proposal satisfactorily addresses the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> and includes a number of mitigation measure for bushfire management.</p> <p>In consideration of the above, the following amendments (with additions bold and underlined and deletions bold underlined and struck through) should be made to the Recommended condition of approval:</p> <p>The entire development sites <u>area between the eastern boundary of the Proposal site and the western boundary of the perimeter road and the southern boundary of the Proposal site and the northern boundary internal transfer road</u> be managed as to the standards of an Inner Protection</p>	

NSW RFS comment	SIMTA Response	Reference
	<p><u>Area (IPA) as outlined within section 4.1.3 and Appendix 5</u> of the Planning for Bush Fire Protection 2006 and NSW Rural Fire Service's document <i>Standards for asset protection zones</i>.</p>	
<p>2. Public road access shall comply with section 4.1.3 (1) of <i>Planning for Bush Fire Protection 2006</i> except for the requirement for through access.</p>	<p>A Bushfire Impact Assessment was provided with the MPE Stage 2 EIS (Appendix U). The Bushfire Impact Assessment for the MPE Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix U of the EIS). The assessment concluded that the MPE Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>It is noted that Section 4.1 of the Planning for Bushfire Protection 2006 refers only to 'planning controls for residential and rural subdivision', both of which are not included in the MPW Stage 2 Proposal. Section 4.3.6 (f) of the Planning for Bushfire Protection 2006 applies to buildings which are classed 5-8 under the BCA, which includes the building proposed within the MPW Stage 2 Proposal.</p> <p>In consideration of the above, the following amendments (with additions bold and underlined and deletions bold underlined and struck through) should be made to the Recommended condition of approval:</p> <p>Public road access shall comply with <u>the aims and objectives section 4.1.3 (1)</u> of <i>Planning for Bush Fire Protection 2006</i> except for the requirement for through access.</p>	<p>Appendix U of the MPE Stage 2 EIS</p>
<p>3. The provision of water, electricity and gas shall comply with section 4.1.3 of <i>Planning for Bush Fire Protection 2006</i>'</p>	<p>A Bushfire Impact Assessment was provided with the MPE Stage 2 EIS (Appendix U). The Bushfire Impact Assessment for the MPE Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix U of the EIS). The assessment concluded that the MPE Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p>	<p>Appendix U of the MPE Stage 2 EIS</p>

NSW RFS comment	SIMTA Response	Reference
	<p>Overall, the MPE Stage 2 Proposal has been designed to accommodate heavy vehicle access it would comply with the requirements of the <i>Planning for Bush Fire Protection 2006</i>.</p> <p>SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.</p>	

Attachment F

From: [REDACTED]

Sent: Thursday, 12 October 2017 7:56 AM

To: [REDACTED]

Cc: [REDACTED]

Subject: MPE and MPW EPA Submission - Further Responses

[REDACTED]

During our meeting on Monday 25 September you passed on verbal comments from the EPA on our response to their most recent submission, noting that they felt that 4 items required further clarification. Below is our response and we feel this closes the matter, however if we have misinterpreted the intent of the further clarifications and EPA are still of the opinion that we have not adequately responded, please come back to us with an updated written response and we will endeavour to provide further content in response and closure.

EPA: Requested additional info to demonstrate the maximum daily operation intensity of construction have been considered against 24 hour impact assessment criteria

SIMTA: This information was included in Table B-2 of Attachment B of the Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter, sent to the Department on 11 September 2017. The response provided is as follows:

It is acknowledged that this issue was raised in response to the MPE Concept Plan Modification 2 Application. Section 4.1 of the MPE Concept Plan Mod RtS provided a response to this issue, as provided below:

The EPA are correct to assume that the modelling results presented in the Air Quality Impact Assessment for the MPE Concept Plan modification are based on annual average activity rates (1,320,000 tonnes averaged evenly across each day of the year).

To address EPA's concern that the modelling did not consider a peak daily scenario, revised analysis is presented based on a peak daily importation rate of 22,000 tonnes^[1], for all material handling activities. This importation rate corresponds to the maximum daily fill importation rate for the whole precinct (i.e. across both MPW and MPE proposals) and conservatively assumes that on any given day there is a possibility, although unlikely, that 22,000 tonnes could be directed to MPE only. Other construction phase emission sources, such as dozers, have also been adjusted for the peak daily scenario, for example by removing the 70% utilisation assumption and assuming continuous operation for all construction hours. The revised analysis shows:

- The maximum incremental 24-hour PM10 increases from 4.2 µg/m³ for the average daily activity rate to 8.0 µg/m³ for the peak daily activity rate.*
- The maximum incremental 24-hour PM2.5 increases from 1.3 µg/m³ for the average daily activity rate to 1.9 µg/m³ for the peak daily activity rate.*
- The maximum cumulative 24-hour PM10 increases from 48.9 µg/m³ for the average daily activity rate to 50.9 µg/m³ for the peak daily activity rate. As a result, there is one additional exceedance of the impact assessment criteria at 5 locations, but this occurs on a day when the background is*

^[1] A mitigation measure (No. 1G, in Section 8 of the RtS) has been included to restrict the importation of fill to 22,000 m³/per day for both the MPE Stage 2 Proposal and the MPW Stage 2 Proposal.

already elevated ($48 \mu\text{g}/\text{m}^3$). It should be noted that the approach to the assessment assumes that the worst case daily activity scenario occurs every day of the year and it is unlikely that this scenario would correspond with an elevated background day and give rise to an additional exceedance. In fact, the proposed real-time boundary monitoring for each phase of construction is designed to eliminate the risk of this occurring.

- The maximum cumulative 24-hour PM_{2.5} increases from $23.6 \mu\text{g}/\text{m}^3$ for the average daily activity rate to $24.0 \mu\text{g}/\text{m}^3$ for the peak daily activity rate (i.e. no additional exceedances of the impact assessment criteria).*

The revised assessment demonstrates that with consideration of the peak daily scenario, modelled impacts would not result in additional exceedances of the 24 hour impact assessment criteria with the exception of maximum cumulative 24-hour PM₁₀. However, it is unlikely that this scenario would occur and the proposed real-time boundary monitoring for each phase of construction has been designed to eliminate the risk of this occurring.

This information is consistent with that provided in the MPE CP Mod 2 RtS, where this exact issue was raised by the EPA in response to the CP Mod only. The response we have provided previously is considered to be address the concerns raised by the EPA sufficiently.

EPA: requested details of the size of gas boilers proposed

SIMTA: The MPW Stage 2 EIS and MPE Stage 2 EIS indicated that the warehouse offices would be heated via the use of boilers. This was based on a standard assumption in the Air Quality Impact Assessment (AQIA) (Ramboll Environ, 2016, provided at Appendix M of the MPE Stage 2 EIS), on the basis of gas boilers being a conservative approach and that the specifics of the heating and cooling systems would be defined during design development. However, it was also noted in Section 5.4 of the Utilities strategy report (provided at Appendix F of the MPE stage 2 EIS) that 'Gas service will not be required due to no gas demand anticipated for the development at this stage', and as such, it would not be possible to heat the warehouse offices with boilers, and instead, air conditioning would likely be used. As a result no gas boilers would be utilised for heating or cooling as part of the MPE Stage 2 or MPW Stage 2 Proposals.

The estimated emissions from gas boilers in the MPW Stage 2 EIS AQIA and MPE Stage 2 EIS AQIA represented approximately 30% of the total emissions for particulate matter (PM) and approximately 20% for NO_x. Therefore, replacing the use of gas boilers with air conditioning run from the grid would reduce local emissions to the airshed by 30% for PM and 18% for NO_x. This in turn would result in a proportionate reduction in the predicted ground level concentrations in the air quality assessment, which would in turn result in a proportionate reduction in the estimated health risk for surrounding suburbs. For other pollutants, the reductions would be less significant, because the gas boilers are a relatively less significant source, however in each case there would be some reduction.

It is noted that the reduction in emissions cannot be used to directly infer reductions in ground level concentrations because the relative influence of specific sources will be different across different locations. In other words, a 30% reduction in emissions does not necessarily mean a 30% reduction in ground level concentrations. At some locations, where the relative influence from the gas boilers is higher, there may be a higher reduction in ground level concentrations whereas at other locations the reduction might be less than 30%. Notwithstanding this, the overall use of air conditioning rather than gas boilers would result in either a positive or neutral level (subject to the location) of environmental impact (having regard to air emissions) to that identified in the MPW Stage 2 EIS/RtS or MPE Stage 2 EIS/RtS.

EPA: requested benchmark emission performance of any boilers against best practice.

SIMTA: Clarification (refer to above) –boilers would not be used on the site for heating and cooling, as there would be no gas supply to the Proposal site. Therefore, the need for benchmarking emissions of boilers against best practice is no longer required or relevant to the Proposal.

EPA: requested re-confirmation of the emission estimate for the operational assessment, noting the differences in reported units of measurement for emission rates in tables 5-6, 5-3 and 5-5

SIMTA: This information was included in Table B-2 of Attachment B of the Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter, sent to the Department on 11 September 2017. In Table B-2 it was noted that the emissions summary presented in Table 5-6 is incorrectly captioned as “tonnes/annum” and it was confirmed that the emission values are reported in kg/annum and no update or change to the modelling assessment is required.

Regards,

A solid black rectangular box used to redact a signature.

Attachment G

ATTACHMENT A – Response to clarifications from DPE noise consultant

Aspect	Issue	Response	Reference
Gap analysis of noise monitoring data	<p>A response to our previous gaps analysis relating to a summary of all available baseline monitoring data and relevance of RBLs adopted has not been provided to date. Notwithstanding, further review of historical noise data relevant to the various stages of both the Moorebank Precinct East (MPE) and Moorebank Precinct West (MPW) project has been undertaken. The basis of adopting certain baseline sampling over others for determining representative background noise levels or rating background levels (RBLs) as per the EPA's Industrial Noise Policy (INP) is unclear. The MPE Stage 2 NVIA (Wilkinson Murray, November 2016) adopted data from the MPE Concept Plan EIS NVIA (Wilkinson Murray, August 2013). This data was collected by Wilkinson Murray in August 2012 or May 2013. This data is also adopted in the MPE Stage 1 NVIA (Wilkinson Murray, May 2015). The final adopted RBLs for assessment purposes in all these studies is as follows:</p> <ul style="list-style-type: none"> Wattle Grove (east of the site at 15 Larra Court): 42 dB, 37 dB and 37 dB for the day, evening and night respectively; Casula (west of the site at 2 Rushton Place): 41 dB, 37 dB and 34 dB for the day, evening and night respectively; and Glenfield (south west of the site at 14 Goodenough Street): 44 dB, 44 dB and 37 dB for the day, evening and night respectively. <p>By comparison, the MPW Stage 2 NVIA (Wilkinson Murray, October 2016) adopts baseline monitoring data from a third party as reported in the MPW Concept Plan EIS NVIA (SLR 2014). This monitoring was collected in 2012 from SLR's continuous noise survey, and hence around a similar time to that in the Wilkinson Murray 2013 NVIA. The final adopted RBLs for assessment purposes in the MPW Stage 2 NVIA are:</p> <ul style="list-style-type: none"> Wattle Grove (east of the site at Corryton Court): 35 dB, 35 dB and 32 dB for the day, evening and night respectively; Casula (west of the site at Buckland Road): 39 dB, 39 dB and 33 dB for the day, evening and night respectively; and 	<p>It is noted that there are minor variations in the RBLs at Wattle Grove, Casula and Glenfield between the MPW and MPE Projects. The RBLs for each respective Project were established at different times, under different Concept/Concept Plan assessments. The RBLs were established for both the MPW Concept and MPE Concept Plan in accordance with the requirements of the NSW Industrial Noise Policy (NSW EPA, 2000), and approved by the Department of Planning and Environment (NSW DP&E) as part of the MPW Concept Approval (SSD 5066, determined by the PAC on 3 June 2016) and MPE Concept Plan Approval (MP 10_0193, determined by the PAC on 29 September 2014).</p> <p>To maintain consistency with the RBLs in the MPW and MPE Concept Approvals, the noise and vibration impact assessments undertaken for the MPW Stage 2 Proposal, MPE Stage 2 Proposal and MPE Stage 1 Proposal have been undertaken in accordance with the previously approved RBLs. This is considered to be a valid and suitable process, and standard practice for approvals of this nature.</p>	<p>MPW Concept Approval (SSD 5066)</p> <p>MPE Concept Plan Approval (MP 0_0193)</p> <p>NSW INP</p>

Aspect	Issue	Response	Reference
	<ul style="list-style-type: none"> Glenfield (south west of the site at Goodenough Street): 35 dB, 35 dB and 33 dB for the day, evening and night respectively. <p>Comparing the two sets of RBLs above for essentially the same or similar locations shows differences at all locations, which are material for Wattle Grove and Glenfield.</p> <p>This issue is a clear demonstration and evidence of the limitations in using sparsely deployed monitoring locations for such large geographic areas.</p>		
Inconsistencies in predicted noise levels	<p>The predicted noise levels in <i>Table 7-10 Predicted L_{Aeq,15min} Noise Levels – MPE Stage 1 & MPE Stage 2</i> of the MPE Stage 2 EIS NVIA (Wilkinson Murray, November 2016 or Arcadis December 2016) are inconsistent with the MPE Stage 1 predictions. For example, MPE Stage 1 NVIA night adverse weather predictions (Wilkinson Murray, May 2015) are 39 dB L_{Aeq,15min} for Wattle Grove (NCA1), while in the MPE Stage 2 document it is 32 dB L_{Aeq,15min} for the two combined operations of MPE. This requires clarification. There may be implications from MPW changes for these results including warehouse buildings and the noise barrier proposed for MPW. However, the 7dB change shown here is difficult to explain with such structures being well removed from MPE noise sources given benefits of such are limited during adverse weather. All predictions for adverse weather during the night behave in this way, ie lower for the combined operations.</p>	<p>A review of the noise modelling for the MPE Stage 1 and MPE Stage 2 noise and vibration impact assessments has been undertaken. It is confirmed that the noise levels across the two assessments are accurate, and the 7dB change in the noise is attributed to the noise barrier created by the establishment of warehousing included as part of the MPE Stage 2 Proposal.</p> <p>Section 3.2 of the MPE Stage 2 Noise and Vibration Impact Assessment (Wilkinson Murray, 2016) noted that:</p> <p><i>Solid objects which obstruct the line of sight between a noise source and a sensitive receiver will reduce the noise levels at the receiver. The magnitude of this shielding or 'barrier' effect is typically in the order of 5 – 10 dBA. Objects that offer significant levels of shielding may already be a feature of the area surrounding a development such as buildings and ground topography or may be established specifically to reduce noise levels such as earth mounds and noise walls.</i></p> <p>As detailed in Section 7.3 of the MPE Stage 2 Noise and Vibration Impact Assessment:</p> <p><i>Warehouses and other nearby buildings are likely to provide some level of shielding to sensitive receivers. The following buildings are included in the operational noise model:</i></p> <ul style="list-style-type: none"> <i>Proposed warehouse buildings on the Proposal site;</i> <i>Existing large buildings associated with ABB, DJLU and the industrial area to the north of DJLU.</i> <p><i>In addition to shielding from buildings, a noise wall, approximately 5 metres high, is proposed to be established along the western operational boundary of the MPW Stage 2 Proposal site. This noise wall has been proposed as a result of the noise modelling for the MPW Stage 2 Proposal to address noise emissions generated as a</i></p>	MPE Stage 2 Noise and Vibration Impact Assessment (Wilkinson Murray, 2016) at Appendix M of the MPE Stage 2 EIS.

Aspect	Issue	Response	Reference
		<p><i>result of the MPW Stage 2 Proposal, and as such is not related to the MPE Project or MPE Stage 2 Proposal. This noise wall, on the MPW site, has been included in the operational noise model.</i></p> <p>Given the above, a 7dB reductions in Wattle Grove is not considered unusual, and within the expected shielding effect that warehousing and may have on this sensitive receiver</p>	

Attachment H

ATTACHMENT A

Aspect	Issue	Response	Reference
Truck-to-truck/ warehouse movements	<p>The Department seeks to confirm whether any truck-to-truck/warehouse movements have been included in:</p> <ul style="list-style-type: none"> the modelling provided for traffic assessments for the Stage 2 approvals the modelling provided to Transport for NSW to support the ongoing establishment of satisfactory arrangements for MPW Stage 2. <p>The Department would like to establish compliance with:</p> <ul style="list-style-type: none"> the strategic justification for the proposals the requirements of the concept approvals are with (see eg. MP10_0193, condition 1.12), which establish a direct nexus between warehousing and terminal operations. <p>The response should encompass how these rail-to-rail/warehouse movements would be maintained throughout future operations of the warehousing, eg. where warehousing is operated by other entities.</p>	<p>The traffic modelling for the MPW Stage 2 and MPE Stage 2 Proposals assumed the two following key traffic movement sequences, relating to truck-to-warehouse movements, which have been included in the operational traffic modelling for the both proposals:</p> <p><u>Import movement</u></p> <ol style="list-style-type: none"> Freight is received at rail terminal (IMEX or interstate) and transported to warehouses via the internal road network where the freight is unpacked from the container and stored in the warehouse. An empty heavy vehicle enters the MPW Stage 2 or MPE Stage 2 site from the external road network to access a warehouse to receive freight. This freight is then packed into the heavy vehicle and transported off-site. <p><u>Export movement</u></p> <ol style="list-style-type: none"> A heavy vehicle accesses the MPW Stage 2 or MPE Stage 2 site from the external road network, and unloads freight to a warehouse. This freight is then transferred into an empty container (this container becomes loaded). The loaded container is transported to the IMEX terminal via the internal road network on the MPE site, or via Moorebank Avenue from the MPW site (until such time that the MPW Stage 2 Intermodal terminal is constructed and operational, as included in the MPW Concept Modification 1), loaded onto a train and transferred to Port Botany for export. <p>Truck to truck movements have not been accounted for as part of the traffic modelling for the MPW Stage 2 and MPE Stage 2 Proposals Traffic modelling relevant to the environmental assessment of the MPW Stage 2 and MPE Stage 2 Proposals (EIS) was been provided to Roads and Maritime in mid-March 2017 Additional operational traffic modelling was also discussed in the MPW Stage 2 and MPE Stage 2 RtS, with modelling provided to Roads and Maritime in early September 2017.</p> <p>With regards to satisfactory arrangements for the MPW Stage 2 Proposal, it is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling and an agreed mitigation framework relating to broader road network impacts are ongoing.</p> <p>The staged development of the MPW Project may result in a scenario whereby an operating warehouse on the MPW Project is supported by the operating IMEX Terminal on neighbouring land (i.e. the MPE Stage 1 Proposal) in an interim</p>	<p>MPW Concept Modification 1</p> <p>MPW Concept Conditions of Approval</p> <p>MPE Concept Plan Conditions of Approval</p>

Aspect	Issue	Response	Reference
		<p>arrangement until such time that the MPW Stage 2 Intermodal terminal is constructed and operational.</p> <p>MPW Concept Modification 1 proposes to modify the MPW Concept Condition of Approval E12 to allow (in principle) interaction between the MPW and MPE sites, enabling vehicle movement between two sites via Moorebank Avenue to limit traffic impacts on the wider regional road network.</p> <p>The original MPW Condition of Approval E12 (prevention of movements using Moorebank Avenue south) was originally prepared to limit heavy vehicles accessing Cambridge Avenue, due to the condition of the Cambridge Avenue causeway, rather than limiting right turns out of the MPW site by A and B-doubles to access the MPE site and vice versa. The proposed modified condition is worded such that it would permit right turn movements out of the MPW site onto Moorebank Avenue to continue south <u>only</u> until the MPE Stage 1 IMEX site entrance. No movements further south onto Cambridge Avenue would be undertaken or permitted. Therefore, the proposed modification, is considered to be consistent with the purpose of the original MPW CoA E12. This modification is currently with DP&E for assessment and determination.</p> <p>The proposed amendment to MPW CoA 15, to enable warehousing on the MPW site to be used for activities associated with freight using the IMEX and Interstate terminals within the MPW site or the MPE site, would enable and encourage operational efficiencies across both sites. In addition, traffic that would otherwise enter the local road network, resulting in external traffic network impacts, would be reduced as the vehicle movements would instead remain within the local proximity of the MPW Project on the stretch of Moorebank Avenue that links the MPE and MPW sites.</p> <p>Compliance with the strategic justification of the Proposal</p> <p>Based on the above information relating to truck movements, the MPE Stage 2 and MPW Stage 2 Proposals would continue to be consistent with both National and State strategic planning and policy, as detailed in section 3 of the MPE stage 2 EIS and Section 3 of the MPW Stage 2 EIS.</p> <p>Compliance with the concept approvals</p> <p><u>MPE Stage 2</u></p> <p>Based on the above information relating to the flow of traffic movements adopted in the traffic modelling, the MPE Stage 2 Proposal is considered to be consistent with the MPE Concept Plan Approval, particularly condition 1.12, which states that ‘<i>The warehousing and distribution facilities must only be used for activities associated with freight using the rail intermodal</i>’.</p> <p><u>MPW Stage 2</u></p> <p>Based on the above information relating to truck movements, and further supported by the proposed MPW Concept modifications to enable the neighbouring MPE intermodal terminal to deliver freight to and from the MPW warehousing, the MPW</p>	

Aspect	Issue	Response	Reference
		<p>Stage 2 Proposal is considered to be consistent with the MPW Concept Approval conditions which relate to container movements, specifically:</p> <ul style="list-style-type: none"> • Concept Approval condition 13, which states that ‘<i>Containers must be transferred from Port Botany to the site and from the site to Port Botany by rail, unless there is planned track maintenance or where unforeseen circumstances have occurred...</i>’ • Concept Approval condition 15 (as proposed to be amended by the MPW Concept Modification) which states that ‘<i>The warehousing must only be used for activities associated with freight using the IMEX and interstate terminals <u>within the site, or on the neighbouring MPE site</u>, unless otherwise approved in a subsequent Development Application</i>’ 	
Staging	<p>The Department seeks indicative arrangements for the staging of the MPW Stage 2 and MPE Stage 2 (should it be intended to be staged) applications.</p> <p>It is understood that you may seek to construct and operate the Stage 2 warehouses in stages, for example based on commercial arrangements.</p> <p>It is therefore important that sufficient information is provided to the Planning Assessment Commission to support any staging requests to be made post-determination.</p> <p>The Department requests that you provide an indicative scheme for staging buildings and infrastructure to illustrate how staging could be implemented in the Stage 2 applications.</p> <p>This scheme should outline:</p> <ol style="list-style-type: none"> 3. an indicative program for what project elements would be constructed and staged in what order 4. how the environmental, social and economic impacts of staging would be the same as assessed in the development application and supporting documentation 5. which of the proposed mitigation measures would be implemented at what stage of the program. 	<p><u>Indicative construction phasing</u></p> <p>Indicative phasing plans for the MPW Stage 2 (SSD 7709) and 628) MPE Stage 2 (SSD 7628) Proposal have been prepared, and are provided in Attachment B of this letter. The phasing plans provide indicative phases of development for construction of the key permanent, built infrastructure across the MPW Stage 2 and MPE Stage 2 sites, as detailed below.</p> <p>All construction phases of the MPE Stage 2 and MPW Stage 2 Proposals include progressive establishment of operational services connections, landscaping and all stormwater drainage necessary to support these elements.</p> <p>It should be noted that these phases are subject to change, based on the preferred construction contractors preferred construction methodology, and the market demands for warehouses within the Moorebank Precinct. Warehouse construction within phases may be constructed in sub-phases, if individual warehouse tenants are signed earlier. The final staging plan for both MPE Stage 2 and MPW Stage 2 will be provided for the Secretary’s Approval prior to commencement of construction of any given stage as proposed by the mitigation measure 0D in the MPE Stage 2 and MPW Stage 2 Final compilation of mitigation measures.</p> <p>The construction program, included in Table 4-5 of the MPW Stage 2 consolidated project description (Appendix O of the MPW Stage 2 RtS), and Table 4-8 of the MPE Stage 2 consolidated project (Appendix I of the MPE Stage 2 RtS) includes pre-construction activities (construction works period A) and site preparation activities (construction works period B). These works would be considered phase 0 (pre-construction) of the indicative phasing, and would require works across the entire site footprint of the MPW Stage 2 and MPE Stage 2 sites in line with the Environmental Work Method Statements as included in Appendix M of the MPW Stage 2 Response to Submissions Report, and Appendix H of the MPE Stage 2 RtS.</p>	<p>Attachment B</p> <p><i>Response to Transport for NSW Submissions on Moorebank Precinct West (MPW) Stage 2 (SSD 7099), MPW Concept Plan Mod 1 (SSD 5066_MOD 1), Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) and MPE Concept Plan Mod 2 (MP 10_0193 MOD 2)’ letter</i></p> <p>Table 4-5 of the MPW Stage 2 consolidated project description, and Table 4-8 of the MPE Stage 2 consolidated project description</p>

Aspect	Issue	Response	Reference
		<p>As the works to be undertaken in phase 0 are for the purpose of facilitating construction of the permanent built operational infrastructure, would be across the entire site footprint and are largely enabling works, these are not included in the phasing below; however, for completeness have been shown in the matrices provided at Attachment B of this letter to detail how this phase of works would align with the works periods included in the MPW Stage 2 and MPE Stage 2 consolidated project descriptions.</p> <p><u>MPE Stage 2</u></p> <ul style="list-style-type: none"> Phase 1: construction works relating to the Moorebank Avenue upgrade, basin 10 part of basin 1, warehouses 1, 3, 4 and 5, internal roads and drainage channels. More detailed indicative staging specific to the Moorebank Avenue Upgrade within this phase of construction of the MPE Stage 2 Proposal has been provided to DP&E previously as Attachment C of the <i>'Response to Transport for NSW Submissions on Moorebank Precinct West (MPW) Stage 2 (SSD 7099), MPW Concept Plan Mod 1 (SSD 5066_MOD 1), Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) and MPE Concept Plan Mod 2 (MP 10_0193 MOD 2)'</i> letter, issued to DP&E from SIMTA on 29 August 2017. Phase 2: construction works relating to warehouses 6, 7 and 8, basin 2, internal roads and drainage channels. Phase 3: construction works relating to warehouse 2, part of basin 1, basin 2, and the northern internal access road. <p><u>MPW Stage 2</u></p> <ul style="list-style-type: none"> Phase 1: construction works relating to the Moorebank Avenue/ Anzac Road intersection upgrade, basin 3, basin 4 and basin 10, truck emergency parking north of the main entry,, upgrade to part of the east-west drainage channel (including the works immediately north of basin 10), intermodal terminal and rail access. More detailed indicative staging specific to the Moorebank Avenue/ Anzac Road intersection upgrade within this stage of construction of the MPW Stage 2 Proposal has been provided to DP&E previously as Attachment D of the <i>'Response to Transport for NSW Submissions on Moorebank Precinct West (MPW) Stage 2 (SSD 7099), MPW Concept Plan Mod 1 (SSD 5066_MOD 1), Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) and MPE Concept Plan Mod 2 (MP 10_0193 MOD 2)'</i> letter, issued to DP&E from SIMTA on 29 August 2017. Phase 2: construction works relating to the remainder of the east-west drainage channel upgrade, warehousing, basin 5 and internal roadworks. Phase 3: construction works relating to warehousing, basin 6 and internal roadworks. 	

Aspect	Issue	Response	Reference
		<ul style="list-style-type: none"> Phase 4: construction works relating to warehousing and basin 8. <p>Environmental impacts during construction</p> <p>Attachment B also includes a matrix, which describes how the indicative phasing aligns with the construction works periods included in the consolidated project descriptions, issued to DP&E on 18/09/2017. As evidenced by Attachment B, the construction phases include a combination of simultaneous construction works across works periods C to F for MPW Stage 2 and C to F for MPE Stage 2.</p> <p>The MPW Stage 2 construction impact assessment considered a worst case construction scenario, whereby construction works periods C to G would be undertaken simultaneously.</p> <p>Similarly, the MPE Stage 2 construction impact assessment considered a worst case construction scenario, whereby construction works periods B to E would be undertaken simultaneously.</p> <p>For both MPW Stage 2 and MPE Stage 2, all phases for the progressive construction of permanent operational infrastructure would represent construction works across less construction works periods than considered in the worst case construction scenarios presented in the MPE Stage 2 EIS and MPW Stage 2 EIS; therefore, the environmental, social and economic impacts of the abovementioned indicative phases would be consistent with, or less than the predicted construction impacts presented in the MPW Stage 2 and MPE Stage 2 EIS's and RtS's. As discussed below mitigation measures would also be implemented relevant to each stage to ensure that construction impacts are appropriately managed.</p> <p>Implementation of mitigation measures throughout construction stages</p> <p>The construction program included as Table 4-5 of the MPW Stage 2 consolidated project description (Appendix O of the MPW Stage 2 RtS), and Table 4-8 of the MPE Stage 2 consolidated project (Appendix I of the MPE Stage 2 RtS) description include pre-construction (Works period A) and site preparation works (Works period B) periods. These works periods would include works across the entire construction area of the respective MPW Stage 2 and MPE Stage 2 sites, and would be completed prior to the abovementioned indicative phasing for the construction of permanent, built operational infrastructure (i.e. Stage 0).</p> <p>Phase 0 works would be completed in accordance with the relevant Environmental Work Method Statement as included in Appendix M of the MPW Stage 2 Response to Submissions Report, and Appendix H of the MPE Stage 2 RtS. Construction mitigation measures would be implemented in accordance with the final compilation of mitigation measures and reflected in the Construction Environmental Management Plan, which would be approved by DP&E prior to the commencement of construction.</p>	

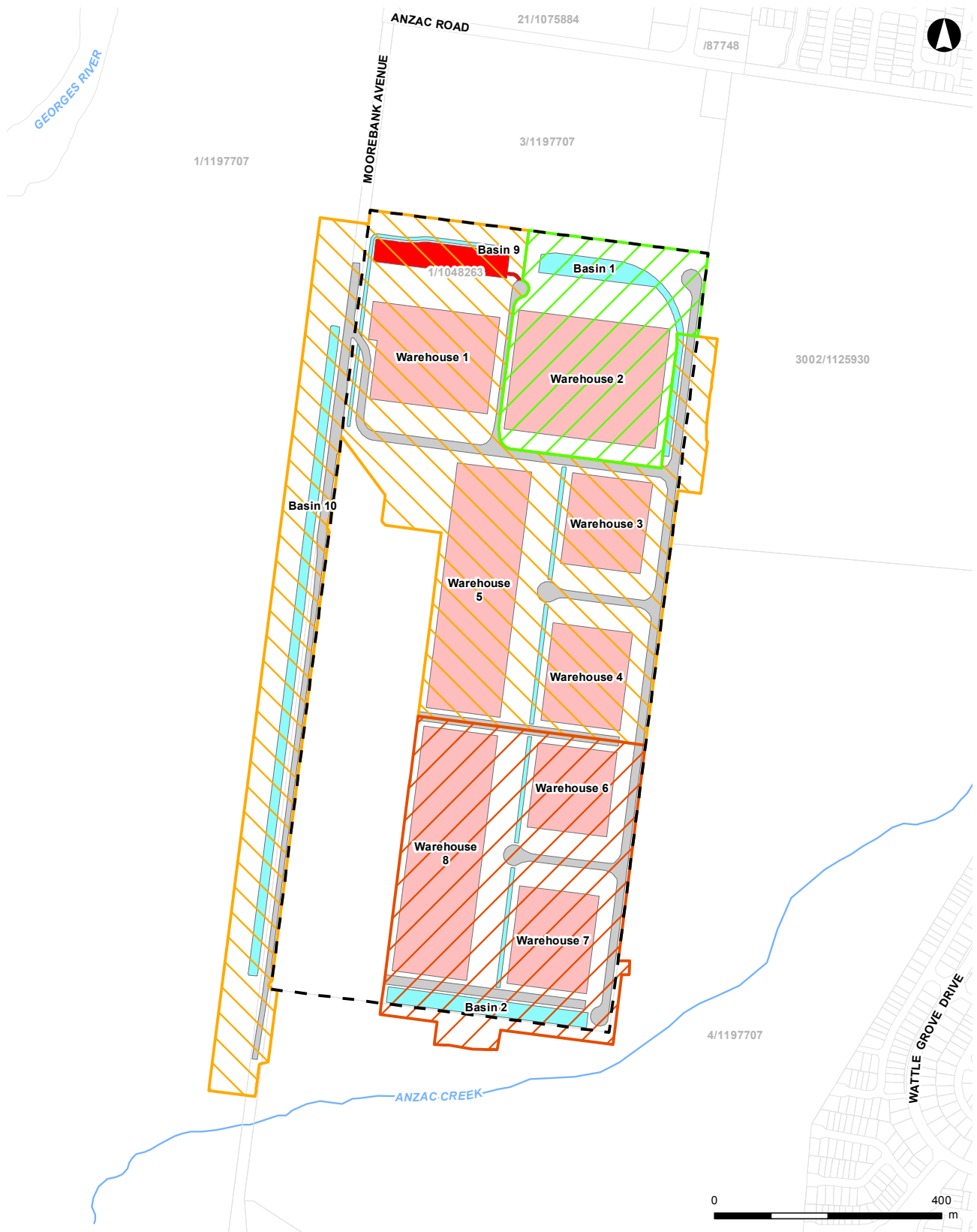
Aspect	Issue	Response	Reference
		<p>Implementation of mitigation measures to support operation</p> <p>As the construction of permanent, built infrastructure on the site is completed, temporary construction mitigation measures would be removed, and operational mitigation measures implemented, where possible and in accordance with the completion of the above-mentioned stages.</p> <p>As included as mitigation measures OC in the MPW Stage 2 and MPE Stage 2 final compilation of mitigation measures, an Operational Environmental Management Plan (OEMP) would be prepared to provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the MPE Stage 2 and MPW Stage 2 Proposal.</p>	
Stormwater/ water sensitive urban design	<p>Can you confirm the availability of your team to meet the Department's stormwater consultants this week (Wed - Fri) to discuss:</p> <ul style="list-style-type: none"> information needed to complete this assessment general principles for detailed design? <p>At that meeting, we can update you on the outcomes of the Department's meeting with Council (tomorrow).</p>	<p>A meeting between DP&E's stormwater consultant and Arcadis stormwater consultants was held on 19 October 2017. The items included in the '<i>WSUD Discussion Points</i>_' document attached to the '<i>Discussion items for Moorebank stormwater/ WSUD meeting</i>' email, issued by DP&E to Nathan Cairney (Tactical Group) were discussed as part of this meeting.</p> <p>A number of items discussed are to be responded to in a separate document in response to this meeting.</p>	' <i>Discussion items for Moorebank stormwater/ WSUD meeting</i> ' email
Noise	<p>The Department seeks an update on the timing for your response to the MPE Stage 2 noise queries forwarded by email on 22 September 2017.</p> <p>This response is required as soon as possible to inform the final independent noise</p>	<p>A response to the issues raised by the independent noise consultant, as included in the '<i>MPE Stage 2 - Noise assessment - reviewer comments</i>' email, issued from DP&E to Nathan Cairney (Tactical Group), have been responded to in the '<i>Moorebank Precinct East (MPE) Stage 2 (SSD 7628) - response to independent noise review comments</i>' letter, issued to DP&E from SIMTA on 17 October 2017.</p>	<i>Moorebank Precinct East (MPE) Stage 2 (SSD 7628) - response to independent noise review comments' letter</i>
Biodiversity	<p>The Department seeks specific advice from a qualified ecologist that bushfire mitigation would not affect biodiversity values to be protected/not to be impacted under the MPW Stage 2 and MPE Stage 2 applications.</p> <p>This response is required for the Department to finalise its assessment of bushfire and biodiversity matters.</p>	<p>MPE Stage 2 Proposal</p> <p>Section 3.4 of the MPE Stage 2 Bushfire Assessment (ABPP, 2016) (refer to Appendix U of the MPE Stage 2 EIS) stated that</p> <p><i>'the continued management of the 60m defendable space within the Proposal site and the 50m cleared area to the south of the site boundary being maintained (refer to Attachment A). This area south of the Proposal boundary includes overhead powerlines and a fire trail, indicating that clearing practices in this area are likely to continue. However, should this activity cease, the hazard will increase to high. It is noted there are no EECs or threatened species within the defendable space to the east or south of the Proposal'.</i></p>	<p>Section 3.4 of the MPE Stage 2 Bushfire Assessment at Appendix U of the MPE Stage 2 EIS</p> <p>Section 3.4 of the MPW Stage 2 Bushfire Assessment at Appendix W of the MPW Stage 2 EIS</p>

Aspect	Issue	Response	Reference
		<p>Since the preparation of this report in December 2016, further surveys of the area to the south of the MPE Stage 2 site detected plants of the endangered species <i>Persoonia nutans</i> and <i>Hibbertia puberula</i> subsp. <i>puberula</i> adjoining the northern side of the fire trail referred to above, within the area identified as defensible space in Appendix A of ABPP (2016). <i>Persoonia nutans</i> is a shrub and <i>Hibbertia puberula</i> subsp. <i>puberula</i> is a subshrub; it is anticipated that maintenance of these areas to reduce bushfire risk can be done without harming the recorded individuals, provided that they are considered when planning maintenance and that appropriate protection measures are implemented. Measures to protect these plants should be included in management plans for the area.</p> <p>Defensible space to be managed in the east of the MPE Stage 2 site is within the Proposal site; no threatened flora or TECs have been recorded within this area, and all management would be undertaken within the MPE site. No areas of mapped native vegetation within the Boot land would be subject to management for bushfire mitigation.</p> <p>MPW Stage 2 Proposal</p> <p>Section 3.4 of the MPW Stage 2 Bushfire Assessment (ABPP, 2016) (refer to Appendix W of the MPW Stage 2 EIS) assessed the bushfire threat to the MPW site as high, based on the presence of vegetation within the proposed conservation zone. The bushfire threat to the proposed warehouses is reduced by the location of warehousing approximately 25 metres from the eastern edge of the proposed Conservation Area. The defensible space located between the warehousing area and the Conservation Area will be managed as an Inner Protection Area, and the remainder of the Proposal site will be maintained as an Outer Protection Area.</p> <p>All bushfire management measures would be undertaken within the MPW Stage 2 Proposal site. No areas of mapped native vegetation within the proposed Conservation Area would be subject to management for bushfire mitigation as part of the MPW Stage 2 Proposal.</p>	

Aspect	Issue	Response	Reference
Land Owner's Consent	The Department seeks an update on your timing for obtaining land owner's consent for all proposals. A recommendation to the Commission on these proposals cannot be made until all relevant land owners' consent is granted.	<p>SIMTA has consulted with all relevant landowners to obtain consent for the MPW Stage 2 Proposal and the MPE Stage 2 Proposal respectively. A summary of the status of these discussions is as follows:</p> <ul style="list-style-type: none"> • MPE Stage 2 Proposal: <ul style="list-style-type: none"> – MIC/Defence – Received and issued to DPE – All remaining land owner consents expected to be available by 30 October.2017. • MPW Stage 2: <ul style="list-style-type: none"> – MIC/Defence - Received and issued to DPE – All remaining land owner consents expected to be available by 30 October.2017. 	N/A
Developer contributions	<p>The Department seeks an update about your ongoing consultation with Council regarding contributions.</p> <p>It is understood Qube met with Council on 25 September.</p> <p>The Department would appreciate your advice on any outcomes, and any outstanding follow up actions.</p>	<p>SIMTA intends to meet with Liverpool City Council on 26 October, following the postponement of an earlier meeting in September, and a further postponement of a meeting that was scheduled for 19 October.</p> <p>SIMTA has prepared a letter to Liverpool Council outlining our proposed approach to contributions and is seeking to discuss and confirm the contributions when we meet on 26 October.</p> <p>SIMTA has previously prepared and issued requests for land owner's consent and has been informed verbally that these are progressing within Liverpool Council. If not received before we meet on 26 October SIMTA will be seeking to confirm the exact timing during the 26 October meeting.</p>	N/A

Moorebank Precinct East Stage 2

Phase	Phase Description	Works period A – Pre-construction activities	Works period B – Site preparation activities	Works period C – Construction of the Moorebank Avenue diversion road	Works period D – Bulk earthworks, drainage and utilities	Works period E – Pavement works along Moorebank Avenue	Works period F – Warehouse construction and internal fit-out
0	<ul style="list-style-type: none"> Pre-construction activities; including but not limited to Importation, stockpiling and placement of clean general fill for site preparation activities, installation of site fencing and remediation, where required, including unexploded ordnance (UXO), exploded ordnance (EO) and exploded ordnance waste (EOW) management. Site preparation activities, including demolition of structures, vegetation clearance, adjusting the building formation of the site, temporary works including installation of construction environmental management measures, establishment of construction compound fencing and hoardings, installation of site offices and amenities, construction of hardstand for staff parking and laydown areas, establishment of the temporary batch plant and materials crushing plant, construction of access roads site entry and exit points and security, establishment of site construction haulage roads and construction compound(s). 	✓	✓	x	x	x	x
1	Construction works relating to the Moorebank Avenue upgrade, basin 10 part of basin 1, warehouses 1, 3, 4 and 5, internal roads and drainage channels.	x	x	✓	✓	✓	✓
2	Construction works relating to warehouses 6, 7 and 8, basin 2, internal roads and drainage channels.	x	x	x	✓	x	✓
3	Construction works relating to warehouse 2, part of basin 1, basin 2, and the majority of the northern internal access road	x	x	x	✓	x	✓



LEGEND

- | | | |
|---------------------------|---------|-----------------|
| Watercourse | Phase 1 | Freight Village |
| MPE Site | Phase 2 | OSD |
| Cadastre (NSW DFSI, 2017) | Phase 3 | Road |
| | | Warehouse |

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 Aerial imagery supplied by nearmap (Aug, 2017)

1:10,000 at A4



MPE Stage 2 indicative phasing plan (SSD-7628)

Attachment I

ATTACHMENT A

MPE Stage 2 – TfNSW Second Response

TfNSW Submission	SIMTA Response	Reference
Issues		
<p>The development must be in accordance with the Limits of Approval described in conditions 1.6 to 1.9 of the Moorebank Precinct East Concept Plan determination (MP10 0193) that include the need for the development to not exceed the capacity of the transport network with or without road works or mitigation measures.</p>	<p>Conditions 1.6 of the the MPE Concept Plan Approval (MP 10_0193) states that “<i>projects carried out under this this Concept Plan must be operated with the objective of not exceeding the capacity of the transport network, including the local, regional and State road network</i>”. Condition 1.9 of the MPE Concept Plan Approval states that “<i>assessments at the development application stage will determine the nature and timing of road infrastructure upgrades. These may prove to be different from what is proposed in the Statement of Commitments</i>”.</p> <p>The MPE Concept Plan Approval therefore indicates that future approval must not exceed the capacity of the road network, however facilitates for upgrades to be undertaken subject to further assessments.</p> <p>Section 7.5.2 of the MPE Stage 2 EIS identifies the following intersections as requiring upgrades as part of the Proposal:</p> <ul style="list-style-type: none"> • Moorebank Avenue/MPE Stage 2 • Moorebank Avenue/MPE Stage 1 northern access • Moorebank Avenue/MPE Stage 1 central access • Moorebank Avenue/MPE Stage 1 southern emergency access. <p>In addition, the Amended Proposal would include an upgrade to approximately 1.5 kilometres of Moorebank Avenue. This upgrade would include modifications to lane configurations, including widening, and vertical alignment adjustment.</p> <p>Additional intersections (Section 7.6 of the EIS) within the broader network also require upgrades by Roads and Maritime to accommodate background growth. These intersections¹ include:</p> <ul style="list-style-type: none"> • M5 Motorway/Hume Highway • Moorebank Avenue/Newbridge Road • Moorebank Avenue/Heathcote Road 	<p>Sections 7.5.2 and 7.6 and Appendix K of the EIS</p>

¹ Some other intersections impacted by the Moorebank Precinct are part of discussions between SIMTA, Transport for NSW and NSW Roads and Maritime Services, relating to an agreed mitigation framework for the MPE and MPW Projects.

TfNSW Submission	SIMTA Response	Reference
	<ul style="list-style-type: none"> • M5 Motorway/Heathcote Road. <p>Recommended improvements to these intersections are suggested, however, as the Proposal does not worsen intersection performance, these improvements are not included as mitigation measures for the Proposal (refer to Appendix K of the EIS).</p> <p>Overall, the upgrade of Moorebank Avenue and the associated road network improvements to be undertaken by Roads and Maritime would result in an improvement to the road network during the operation of the MPE Stage 2 Proposal. In consideration of this, the MPE Stage 2 Proposal is, subject to the implementation of upgrades, not considered to exceed the capacity of the road network and is therefore consistent with the MPE Concept Plan Approval.</p>	
<p>The proponent's assessment to MP10_0193 Moorebank Precinct East Stage 2 - Operational Traffic and Transport Impact Assessment found that the broader road network in the study area would need to be upgraded to cater for the forecast traffic increases from the proposed development and general background growth.</p>	<p>The Operational Traffic and Transport Impact Assessment (Appendix K of the EIS) concluded that the Proposal would have the highest impact on Moorebank Avenue (south of Anzac Road) with traffic volume increases of 23% in 2019 and 19% in 2029. This was followed by Moorebank Avenue (north of Anzac Road) with an increase of 18% in 2019 and 15% in 2029. The analysis suggests increases due to the Proposal on the remaining road sections (outside of Moorebank Avenue) are expected to be low with increases of below 4% in the opening year and 10-year horizon.</p> <p>As discussed above, the MPE Stage 2 Proposal includes an upgrade to Moorebank Avenue (south of Anzac Road) to address the potential future impacts of the Proposal. Impacts of the MPE Stage 2 Proposal, on the surrounding road network (outside of Moorebank Avenue) are considered to be minor in nature and primarily attributable to background traffic and background traffic growth. As a result, it is anticipated that these surrounding intersections² would be upgraded as road network improvements to be undertaken by Roads and Maritime.</p> <p>It should be appreciated that the MPE Stage 2 Proposal does not propose to exceed, or increase, the approved container freight road volume limitation of 250,000 TEUs as specified in CoA 1.6 of the MPE Concept Plan Approval. Condition 1.12 of the CoA further requires that the warehousing and distribution facilities must only be used for activities associated with freight using the rail intermodal. MPE terminal operations, that will progressively enable the current limitation of 250,000 TEUs and directly associated container freight road volume, have been assessed and approved within the MPE Stage 1 Approval (SSD 14-6766).</p> <p>The MPE Stage 2 Proposal includes a traffic impact assessment and cumulative assessment of traffic impacts for the broader precinct and surrounding road network, as required by Schedule 3 Condition 2.1 of the MPE Concept Plan Approval. The tracked assessment provided is consistent with the MPE Concept Approval and the MPE Stage 1 Approval and do not propose changes to the container freight road volume as assessed and approved.</p> <p>MPE Stage 2 does not, of itself, create a need to upgrade intersections in the broader network. The traffic assessments required for progressive stages identify this need, consistent with earlier</p>	<p>Appendix K of the EIS</p>

² This is with the exception of Moorebank Avenue / Anzac Road intersection which is to be upgraded as part of the MPW Stage 2 Proposal (SSD 7709).
MPE Stage 2 Proposal - SIMTA TfNSW 2nd Response

TfNSW Submission	SIMTA Response	Reference
	assessments. The potential impacts of the capped TEU movements and container freight road volume have been assessed, approved and remain unchanged for the MPE Stage 2 Proposal.	
TfNSW is currently working with the proponent to identify appropriate traffic mitigation measures and upgrades to alleviate the impact on the surrounding regional traffic network. This includes consideration of the measures proposed in the proponent's Revised Statement of Commitments dated May 2015.	Noted. Discussions between SIMTA and Transport for NSW (inclusive of Roads and Maritime) are ongoing with regards to mitigation for the whole of precinct cumulative traffic impacts. As mentioned above, no upgrades are required to local intersections to cater for traffic as a result of the MPE Stage 2 Proposal. Therefore, these discussions are considered separate to the assessment of the MPE Stage 2 Proposal.	N/A
The proponent should address all the matters in Annexure A — Summary of TfNSW Concerns as set out in the TfNSW letter of September 2017.	As discussed above, a detailed response to the TfNSW Response – 29/09/2017 was provided in the TfNSW Submission – 25 July 2017. In particular, a response was provided to the general TfNSW concerns (Annexure A) (reproduced in <i>Attachment B</i> of this letter).	Attachment B of this letter
Recommendations		
TfNSW continues to request a deferred commencement condition on SSD 7628 that requires the proponent to identify the above appropriate traffic mitigation measures prior to Stage 2 construction on the site.	As mentioned above, no upgrades are required to nearby intersections to cater for traffic as a result of the MPE Stage 2 Proposal. Therefore, deferred commencement until an agreement for State Road Network mitigation is not considered necessary. Further, it is anticipated that an agreement would be made between SIMTA and Roads and Maritime for the Moorebank Avenue upgrade proposed within the MPE Stage 2 Proposal, prior to construction of this upgrade.	N/A
All issues set out in Annexure B — Standard Conditions provided in the TfNSW letter of September should be addressed to TfNSW satisfaction.	As discussed above, a detailed response to the TfNSW Response – 29/09/2017 was provided in the TfNSW Submission – 25 July 2017. In particular, a response was provided to the recommended conditions of approval (Annexure B) (reproduced in <i>Attachment B</i> of this letter).	Attachment B of this letter

ATTACHMENT B

MPE Stage 2 – TfNSW First Response (29/09/2017) - refer to Attachment D of this Memo for first response

Attachment J

ATTACHMENT C - RECOMMENDED CONDITIONS OF APPROVAL

Moorebank Precinct West (MPE) Stage 2 (SSD 7628)

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
Recommended conditions from agencies, post-response to submissions preparation					
TfNSW	Amendment to proposed condition	Traffic	<p>i) The construction of new or modification to existing traffic lights along Moorebank Avenue will require consent from Roads and Maritime under Section 87 of the <i>Roads Act, 1993</i>. Proposed traffic control light and/or modifications shall be designed to meet Roads and Maritime requirements prior to the commencement of construction works.</p> <p>The Traffic Control Signal (TCS) plans shall be drawn by a suitably qualified person and endorsed by a suitably qualified practitioner. The submitted designs shall be in accordance with Austroads Guide to Road Design in association with relevant Roads and Maritime supplements (available on www.rms.nsw.gov.au). The certified copies of the signal/civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to the release of a Construction Certificate by the Principal Certifying Authority and commencement of road works.</p>	N/A	<p>i. The construction of new or modification to existing traffic lights along Moorebank Avenue will require consent from Roads and Maritime under Section 87 of the Roads Act, 1993. Proposed traffic control light and/or modifications shall be designed to meet Roads and Maritime requirements prior to the commencement of construction works.</p> <p>The Traffic Control Signal (TCS) plans shall be drawn by a suitably qualified person and endorsed by a suitably qualified practitioner. The submitted designs shall be in accordance with Austroads Guide to Road Design in association with relevant Roads and Maritime supplements (available on www.rms.nsw.gov.au). The certified copies of the civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to <u>the release of the Construction</u></p>

¹ Proposed additions to recommended condition of approval are denoted as bold and underlined text
Proposed deletions to recommended condition of approval are denoted as bold underlined and struck through text

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
			<p>Roads and Maritime fees for administration, plan checking, civil works inspections and project management shall be paid by the developer prior to the commencement of works.</p> <p>The proponent will be required to enter into a Works Authorisation Deed (WAD) for the abovementioned works. Please note that the WAD will need to be executed prior to Roads and Maritime assessment of the detailed signal/civil design plans.</p>		<p><u>Certificate by the Principal Certifying Authority and the commencement of road works <i>for the Moorebank Avenue Upgrade</i>.</u></p> <p>Roads and Maritime fees for administration, plan checking, civil works inspections and project management shall be paid by the developer prior to the commencement of works.</p>
TfNSW	Amendment to proposed condition	Traffic	<p>ii) The proponent may be required to dedicate land or provide an easement for the maintenance of the traffic control lights. Further details will be included in the WAD process.</p>	<p>The specific location for permanent traffic signals for the Moorebank Avenue upgrade and associated intersection has yet to be determined. Should these signals be located on land included within the Moorebank Precinct, SIMTA would facilitate for suitable access arrangements to be provided to Roads and Maritime Services for maintenance. These access arrangements would be discussed as part of the WAD process however neither a dedication of land or easements are considered necessary and inconsistent with the current arrangement for access to existing signalling within the Moorebank Precinct (on Moorebank Avenue, south of Anzac Road).</p> <p>SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Condition not to be included in final conditions of approval
TfNSW	Amendment to proposed condition	Traffic	<p>iii) The proposed road upgrade, road raising and widening works by the proponent along Moorebank Avenue shall</p>	<p>The Moorebank Avenue upgrade works are only one aspect of the MPE Stage 2 Proposal, with other works to be</p>	<p>The proposed road upgrade, road raising and widening works by the proponent <u>for the Moorebank Avenue upgrade and</u></p>

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			<p>be designed to meet Roads and Maritime requirements, and endorsed by a suitably qualified practitioner. The design requirements shall be in accordance with AUSTROADS and other Australian Codes of Practice. The certified copies of the civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to the release of the Construction Certificate by the Principal Certifying Authority and commencement of road works.</p>	<p>undertaken on the Proposal site that do not specifically relate to this upgrade. As indicated within the traffic impact assessment (Section 3.6, Appendix K of the MPE Stage 2 EIS) access to the Proposal site during construction would be initially (Works period A and B) from the existing Moorebank Avenue (existing MPE warehousing entrance). The Moorebank Avenue diversion road (Works periods C-E) and Moorebank Avenue upgrade (Works periods F and G) would be utilised in later stages of construction.</p> <p>In particular, access to the Proposal site, during the initial stages of construction, would be via the existing MPE warehouse entrance which would not result in unreasonable traffic impacts on the surrounding road network. As a result, it is considered suitable that this intersection could function for the construction of the Proposal prior to the Moorebank Avenue upgrade design being approved by Roads and Maritime. As a result, it is not considered appropriate that the release of the Construction Certificate, which is broadly applicable to all of the Proposal, be linked to the Moorebank Avenue upgrade, when an initial entrance could be utilised for construction access</p>	<p><u>associated intersections along Moorebank Avenue</u> shall be designed to meet Roads and Maritime requirements, and endorsed by a suitably qualified practitioner. The design requirements shall be in accordance with AUSTROADS and other Australian Codes of Practice. The certified copies of the civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to <u>the release of the Construction Certificate by the Principal Certifying Authority and</u> commencement of road works <u>for the Moorebank Avenue upgrade and associated intersections.</u></p>
TfNSW	New condition	Traffic	<p>iv) The works associated with traffic lights and road upgrade works are to be designed and delivered at no cost to TfNSW or Roads and Maritime Services.</p>	<p>The apportionment of costs associated with traffic lights and road upgrades for the MPE Stage 2 Proposal (SSD 7628) is subject to agreement between TfNSW, Roads and Maritime Services and SIMTA. This apportionment is to be confirmed</p>	<p>Condition not to be included in final conditions of approval</p>

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
				<p>prior to approval of the MPE Stage 2 Proposal.</p> <p>Given the status of these discussions, SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	
TfNSW	New condition	Traffic	<p>v) The Applicant is to ensure that the construction and operation of the proposed development will not prevent the existing use of Moorebank Avenue as a public road to a standard commensurate to its current use prior to the development. A staging plan should be submitted for review and approval to Roads and Maritime Services and TfNSW prior to construction works commencing, to ensure adequate capacity including a requirement to maintain two lanes open to traffic along Moorebank Avenue at all times.</p>	<p>The MPE Stage 2 Proposal includes an upgrade to Moorebank Avenue and provides mitigation measures to ensure the following:</p> <ul style="list-style-type: none"> Staging Report would be submitted to the Secretary (should this package be delivered separately) as indicated in the Final Compilation of Mitigation Measures (FCMM) No. 0D in the MPE Stage 2 RtS Management of traffic along Moorebank Avenue would be in accordance with an approved Construction Traffic Management Plan – FCMM No. 1A in the MPE Stage 2 RtS). <p>These mitigation measures, are considered suitable to ensure that the MPE Stage 2 Proposal would not prevent the existing use of Moorebank Avenue as a public road to a standard commensurate to its use prior to the development.</p> <p>Further, Indicative Preliminary Road Upgrade Staging Plans have been prepared and include at Attachment C(iii) of this letter. Further details relating to the staging of construction would be included in a subsequent staging plan (provided to</p>	Condition not to be included in final conditions of approval

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
				<p>the Secretary) or within the CTMP for the MPE Stage 2 Proposal.</p> <p>In consideration of the above, the following amendments (with additions bold and underlined and deletions bold underlined and struck through) should be made to the Recommended condition of approval:</p> <p>On the basis of this recommended condition being unnecessary in the context of the mitigation measures which would ensure that we maintain Moorebank Avenue as a publicly accessible private road, SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	
TfNSW	New condition	Traffic	<p>vi) Prior to the issue of any Construction Certificate, the proponent is required to undertake a Road Safety Audit for the proposed construction vehicle assess on Moorebank Avenue by an independent TfNSW accredited road safety auditor in accordance with the relevant Austroads guidelines to identify the safety issues for the proposed construction vehicle access. The proponent shall recommend corrective actions for the identified safety issues and propose appropriate traffic management measures (i.e. temporary traffic signals and other traffic management measures) in consultation and approval from the relevant Council, TfNSW and Roads and Maritime.</p> <p>The Road Safety Audit report should be submitted to the relevant Council and</p>	<p>The Proposal includes one construction access point from Moorebank Avenue, which will become an operational site access for the Proposal. The operational access will undergo a Road Safety Audit as part of the design approval process.</p> <p>In addition to this, a Road Safety Audit for Moorebank Avenue / Cambridge Avenue has previously been undertaken for the MPE Stage 1 Project (SSD 14-6766) with part of the recommendations of this audit implemented. As a result, the undertaking of additional road safety audits along the whole length of Moorebank Avenue is not considered relevant for the construction of the MPE Stage 2 Proposal.</p>	<p>i. Prior to <u>the opening of the construction access at the Moorebank Avenue/ MPE Stage 2 site access intersection, issue of any Construction Certificate</u>, the proponent is required to undertake a Road Safety Audit for the proposed construction vehicle assess at this location by an independent TfNSW accredited road safety auditor in accordance with the relevant Austroads guidelines to identify the safety issues for the proposed <u>new</u> construction vehicle access. The proponent shall recommend corrective actions for the identified safety issues and propose appropriate traffic management measures (i.e. temporary traffic</p>

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			Roads and Maritime for review and comment.	SIMTA therefore does not agree with the inclusion of this amended condition, and proposes the extent of the road safety audit be reduced to include only the new intersection works as proposed	signals and other traffic management measures) in consultation and approval from the relevant Council, TfNSW and Roads and Maritime. The Road Safety Audit report should be submitted to the relevant Council and Roads and Maritime for review and comment
TfNSW	New condition	Traffic	<p>vii) A Construction Traffic and Access Management Plan detailing staging of works, construction vehicle routes, construction traffic generation, construction traffic impacts, impacts to pedestrians / cyclists, local property access, hours of operation, parking for workers, access arrangements, cumulative construction impacts, mitigation measures and traffic control should be developed in consultation with the relevant Council, TfNSW and Roads and Maritime Services.</p> <p>The Construction Traffic and Access Management Plan should be submitted to the relevant Council, TfNSW and Roads and Maritime for approval prior to the commencement of construction works.</p>	<p>A Construction Traffic Management Plan is to be prepared for the MPE Stage 2 Proposal (refer to FCMM No. 1A in the MPE Stage 2 RtS). Notwithstanding this, SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 (SSD 7628) approval instrument.</p> <p>Standard practice is for construction documentation to be approved by the Secretary rather than government agencies. The recommended condition of approval, already identifies consultation ensuring that Council, TfNSW and Roads and Maritime would have an opportunity to comment on the Construction Traffic and Access Management Plan and therefore approval is considered unnecessary.</p> <p>In summary, this recommended condition of approval is considered inconsistent with standard practice and consultation (with Council, TfNSW and Roads and Maritime) is provided in the initial part of the recommended condition of approval. On this basis, SIMTA therefore does not agree with the inclusion of this amended</p>	Condition not to be included in final conditions of approval

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				condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.	
TfNSW	New condition	Traffic	<p>viii) The proponent is to generate and provide a report each six months (in a format agreed with TfNSW and Roads and Maritime) that advises:</p> <ul style="list-style-type: none"> • The number of actual and standard twenty foot equivalent shipping containers despatched and received during the period; • The number of days in the period that the truck gate was open for despatching trucks 24 hours a day, 7 days a week. Detail any exceptions and advise actual hours of operation; • A record of every vehicle entry by class, date and time; • The number of light vehicles turning right into the driveway/s and the number of light vehicles turning left from the driveway/s for a representative day; and • The despatch location or origin address. 	<p>Operational traffic monitoring is to be undertaken for the MPE Stage 2 Proposal as part of FCMMs (refer to FCMM 1D, Section 8 of the MPE Stage 2 RtS). This monitoring is to be identified within the Operational Environmental Management Plan (OEMP) for the MPE Stage 2 Proposal. The specific monitoring to be undertaken would be determined prior to the operation of the MPE Stage 2 Proposal.</p> <p>In addition to the above, the MPE Stage 2 Proposal includes an upgrade of Moorebank Avenue to accommodate traffic from the Moorebank Precinct and background traffic until 2029. This upgrade is considered suitable to mitigate the potential traffic congestion impacts of the MPE Stage 2 Proposal.</p> <p>The objective of the monitoring proposed in the recommended condition of approval is unclear and the level of monitoring requested is not considered commensurate with the level of impact identified for the MPE Stage 2 Proposal. The monitoring requested, in particular vehicle class, date and time and also dispatch location or origin address has the potential to impact on the competitive nature of SIMTA's operations and also, if provided publicly, the security of the MPE Stage 2 Proposal's facilities.</p>	Condition not to be included in final conditions of approval

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				SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.	
TfNSW	New condition	Traffic	ix) The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements in relation to landscaping and/or fencing, aisle widths, aisle lengths, and parking bay dimensions) should be in accordance with AS 2890.1- 2004, AS2890.6-2009 and AS 2890.2 – 2002 for heavy vehicle usage.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	No amendments to this condition are proposed
TfNSW	New condition	Traffic	x) The swept path of the longest vehicle entering and exiting the subject site, as well as manoeuvrability through the site, shall be in accordance with AUSTROADS requirements. In this regard, a plan shall be submitted to the consent authority and Roads and Maritime for approval, which shows that the proposed development complies with this requirement.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	No amendments to this condition are proposed
TfNSW	New condition	Traffic	xi) All vehicles are to enter and leave the site in a forward direction.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	No amendments to this condition are proposed
TfNSW	New condition	Traffic	xii) All vehicles are to be wholly contained on site before being required to stop	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	No amendments to this condition are proposed
TfNSW	New condition	Traffic	xiii) A Road Occupancy Licence is to be obtained from the Transport Management Centre for any works that may impact on	SIMTA has no objection to the inclusion of this recommended condition of approval	No amendments to this condition are proposed

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
			traffic flows on Moorebank Avenue or the adjoining state road network during construction activities.	within the MPE Stage 2 approval instrument.	
TfNSW	New condition	Traffic	xiv) All demolition and construction vehicles are to be contained wholly within the site and vehicles must enter the site before stopping. A construction zone will not be permitted on Moorebank Avenue without the express approval of RMS.	<p>The MPE Stage 2 Proposal would involve an upgrade of Moorebank Avenue (refer to Section 6 of the MPE Stage 2 RtS). There is potential for a construction zone to be required on Moorebank Avenue for the safe undertaking of these works. It is noted that as a result of this recommended condition that a construction zone would not be permitted without Roads and Maritime Services however SIMTA wanted to note the potential for this zone.</p> <p>Further, impact assessment of the Moorebank Avenue upgrade has been indicated within the Construction Traffic Impact Assessment (Appendix K of the MPE Stage 2 EIS).</p> <p>SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.</p>	No amendments to this condition are proposed
TfNSW	New condition	Traffic	xv) The developer shall be responsible for all works required by public utility adjustment/relocation works, necessitated by the above work and as required by the various public utility authorities and/or their agents.	<p>The apportionment of costs associated with public utility adjustment/relocation works for the MPE Stage 2 Proposal would be subject to separate discussions with utilities providers.</p> <p>In light of the status of these discussions, SIMTA therefore does not agree with the inclusion of this amended condition of approval within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Condition not to be included in final conditions of approval

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
TfNSW	New condition	Traffic	xvi) All works/regulatory signposting associated with the proposed development are to be approved by Roads and Maritime Services.	SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.	No amendments to this condition are proposed
RFS	Proposed condition	Planning	<p>1. The entire development sites be managed as an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of the Planning for Bush Fire Protection 2006 and NSW Rural Fire Service's document <i>Standards for asset protection zones</i>.</p>	<p>A Bushfire Impact Assessment was provided with the MPE Stage 2 EIS (Appendix U). The Bushfire Impact Assessment for the MPE Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix W of the EIS). The assessment concluded that the MPE Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>In particular, the assessment identifies that 'the continued maintenance of the existing vegetation on the land to the east and south of the warehouses, within the Proposal site, provides a satisfactory reduction of fuel loads within these defendable spaces' (refer to Section 4.1 of Appendix U of the EIS).</p> <p>In addition to this, the MPE Stage 2 Response to Submissions (RtS, Arcadis, 2017- Section 8) included a number of additional mitigation measures for bushfire management during both construction and operation of the MPE Stage 2 Proposal. These are as follows:</p> <ul style="list-style-type: none"> (No. 13A – construction) A bushfire management strategy, or equivalent, will be prepared as part of the CEMP 	<p>The <u>entire development sites area between the eastern boundary of the Proposal site and the western boundary of the perimeter road and the southern boundary of the Proposal site and the northern boundary internal transfer road</u> be managed <u>as to the standards of an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of</u> the Planning for Bush Fire Protection 2006 and NSW Rural Fire Service's document <i>Standards for asset protection zones</i>.</p>

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				<p>for the Amended Proposal. The strategy will include:</p> <ul style="list-style-type: none"> – Emergency response plans and procedures – Restrictions on activities (namely hot works) that cannot be undertaken on total fire ban days within areas of high Bushfire Hazard Rating, unless otherwise advised by the NSW Rural Fire Service. – All construction site offices and temporary buildings will be located outside buffer areas to ensure minimum setbacks of 10 m. – All construction site offices will be accessible via access roads suitable for firefighting appliances similar to NSW Rural Fire Service category 1 tankers. • (No. 13B – operation) A bushfire management strategy, or equivalent, would be prepared as part of the OEMP for the Amended Proposal. In particular, the strategy would ensure management of landscaped areas within the Stage 2 site would be undertaken to maintain minimum dry fuel loads. <p>It is noted that Section 4.1 of the <i>Planning for Bushfire Protection 2006</i> refers only to ‘planning controls for residential and rural subdivision’, both of which are not included in the MPE Stage 2 Proposal.</p>	

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
				<p>Section 4.3.6 (f) of the <i>Planning for Bushfire Protection 2006</i> applies to buildings which are classed 5-8 under the BCA, which includes the building proposed within the MPE Stage 2 Proposal.</p> <p>In summary, the MPE Stage 2 Proposal satisfactorily addresses the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> and includes a number of mitigation measure for bushfire management.</p>	
RFS	Proposed condition	Planning	2. Public road access shall comply with section 4.1.3 (1) of <i>Planning for Bush Fire Protection 2006</i> except for the requirement for through access.	<p>A Bushfire Impact Assessment was provided with the MPE Stage 2 EIS (Appendix U). The Bushfire Impact Assessment for the MPE Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix U of the EIS). The assessment concluded that the MPE Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>It is noted that Section 4.1 of the <i>Planning for Bushfire Protection 2006</i> refers only to 'planning controls for residential and rural subdivision', both of which are not included in the MPW Stage 2 Proposal. Section 4.3.6 (f) of the <i>Planning for Bushfire Protection 2006</i> applies to buildings which are classed 5-8 under the BCA, which includes the building proposed within the MPW Stage 2 Proposal.</p>	Public road access shall comply with <u>the aims and objectives section 4.1.3 (1)</u> of <i>Planning for Bush Fire Protection 2006</i> except for the requirement for through access.

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
RFS	Proposed condition	Planning	3. The provision of water, electricity and gas shall comply with section 4.1.3 of <i>Planning for Bush Fire Protection 2006</i>	<p>A Bushfire Impact Assessment was provided with the MPE Stage 2 EIS (Appendix U). The Bushfire Impact Assessment for the MPE Stage 2 Proposal provided a comprehensive assessment in consideration of the aims and objectives of the <i>Planning for Bushfire Protection 2006</i> (refer to Section 4 of Appendix U of the EIS). The assessment concluded that the MPE Stage 2 Proposal 'satisfactorily addressed' the aims and objectives of the policy.</p> <p>Overall, the MPE Stage 2 Proposal has been designed to accommodate heavy vehicle access it would comply with the requirements of the <i>Planning for Bush Fire Protection 2006</i>.</p> <p>SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 approval instrument.</p>	No amendments to this condition are proposed
Recommended conditions from agencies, received during exhibition of the MPE Stage 2 EIS, and responded to in MPE Stage 2 RtS					
LCC	New condition	Greenhouse Gas	Should the proposal be approved then a condition of consent should include a detailed review and specification of alternative low embodied energy construction materials (including but not limited to low embodied energy concrete and recycled steel materials) should occur as part of procurement policies and be considered during detailed design and prior to construction, to ensure embodied	As outlined in Section 18.4.3 of the EIS, consideration will be given to material substitution where reasonable and feasible to reduce embodied energy of construction materials.	Condition not to be included in final conditions of approval

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			energy and resulting GHG emissions are minimised		
NSW Health	New Condition	Noise	<p>There is potential for sleep disturbance from rail pass-by events. As detailed in the Revised Project Report for Noise and Vibration maximum levels at Casula and Glenfield would exceed the sleep disturbance objective for industrial premises. We note there is no separate allowance for wheel squeal. The report correctly indicates that sleep disturbance will depend on the frequency of events and the time of day/night. Appropriate mitigation measures should be considered. Advice should be sought from the Environment Protection Authority about appropriate mitigation but may include, track lubrication, effective maintenance regimes for locomotives and carriages, electrification, and low noise barriers.</p> <p>Consideration should be given to requiring noise monitoring and a Noise Management Plan as a condition of consent.</p>	<p>The Rail link is to be constructed under the MPE Stage 1 Project (SSD 14-6766). The HRA for the MPE Stage 2 Proposal compares predicted noise levels with guideline criteria for health provided by the WHO. The WHO guidelines for community noise are designed to protect against the key health effects of annoyance, sleep disturbance, and cognitive impairment (WHO, 1999). The ratio of the predicted noise level to the guidelines is termed the hazard quotient, with a hazard quotient of less than 1 considered to be an acceptable level of risk.</p> <p>The HRA identifies that for total noise (i.e. including rail noise) for the cumulative Proposal (i.e. including MPE Stage 2, MPE Stage 1 and MPW Stage 2), hazard quotients for annoyance, sleep disturbance and cognitive impairment were less than or equal to one (1) at all residential and educational receivers. This indicates that the operational noise from the cumulative Proposal does not pose an unacceptable risk to the health of these communities. Noise from the cumulative Proposal would result in a predicted hazard quotient of greater than 1 for annoyance and cognitive impairment at the nearest industrial receiver, however, this is considered acceptable given the hazard quotients for existing ambient</p>	Condition not to be included in final conditions of approval

Agency	New condition or amendment to proposed condition	Environmental Aspect	Issue Raised	Justification	Proposed amendment to condition ¹
				<p>noise at this receiver already exceed 1 for these health effects.</p> <p>The operation of the Rail link is subject to the MPE Stage 1 Approval (SSD 14-6766), and MPW Stage 2 Proposal (SSD 16_7709).</p> <p>Mitigation measures 3B, 3C and 3D documented in the MPE Stage 1 RtS address noise from the Rail link, including the potential for wheel squeal. These measures include use of friction modifiers, rail grinding and preparation of a Rail Noise Management Plan (RNMP). As further outlined within measure 3C, background rail noise monitoring will be undertaken during preparation of the RNMP to establish existing levels of rail noise levels in accordance with the RING and prescribe mitigation measures where modelling predicts and /or operational monitoring shows an exceedance attributable to the Proposal that RING prescribes as reasonable and feasible to mitigate.</p> <p>Continuation of existing ambient noise monitoring surveys throughout construction and operation of the MPW Stage 2 Proposal, applicable to the Rail link, is proposed in mitigation measures 2B and 2C respectively of the MPW Stage 2 RtS (refer to Section 8). The noise surveys would quantify any potential noise from the Project and identify any trends/changes in the ambient noise environment during the progressive development, and prescribe appropriate mitigation accordingly.</p>	

Attachment K

ATTACHMENT A

MPE Stage 2 – OEH/DP&E Initial Assessment Response

Issue	Response	Reference
<p>I refer to the biodiversity information submitted to the Department in relation to MPE Stage 2. This includes a BAR dated December 2016, additional biodiversity survey mapping along the eastern and southern boundaries of MPE (30m into the Boot Land) included within the main RtS report dated July 2017 and supplementary biodiversity information contained in a letter dated 15 September 2017. It is unclear whether the submitted information contained in the RTS specifically sought to replace or update part or all of the Project BAR or provide supplementary information additional to the Project BAR.</p>	<p>Section 4.2 of the MPE Stage 2 Response to Submissions (Arcadis, 2017) provides a summary of the additional surveys that were undertaken. The summary of these surveys was as follows:</p> <ul style="list-style-type: none"> <i>Additional targeted threatened flora surveys have been undertaken within 30 metres of the eastern boundary of the MPE site where it adjoins the Boot land, and within 30 metres of the portion of the Boot land south of the MPE site that adjoins the fenceline south of the MPE Stage 2 amended construction area (refer to Figure 6-2 [reproduced below]).</i> <i>Amendments to the construction and operational area do not encroach on these threatened species identified to the east or south of the MPE site during surveys carried out in May 2017. No threatened species recorded during these additional surveys require removal for the Amended Proposal.</i> <i>The Amended Proposal would result in construction phase biodiversity impacts consistent with those already identified and assessed as part of the EIS (refer to Section 11.4 and Appendix O of the EIS). The modifications to the stormwater and drainage design would not change the type or extent of potential stormwater and flooding impacts assessed in the MPE Stage 2 EIS (refer to Section 12 and Appendix O). Accordingly, these potential impacts would be managed and mitigated in accordance with Section 12.4.1 and Appendix O of the EIS</i> <p>In summary, the intention of the additional surveys undertaken as part of the MPE Stage 2 RtS were to supplement the information provided within both the EIS and the Biodiversity Assessment Report (BAR) (Appendix O of the EIS). Further, in that the amended construction area did not pose any additional impacts¹ above those identified in the BAR, submitted with the EIS, mitigation measures are considered to be suitable and therefore an update to the BAR was not considered necessary.</p>	<p>Section 4.2 of the MPE Stage 2 RtS</p> <p>Appendix O of the MPE Stage 2 EIS</p>

¹ A reduction in biodiversity impacts was identified. Refer to comments below.

Issue	Response	Reference
<p>It is noted that the RTS provided the following content on biodiversity :</p> <p>“OEH’s submission to the EIS requested additional targeted threatened flora surveys have been undertaken within 30 m of the eastern boundary of the MPE Site where it adjoins the Boot land, and within 30 m of the portion of the Boot land south of the MPE Site that adjoins the fence line south of the MPE Stage 2 amended construction area. Targeted surveys were conducted on 11 and 18 May 2017 and were undertaken using parallel walking transects spaced approximately 5 m apart. “</p>	<p>Noted and agreed, refer to comment provided above.</p>	<p>Section 4.2 of the MPE Stage 2 RtS</p>
<p>The Stage 2 RTS amends the original proposal to discharge piped water across the southern boundary of the Stage 2 project site, across the offset land into Anzac Creek. It is now proposed to discharge this stormwater to the western boundary so that it discharges across the project boundary at the current drainage outlet into the shin of the “bootland”.</p> <p>It is noted that the updated Biodiversity information inserted by the applicant in a supplementary response shows vegetation surveying for a small area of the “bootland” only that adjoins the stage 2 boundary. This updated Biodiversity information (extract attached) identifies a cluster of Hibbertia Puberula near this drainage work and also along the length of the Stage 2 western boundary.</p>	<p>Section 6.3.4 of the MPE Stage 2 RtS provides a summary of the alterations to the drainage design to the south of the MPE site, which were undertaken to respond to issues raised by NSW DPI (submission during public exhibition of the EIS – dated 24 February 2017) and as part of design development. The stormwater and drainage design has been amended as follows:</p> <ul style="list-style-type: none"> • Conversion of the southern drainage swale presented in the EIS to a fill mound that would direct surface flows away from the MPE site. • Removal of the southern drainage channel and outlet to Anzac Creek. • Provision of a fill batter along the southern boundary of the MPE site. • Inclusion of a spillway along the eastern boundary of the MPE site immediately south of the south-eastern drainage outlet to manage flows during a PMF event. <p>Figure 6-2 provided within the EIS and resubmitted below, provides a comparison of the construction area (EIS) and the amended construction area (RtS).</p> <p>As discussed above, the amended drainage design in the RtS proposes to discharge water into Anzac Creek (through the Boot land) as was evident in the design provided within the EIS. The key change in this approach is to create a mound to disperse water to Anzac Creek, rather than a piped channel, at the southern boundary. The outlet at the south-eastern boundary would be retained as shown in the EIS (i.e. a piped outlet), however an additional drainage measure would be included in the form of a spillway. Collectively the amended drainage design would more naturally and effectively manage run-off and flood waters (refer also to Appendix P of the RtS for Civil Design Drawings).</p>	<p>Sections 4.2, 6.3.4, 75.3 and 8 of the MPE Stage 2 RtS</p> <p>Appendix O of the MPE Stage 2 EIS</p>

Issue	Response	Reference
	<p>In particular, this amended drainage design results in a reduction of biodiversity impacts, with a reduction of 0.01 ha of <i>Coastal freshwater lagoons of Sydney Basin and Southeast Corner</i> (Plant Community Type (PCT)), resulting in no removal of this plant community type, as part of the MPE Stage 2 Proposal (refer to Section 7.5.3 of the RtS). There would be no change, under the Amended Proposal (RtS) to impacts to other PCTs or threatened species as was evident from the Proposal (EIS).</p> <p>Figure 7-2 (or an equivalent) would be updated as part of the Updated BAR (to be submitted separately). It is noted that as a result of the scale of the figure and the location of species records that it could be misconstrued that some <i>Persoonia nutans</i>, or <i>Hibbertia puberula subsp. puberula</i> would be located within the MPE Stage 2 amended construction area. As identified in both BAR (Appendix O of the EIS) and as supplemented by the RtS, these records are not within the amended construction area and, subject to the implementation of mitigation measures, they are unlikely to be directly or indirectly impacted by the MPE Stage 2 Amended Proposal (refer to Section 8 of the RtS for mitigation measures). The closest record of <i>Hibbertia puberula subsp. puberula</i> to the proposed drainage works is approximately 45 metres to the south of the impact footprint.</p>	
<p>It is noted that this information is not contained in an updated BAR certified by an ecologist, but is provided as information contained in the RTS. Again it is unclear whether this information is intended to replace the previous formal BAR or only part of the previous BAR that forms the project EIS.</p>	<p>Jane Rodd (Arcadis, Senior Ecologist – BSc), whom at the date of the RtS was accredited as a Biobanking Assessor under the <i>Threatened Species Conservation Act 1995</i>, is listed as an author on the title page (i) of the RtS. Jane Rodd, and other Arcadis ecologists, prepared and technically reviewed the sections of the RtS which related to biodiversity, including but not limited to responses, to OEH (Section 4.3), DPI (Section 4.6), LCC (Section 4.9) and also the further biodiversity impact assessment (Section 7.5).</p> <p>As discussed above, the intention of the information provided in the MPE Stage 2 RtS is to respond to agency comments and supplement (not replace) the information provided within both the EIS and the Biodiversity Assessment Report (Appendix O of the EIS). In that the amended construction area did not pose any additional impacts above those identified in the BAR, submitted with the EIS, mitigation measures are considered to be suitable and therefore an update to the BAR was not considered necessary.</p> <p>Notwithstanding this, an Updated BAR is being prepared and will be provided to DP&E in the week commencing the 23 October 2017. This Updated BAR would replace the BAR provided within the EIS and the information within the RtS, although that information, whilst not consolidated, is still considered accurate and appropriate for DP&E and OEH to proceed with their assessment of the MPE Stage 2 Proposal.</p>	<p>Sections 4.3, 4.6, 4.9 and 7.5 of the RtS</p> <p>Appendix O of the EIS</p> <p>Updated BAR (to be submitted separately)</p>

Issue	Response	Reference
<p>As part of its assessment and verification of the surveying and mapping undertaken in relation to Stage 2 and the Biobanking Offset Strategy in relation to the Wattle Grove Biobanking site, OEH has identified a number of specimens of <i>Hibbertia fumana</i> within locations where mapping submitted as part of this project had identified only <i>Hibbertia puberula</i> subsp. <i>puberula</i> occurring. This has raised a number of concerns regarding the survey methodology, timing and assumptions used to undertake the targeted <i>Hibbertia puberula</i> and <i>Hibbertia fumana</i> surveying that was previously requested by DPE for this application, as well techniques used to differentiate between <i>Hibbertia fumana</i> and <i>Hibbertia puberula</i>.</p>	<p>Data showing the location of some of the <i>Hibbertia fumana</i> was provided to Nathan Cairney (Tactical Group) from DP&E via email (dated 19 October 2017). The additional locations of <i>Hibbertia fumana</i> recorded by OEH are consistent with recent inspections of the species in the Boot land undertaken by Arcadis. The northernmost record collected by OEH, within the track to the south of Anzac Creek, consists of two plants located on what appears to be mounded soil and mulch (Plate 1). The area surrounding this record was searched in September 2017 and only plants of <i>Hibbertia puberula</i> subsp. <i>puberula</i> were recorded. It is possible that the <i>Hibbertia fumana</i> recorded in this location have grown from propagules transported in soil deposited to this mound, which could have occurred as part of UXO remediation of the areas to the south undertaken by Defence in late 2015/early 2016.</p> <p>Field assessment of the biodiversity values of the Proposal site and surrounds has been rigorously conducted periodically between May 2011 and throughout 2017 by both Arcadis and also WSP. Investigations were undertaken as part of the EIS and RtS to quantify any changes in site conditions, account for additional impact areas and assess vegetation. These include:</p> <ul style="list-style-type: none"> • EIS - field investigations were undertaken during daylight hours by Arcadis ecologists on 21 June 2016 and 13 October 2016 (Section 6.1.3 of the BAR). • RtS - field surveys undertaken during daylight hours by Arcadis ecologists on 11 and 18 May 2017 (Section 7.5 of the RtS) • Supplementary – validation of the May 2017 surveys to be undertaken in October 2017. <p><i>Hibbertia</i> spp. recorded during May 2017 surveys were identified by examining remnant fruiting and flowering material still attached to plants, which were present on almost all plants detected. One of the <i>Hibbertia puberula</i> subsp. <i>puberula</i> plants recorded was in flower at the time of surveys (Plate 2). Plants known to be <i>Hibbertia fumana</i> and <i>Hibbertia puberula</i> subsp. <i>puberula</i>, based on October-November 2016 surveys, were inspected at the commencement of May 2017 surveys to note any leaf, habit and fruiting characteristics that could be used in identification. The identifications in May 2017 will be confirmed in October 2017, during the species' flowering period, in accordance with FBA requirements.</p> <p>As discussed above, no <i>Hibbertia puberula</i> subsp. <i>puberula</i> or <i>Hibbertia fumana</i> have been recorded within the amended construction area, and therefore, subject to the implementation of mitigation measures, it is considered unlikely that the MPE Stage 2 Proposal would result in direct or indirect impacts on these species.</p>	<p>Section 7.5 of the RtS Sections 6.1.3 of Appendix O of the EIS Updated BAR (to be submitted separately)</p>

Issue	Response	Reference
	<p>Notwithstanding this, an updated BAR is being prepared and will be provided to DP&E in the week commencing 23 October 2017. This Updated BAR will replace the BAR provided within the EIS and the information within the RtS, although that information, whilst not consolidated, is still considered accurate and appropriate for DP&E and OEH to proceed with their assessment of the MPE Stage 2 Proposal.</p>	
<p>Accordingly you are requested to detail the survey effort, and timing of surveys, undertaken to identify the <i>Hibbertia</i> species (including the potential for <i>H. fumana</i>) in MPE stage 2 and within thirty metres of all adjoining land to MPE Stage 2 or further if this is required to address impacts from the stormwater outlet and its discharge as detailed in the RTS. This information is to be contained in an updated BAR signed by an accredited person.</p> <p>It should be clear for the purpose of finalising our assessment and also referring this matter to PAC, that when the updated BAR is submitted that you confirm whether the updated BAR requested above supersedes that previously submitted in relation to this application.</p>	<p>A discussion of the field survey effort undertaken to identify these species has been provided above.</p> <p>As discussed above, no <i>Hibbertia puberula subsp. puberula</i> or <i>Hibbertia fumana</i> have been recorded within the amended construction area, and therefore it is considered unlikely that the MPE Stage 2 Proposal would result in any direct or indirect impacts on these species.</p> <p>Notwithstanding this, an Updated BAR is being prepared and will be provided to DP&E in the week commencing 23 October 2017. This Updated BAR will replace the BAR provided within the EIS and the information within the RtS, although that information, whilst not consolidated, is still considered accurate and appropriate for DP&E and OEH to proceed with their assessment of the MPE Stage 2 Proposal.</p>	<p>Updated BAR (to be submitted separately)</p>



Plate 1. Area of mounded soil and mulch on track south of Anzac Creek where *Hibbertia fumana* was recorded in September 2017, (*Hibbertia fumana* in foreground)



Plate 2. *Hibbertia puberula* subsp. *puberula* in flower, recorded in May 2017 (western boundary of the Boot land)

MPE Stage 2 Response to Submissions



LEGEND

- Amended construction area
- Previous construction area
- Watercourse

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Aerial imagery supplied by nearmap (May, 2017)



Figure 6-2:
Comparison of the EIS and Amended Proposal Construction Area

Moorebank Precinct East - Stage 2 Proposal

Biodiversity Assessment Report

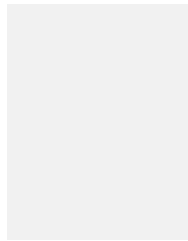


SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
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SYDNEY INTERMODAL TERMINAL ALLIANCE (SIMTA) MOOREBANK PRECINCT EAST STAGE 2

Biodiversity Assessment Report

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Approver Westley Owers



Report No AA009017

Date 6/11/2017

Revision Final post Response to Submissions

This report has been prepared for SIMTA in accordance with the terms and conditions of appointment for MPE Stage 2. Arcadis Australia Pacific Pty Limited (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

REVISIONS

Revision	Date	Description	Prepared by	Approved by
1	18/10/2016	Draft 1	Jane Rodd	Westley Owers
2	11/11/2016	Draft 2	Jane Rodd	Bradley Searle
3	01/12/16	Final for Public Exhibition (EIS)	Jane Rodd	Bradley Searle
4	6/11/2017	Updated (RtS)	Jane Rodd	Westley Owers

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APPENDICES

APPENDIX A BIOBANKING CREDIT REPORT

1 INTRODUCTION

Concept Plan Approval (MP 10_0193) for an intermodal terminal (IMT) facility at Moorebank, NSW (the Moorebank Precinct East Project (MPE Project) (formerly the SIMTA Project)) was received on 29 September 2014 from the NSW Department of Planning and Environment (DP&E). The Concept Plan for the MPE Project involves the development of an IMT, including a rail link to the Southern Sydney Freight Line (SSFL) within the Rail Corridor, warehouse and distribution facilities with ancillary offices, a freight village (ancillary site and operational services), stormwater, landscaping, servicing, associated works on the eastern side of Moorebank Avenue, Moorebank, and construction or operation of any part of the project, which is subject to separate approval(s) under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Sydney Intermodal Terminal Alliance (SIMTA) are seeking approval for the construction and operation of the Moorebank Precinct East (MPE) Stage 2 Proposal (the Proposal), which would comprise the second stage of development under the MPE Concept Approval (MP10_0193).

An Environmental Impact Statement (EIS) was prepared for the Proposal seeking approval, under Part 4, Division 4.1 of the EP&A Act. In particular, the EIS was prepared to address:

- The Secretary's Environmental Assessment Requirements (SEARs) (SSD 16-7628) for the Proposal, issued by NSW DP&E on 27 May 2016.
- The relevant requirements of the Concept Plan Approval MP 10_0913 dated 29 September 2014 (as modified).
- The relevant requirements of the approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (No. 2011/6229, granted in March 2014 by the Commonwealth Department of the Environment (DoE)) (as relevant).

The EIS was publicly exhibited, in accordance with Section 89F (1)(a) of the EP&A Act, between 13 December 2016 and 24 February 2017. During the exhibition period, submissions were invited from all stakeholders including members of the community and government stakeholders.

A Response to Submissions (RtS) report was prepared to respond to submissions raised by stakeholders during the exhibition of the EIS. The RtS was prepared to satisfy the provisions of Section 89G of the EP&A Act and Clause 85A of the EP&A Regulations.

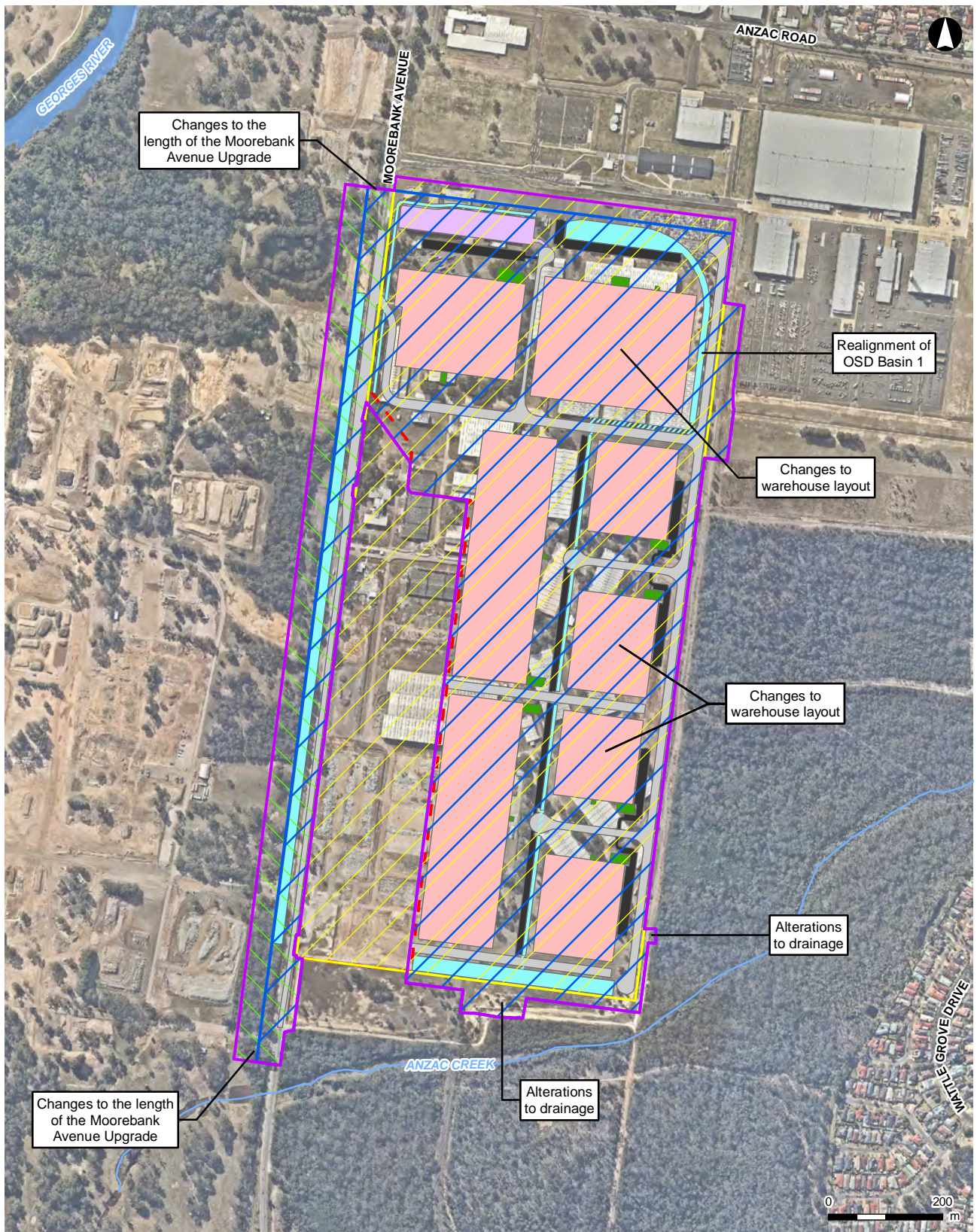
In response to the submissions received, and also to respond to design progression, amendments have been made to the Proposal (the Amended Proposal), namely:

- Realignment of the OSD Basin 1 and inclusion of a spillway
- Changes to the length of the Moorebank Avenue Upgrade
- Changes to warehouse layout
- Alterations to the drainage design to the south of the MPE site
- Amendments to the Construction Area and Operational Area as a result of the above amendments

Amended Proposal, at the Amended Proposal site, includes both the MPE Stage 2 site and the Moorebank Avenue site. The Amended Proposal components are shown in Figure 1-1. A more detailed description of the Amended Proposal is provided in section 1.3.

This Biodiversity Assessment Report (BAR) has been prepared by accredited ecologists to support the *Moorebank Precinct East-Stage 2 Proposal Response to*

Submissions (Arcadis 2017). This BAR replaces the BAR that was prepared to support the *Moorebank Precinct East-Stage 2 Proposal Environmental Impacts Statement* (Arcadis 2016), and describes the Amended Proposal (refer to section 1.2), considers impacts of the Moorebank Avenue site (refer to section 1.3) and addresses submissions received by government agencies, that specifically related to the content of the previous BAR (refer to section 1.4).



LEGEND

- | | | |
|--------------------------|------------------------------|-----------|
| MPE Site | MPE Stage 1 operational area | OSD |
| Amended Proposal site | Watercourse | Office |
| Amended operational area | Carpark | Road |
| Moorebank Avenue site | Freight Village | Warehouse |

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Figure 1-1 Amendments to the Proposal

1.1 Purpose of this report

This Biodiversity Assessment Report (BAR) has been prepared to support the *Moorebank Precinct East-Stage 2 Proposal Response to Submissions* (Arcadis 2017). This BAR replaces the BAR prepared to support the *Moorebank Precinct East-Stage 2 Proposal Environmental Impacts Statement* (Arcadis 2016) and provides the following additional information:

- Details on how comments received by key government agencies (specifically, NSW OEH and DP&E) provided during the public exhibition of the EIS have been addressed.
- Details of additional environmental assessment that has been carried out for the Amended Proposal (including the results of additional threatened flora surveys along and near the MPE site boundary).
- A validation of previous identification of *Hibbertia* species that occur in the MPE Stage 2 site.
- Identification of additional *Hibbertia* species that occur in the MPE Stage 2 site, in areas that were previously surveyed.
- Consideration of all impacts related to the clearing required in the Moorebank Avenue site, for Moorebank Avenue Upgrade Works.
- A validation of previous identification of *Hibbertia* species that occur in the Moorebank Avenue site.
- Revised mapping and calculations relating to impacts, predicted species and ecosystem credits and offsetting requirements

This report has been prepared as part of a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the EP&A Act.

This BAR has been prepared in accordance with the NSW *Framework for Biodiversity Assessment* (FBA) (OEH 2014) by Jane Rodd, accredited under s142B(1) of the *Threatened Species Conservation Act 1995* (Accreditation Number 0023) to apply the FBA, which is the assessment methodology that is adopted by the NSW Offset Policy for Major Projects.

This BAR provides an assessment of potential biodiversity impacts of the Amended Proposal, at the Amended Proposal site which includes both the MPE Stage 2 site and the Moorebank Avenue site.

1.1.1 SEARs and the Concept Plan Conditions of Approval and Statement of Commitments

The SEARs and the Concept Plan Conditions of Approval and Statement of Commitments relevant to this study, and the section of this report where they have been addressed are provided in Table 1-1 and Table 1-2 respectively.

Table 1-1: Secretary's Environmental Assessment Requirements relevant to this study

Section	Environmental Assessment Requirement	Where addressed in this report
11. Biodiversity – including but not limited to:		
A Flora and Fauna assessment. The assessment shall:		
a)	assess impacts on the biodiversity values of the site and adjoining areas, including Endangered Ecological Communities and threatened flora and fauna species and their habitat, groundwater dependent ecosystems, impacts on wildlife and habitat corridors, riparian land, and habitat fragmentation and details of mitigation measures. The assessment shall be undertaken in accordance with the Framework for Biodiversity Assessment, unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the <i>Threatened Species Conservation Act 1995</i> ;	Section 8.2.2
b)	consider of the OEH's Threatened Species Survey and Assessment Guidelines (www.environment.nsw.gov.au/threatenedspecies/surveyassessmentgdlns.htm), any relevant draft or final recovery plans, and Commonwealth Significant Impact Guidelines;	Section 4
c)	assess and document impacts related to the proposed project in accordance with the Framework for Biodiversity Assessment (FBA) (OEH 2014), unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the <i>Threatened Species Conservation Act 1995</i> ;	Sections 5 to 10
d)	include a comprehensive offset strategy, in accordance with the NSW Biodiversity Offsets Policy for Major Projects including the Framework for Biodiversity Assessment (OEH 2014), consistent with the 'avoid, minimise or offset' principle.	Section 10

Table 1-2 Concept Plan conditions of approval and Statement of Commitments relevant to this study

Conditions of Approval/Statement of Commitments	Where addressed in this report
Concept plan conditions of approval	
<p>Biodiversity</p> <p>Any future Development Application shall include a Flora and Fauna assessment. The assessment shall:</p> <p>a) assess impacts on the biodiversity values of the site and adjoining areas, including Endangered Ecological Communities and threatened flora and fauna species and their habitat, impacts on wildlife and habitat corridors, riparian land, and habitat fragmentation and details of mitigation measures, having regard to the range of fauna species</p>	Sections 10 and 11

Conditions of Approval/Statement of Commitments	Where addressed in this report
and opportunities for connectivity (terrestrial, arboreal and aquatic) across the rail link between the site and the EHPL;	
b) include a Vegetation Management Plan that has been prepared in consultation with the NSW Office of Water;	See section 11
c) document how impacts to the <i>Persoonia nutans</i> and the <i>Grevillea parviflora</i> subsp. <i>parviflora</i> flora species have been minimised through the detailed design process;	Section 10 and 11
d) include the details of available offset measures to compensate the biodiversity impacts of the proposal where offset measures are proposed to address residual impacts, in particular the following should be considered: <ul style="list-style-type: none"> i. As stipulated in principle 2 of 'NSW offset principles for major projects (state significant development and infrastructure)', for terrestrial biodiversity, established assessment tools, such as the BioBanking Assessment Methodology (BBAM), are considered best practice; ii. the Biodiversity Offset Strategy will be undertaken in accordance with the 'NSW offset principles for major projects (state significant development and state significant infrastructure)'; and iii. Offsets shall be identified, and demonstrate that they can be secured. 	Section 12
Statements of commitment	
<p>The Proponent will undertake further detailed assessment to establish the potential biodiversity impacts of the proposed rail link and measures to mitigate its potential impacts. The investigations shall incorporate the mitigation measures listed within Section 5 of the Flora and Fauna Assessment and as summarised below:</p> <p><u>Avoid Impacts</u></p> <ul style="list-style-type: none"> ▪ Site establishment, earthworks and rail construction <p><u>Mitigate Impacts</u></p> <ul style="list-style-type: none"> ▪ Soil disturbance related to site establishment, earthworks and rail construction 	N/A – Proposal does not include rail link

Conditions of Approval/Statement of Commitments	Where addressed in this report
<ul style="list-style-type: none"> ▪ Vegetation clearance for rail construction, access and maintenance tracks Construction in riparian areas/in proximity to watercourse ▪ Construction of pavement, slabs and building structures ▪ Hot works (including vegetation clearing requiring heat producing equipment) ▪ Alteration to air quality and noise environments <p>Operation of the SIMTA proposal</p>	
<p><u>Management of Threatened Plant Species</u></p> <p>The Proponent shall prepare and implement a Threatened Species Management Plan for the <i>P. nutans</i> and <i>G. parviflora</i> subsp. <i>parviflora</i> populations within the rail corridor that would be affected by the rail link</p>	<p>N/A - Proposal does not impact threatened plant species</p>
<p><u>Off-Set Impacts</u></p> <p>The Proponent will update the <i>Preliminary Biodiversity Offset Strategy</i> (Hyder Consulting 2013) and continue to consult with the Department of the Environment (DOTE) and the NSW Office of Environment and Heritage (OEH) through the project approval processes.</p>	<p>Section 12</p>
<p><u>Aquatic Flora and Fauna</u></p> <p>The Proponent will implement the following measures to protect the aquatic flora and fauna as part of the applications for the detailed planning applications (where relevant and applicable):</p> <ul style="list-style-type: none"> ▪ Implementation of design principles for friendly fish passage. ▪ Implementation of Construction and Operation Management Plans for maintenance of structures in riparian and aquatic zones. ▪ Minimise siltation of the Georges River during construction through implementing the water quality mitigation measures detailed within the Stormwater and Flooding section of the Statement of Commitments. ▪ Thorough assessment of any development within the Anzac Creek CSWL community, including potential impacts on groundwater quality and quantity. ▪ Lantana removal within nominated construction zones to reduce degradation of streamside vegetation and offset any potential impacts to aquatic biodiversity. 	<p>Mostly not applicable, as there are minimal aquatic impacts. Potential aquatic impacts are addressed in Sections 10 and 11.</p>

Conditions of Approval/Statement of Commitments	Where addressed in this report
<p><u>Riparian</u></p> <ul style="list-style-type: none"> ▪ The proposed rail link (located within the rail corridor) is exempt from the requirement for a WM Act controlled activity approval from NOW as a transitional Part 3A project; however the detailed design of the rail link will seek to conform to the objects of the WM Act and its associated guidelines. ▪ The riparian setback for Anzac Creek, as specified by NOW, is 30 metres (20 metre CRZ and 10 metre VB), while for Georges River the riparian setback is likely to be a minimum of 50 metres (40 metre CRZ and 10 metre VB). ▪ Riparian corridors will be appropriately revegetated to restore and/or maintain ecological, functional and habitat values and impede surface flows and drop sediment before it reaches the waterways. ▪ Water quality and quantity issues will be managed during the construction phase through the implementation, inspection and maintenance of best practice soil and water management techniques which will be defined in the CEMP for sedimentation and erosion control during construction. ▪ Water quality and quantity issues will be managed during the operation phase through the implementation, inspection and maintenance of Water Sensitive Urban Design (WSUD) measures such as rainwater tanks, grass filter strips, swales and bio retention. 	<p>Mostly not applicable, as there are minimal riparian impacts. Potential riparian impacts are addressed in Sections 10 and 11.</p>

1.1.2 Submissions and requests for further information

The EIS was publicly exhibited, in accordance with Section 89F (1)(a) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), between 13 December 2016 and 24 February 2017. During the exhibition period, submissions were invited from all stakeholders including members of the community and government stakeholders.

Submissions relating to biodiversity were received from a number of stakeholders, including NSW Office of Environment and Heritage (OEH) and DP&E. Specifically, both OEH and DP&E requested that additional survey for threatened flora species be carried out (Table 1-3). Accordingly, this BAR describes the methodology and results of additional targeted flora surveys that have been carried out by Arcadis ecologists, and provides an assessment of impacts.

Table 1-3: Government agency submissions and requests relevant to this BAR

Agency	Details of submission relevant to this BAR
<p>A formal submission comprising a letter (dated 4 May 2017) was received from the NSW DP&E</p>	<p>Additional targeted vegetation survey for threatened species is required including for <i>Acacia byoaeana</i>, <i>Hibbertia puberula</i> subsp. <i>puberula</i> and <i>Hibbertia fumana</i> and <i>Persoonia nutans</i> (where previously identified):</p> <ul style="list-style-type: none"> • From the southern-most existing building on the MPE site, extending to Anzac Creek • From 10m inside the eastern boundary of the MPE site extending at least 30m into the Boot Land
<p>A formal submission comprising a letter (dated 24 February 2017) was received from the NSW OEH.</p>	<p>The BAR acknowledges the potential impacts of increased sedimentation, risk of weed invasion and changes to hydrology on threatened flora populations in the adjacent Boot land, however, these concerns appear to be restricted to locations of <i>Persoonia nutans</i> known when the BAR was prepared. Given the threatened species found during more recent flora surveys of the Boot land south of Anzac Creek (e.g. <i>Hibbertia puberula</i> and <i>Hibbertia fumana</i>), OEH recommends additional flora surveys be undertaken along the eastern and southern boundary at least 30m into the Boot land. Measures to avoid, mitigate or offset unavoidable indirect impacts should be assessed if additional threatened flora species are found.</p>
<p>A request from DP&E, received via email (dated 18 October 2017), for an updated BAR to be submitted to DP&E.</p>	<p>Detail the survey effort, and timing of surveys, undertaken to identify the <i>Hibbertia</i> species (including the potential for <i>H. fumana</i>) in MPE stage 2 and within thirty metres of all adjoining land to MPE Stage 2 or further if this is required to address impacts from the stormwater outlet and its discharge as detailed in the RTS. This information is to be contained in an updated BAR signed by an accredited person.</p>

1.2 Description of the Amended Proposal

The Amended Proposal involves the construction and operation of Stage 2 of the MPE Project, comprising warehousing and distribution facilities on the MPE site and upgrades to approximately 1.5 kilometres of Moorebank Avenue from approximately 35 metres south of the northern boundary of the MPE site to approximately 185 metres south of the southern MPE site boundary.

Key components of the Amended Proposal include:

- Warehousing comprising approximately 300,000m² GFA and additional ancillary offices
- A freight village, comprising 8,000m² GFA of retail, commercial and light industrial land uses
- Establishment of an internal road network, and connection of the Amended Proposal to the surrounding public road network
- Ancillary supporting infrastructure within the Amended Proposal site, including:
 - Stormwater, drainage and flooding infrastructure
 - Utilities relocation and installation
 - Vegetation clearing, remediation, earthworks, signage and landscaping
- Subdivision of the MPE Stage 2 site
- The Moorebank Avenue upgrade, which comprises the following key components:
 - Alterations to the existing lane configuration, including some widening
 - Earthworks, including construction of embankments and tie-ins to existing Moorebank Avenue road level at the Amended Proposal's southern and northern extents
 - Raking of the existing pavement and installation of new road pavement
 - Establishment of temporary drainage infrastructure, including temporary basins and / or swales
 - Adjusting the vertical alignment by about two metres from the existing levels, including kerbs, gutters and a sealed shoulder
 - Signalling and intersection works
- Upgrading existing intersections along Moorebank Avenue, including:
 - Moorebank Avenue / MPE Stage 2 access
 - Moorebank Avenue / MPE Stage 1 northern access
 - Moorebank Avenue / MPE Stage 2 central access
 - MPW Northern Access / MPE Stage 2 southern emergency access.

The Moorebank Avenue site, which includes the upgrade of Moorebank Avenue, may be either cleared as part of the Amended Proposal or the MPW Project (SSD 5066), subject to the timing of approvals (it is likely that the MPE Stage 2 Proposal would be approved prior to the MPW Stage 2 Proposal).

Accordingly, this report has been updated to consider all impacts of the clearing required for the Moorebank Avenue site, which includes vegetation that occurs on the MPW site, and assumes that all areas within the Moorebank Avenue site would be cleared of native vegetation as part of the Amended Proposal.

The Amended Proposal would interact with the MPE Stage 1 Proposal (SSD_6766) via the transfer of containers between the MPE Stage 1 IMT and the Amended Proposal's warehousing and distribution facilities. This transfer of freight would be via a fleet of heavy vehicles capable of being loaded with containers and owned by SIMTA. The fleet of vehicles would be stored and used on the MPE Stage 2 site, but registered and suitable for on-road use. The Amended Proposal is expected to operate 24 hours a day, seven days per week.

An overview of the Amended Proposal is shown in Figure 1-2.

Construction of the Amended Proposal would occur over a period of approximately 24-36 months. Construction is considered to include all work in respect of the Amended Proposal other than, pre-construction works, namely:

- works within Works period A (pre-construction activities), including:
 - Establishment of site access points
 - Importation, stockpiling and placement of clean general fill for site preparation activities
 - Installation of site fencing
 - Remediation, where required, including unexploded ordnance (UXO), exploded ordnance (EO) and exploded ordnance waste (EOW) management.
- survey; acquisitions; or building/ road dilapidation surveys; fencing; investigative drilling, excavation or salvage
- clearing any native vegetation within the Amended construction area, with the exception of the southern and eastern swales located outside of the MPE site
- establishment of site compounds and construction facilities
- installation of environmental mitigation measures
- utilities adjustment and relocation that do not present a significant risk to the environment, as determined by the Environmental Representative
- other activities determined by the Environmental Representative to have minimal environmental impact.

Key construction activities occurring during the construction period include, but are not limited to, the following:

- Vegetation clearance within the southern and eastern swales
- Demolition of existing buildings and infrastructure on the Amended Proposal site
- Earthworks (with the exception of importation, stockpiling and placement of clean general fill for site preparation activities undertaken during pre-construction)
- Drainage and utilities installation
- Establishment of hardstand across the Amended Proposal site
- Establishment of a temporary batching plant (potential including concrete, cement and pre-mix and hot-mix works) and materials crushing (inc. grinding and separating) and testing
- Construction of a temporary diversion road to allow for traffic management along the Moorebank Avenue site during construction (including temporary signalised intersections adjacent to the existing intersections) (the Moorebank Avenue Diversion Road)
- Upgrade of Moorebank Avenue including:
 - Adjustment of the formation level and levelling of Moorebank Avenue

- Road pavement and intersection works along Moorebank Avenue
- Establishment of a site vehicle entrance to the MPE Stage 2 site from Moorebank Avenue
- Construction of the warehouses and warehouse access roads
- Fit-out of warehousing
- Construction of warehouses and distribution facilities, ancillary offices and the ancillary freight village
- Construction works associated with signage, landscaping, stormwater and drainage works.

Further detail regarding the construction methodology is provided in Appendix I of the MPE Stage 2 RtS.

1.3 Key terms relevant to the Amended Proposal

Table 1-3 provides a summary of the key terms relevant to the Amended Proposal, which are included throughout this report.

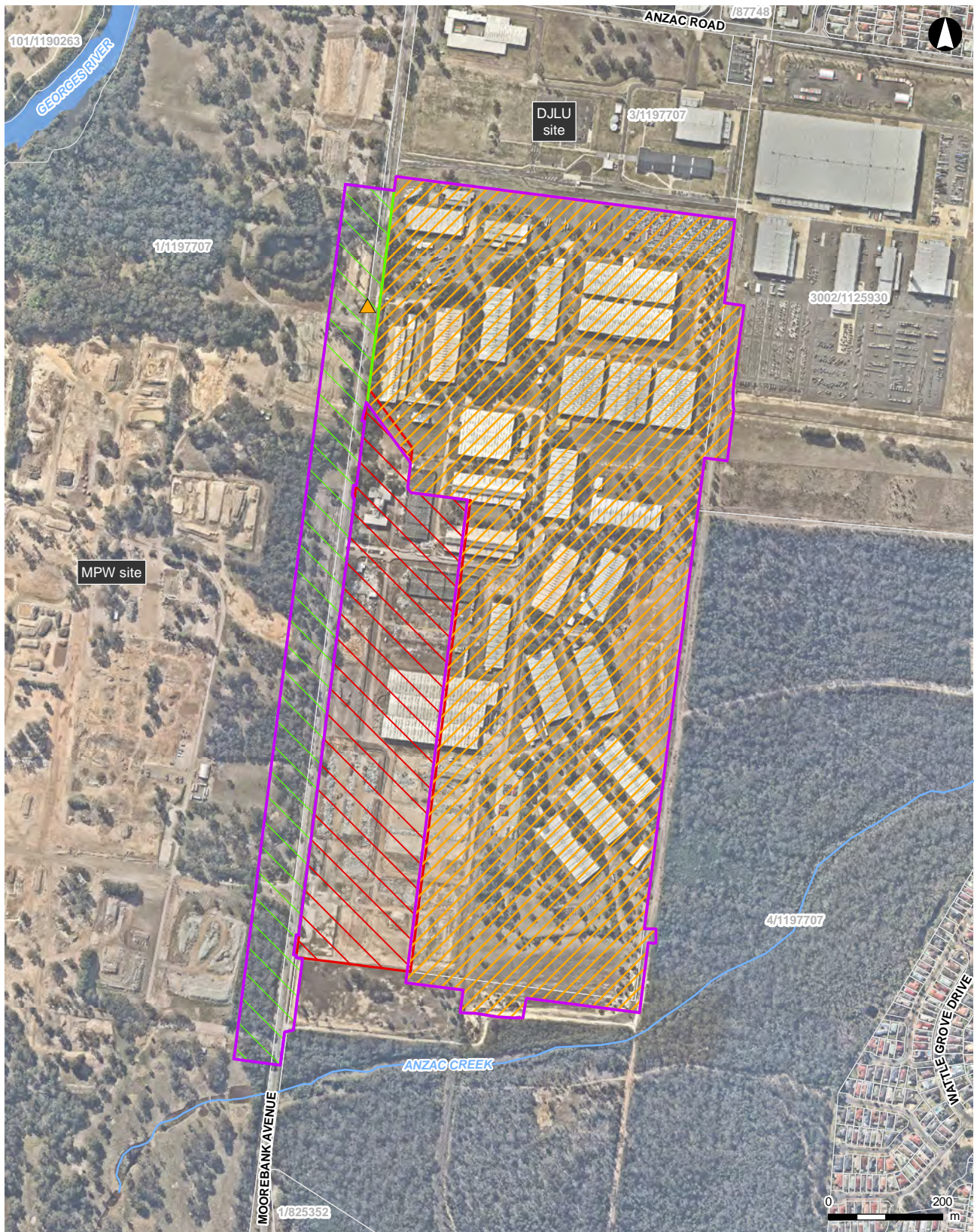
Table 1-4 Summary of key terms used throughout this document

Term	Definition
General terms	
The Moorebank Precinct	Refers to the whole Moorebank intermodal precinct, i.e. the MPE site and the MPW site
Moorebank Precinct West (MPW) Project (formerly the MIC Project)	The MPW Intermodal Terminal Facility as approved under the MPW Concept Plan Approval (SSD_5066) and the MPW EPBC Approval (No. 2011/6086).
Moorebank Precinct West (MPW) site (formerly the MIC site)	The site which is the subject of the MPW Concept Plan Approval, MPW EPBC Approval and MPW Planning Proposal. The MPW site does not include the rail link as referenced in the MPW Concept Plan Approval or MPE Concept Plan Approval.
Moorebank Precinct East (MPE) Concept Plan Approval (formerly the SIMTA Concept Plan Approval)	MPE Concept Plan Approval (SSD_0193) granted by the NSW Department of Planning and Environment on 29 September 2014 for the development of former defence land at Moorebank to be developed in three stages; a rail link connecting the site to the Southern Sydney Freight Line, an intermodal terminal, warehousing and distribution facilities and a freight village.
Moorebank Precinct East (MPE) Project (formerly the SIMTA Project)	The MPE Intermodal Terminal Facility, including a rail link and warehouse and distribution facilities at Moorebank (eastern side of Moorebank Avenue) as approved by the Concept Plan Approval (MP 10_0913) and the MPE Stage 1 Approval (14_6766).
Moorebank Precinct East (MPE) Site (formerly the SIMTA Site)	Including the former DSND site and the land owned by SIMTA which is subject to the Concept Plan Approval. The MPE site does not include the rail corridor, which relates to the land on which the rail link is to be constructed.

Term	Definition
Statement of Commitments (SoC)	Recommendations provided in the specialist consultant reports prepared as part of the MPE Concept Plan application to mitigate environmental impacts, monitor environmental performance and/or achieve a positive environmentally sustainable outcome in respect of the MPE Project. The Statement of Commitments have been proposed by SIMTA as the Proponent of the MPE Concept Plan Approval.
MPE Stage 1 Project-specific terms	
Rail Corridor	Area defined as the 'Rail Corridor' within the MPE Concept Plan Approval.
Rail Link	The rail link from the South Sydney Freight Line to the MPE IMEX Terminal, including the area on either side to be impacted by the construction works included in MPE Stage 1.
MPE Stage 1	Stage 1 (14-6766) of the MPE Concept Plan Approval for the development of the MPE Intermodal Terminal Facility, including the rail link at Moorebank. This reference also includes associated conditions of approval and environmental management measures which form part of the documentation for the approval.
MPE Stage 1 site	Includes the MPE Stage 1 site and the Rail Corridor, i.e. the area for which approval (construction and operation) was sought within the MPE Stage 1 Proposal EIS.

Term	Definition
MPE Stage 2 specific terms	
MPE Stage 2 Proposal/ the Proposal	The subject of the BAR prepared to accompany the EIS; being Stage 2 of the MPE Concept Plan Approval including the construction and operation of 300,000m ² of warehousing and distribution facilities on the MPE site and the Moorebank Avenue upgrade within the Moorebank Precinct.
MPE Stage 2 Amended Proposal/the Amended Proposal	<p>The subject of this BAR), being the Stage 2 for the construction and operation of 300,000m² of warehousing and distribution facilities on the MPE site and the Moorebank Avenue upgrade within the Moorebank Precinct. This proposal includes all of the amendments undertaken as part of the RtS (refer to Section 1.2, above).</p> <p>For the purpose of this assessment, the area of impact assessed in this BAR (i.e. the amended proposal site) is consistent with the definition of “development site” that would be assessed by a FBA Assessment</p>
The Amended Proposal site/ development site ¹	The area within the MPE site which would be disturbed by the MPE Stage 2 Amended Proposal (including the operational area and construction area). The MPE Stage 2 site includes the former DSNDC site and the land owned by SIMTA which is subject to the MPE Concept Plan Approval.
The Moorebank Avenue site	The extent of construction works to facilitate the construction of the Moorebank Avenue upgrade (Figure 1-3).
The Moorebank Avenue upgrade	Raising of the vertical alignment of Moorebank Avenue for 1.5 kilometres of its length by about two metres, from the northern boundary of the MPE site to approximately 120 metres south of the MPE site. The Moorebank Avenue upgrade also includes upgrades to intersections, ancillary works and the construction of an on-site detention basin to the west of Moorebank Avenue within the MPW site.
Construction area	Extent of construction works, namely areas to be disturbed during the construction of the MPE Stage 2 Amended Proposal (the Amended Proposal).
Operational area	Extent of operational activities for the operation of the MPE Stage 2 Amended Proposal (the Amended Proposal).

¹ Under the FBA, the area subject to impact assessment is referred to as the ‘development site’. In this assessment, the development site is considered to encompass the MPE Stage 2 site and construction area as shown on Figure 1-2. For the purpose of this report the term MPE Stage 2 site has been used.



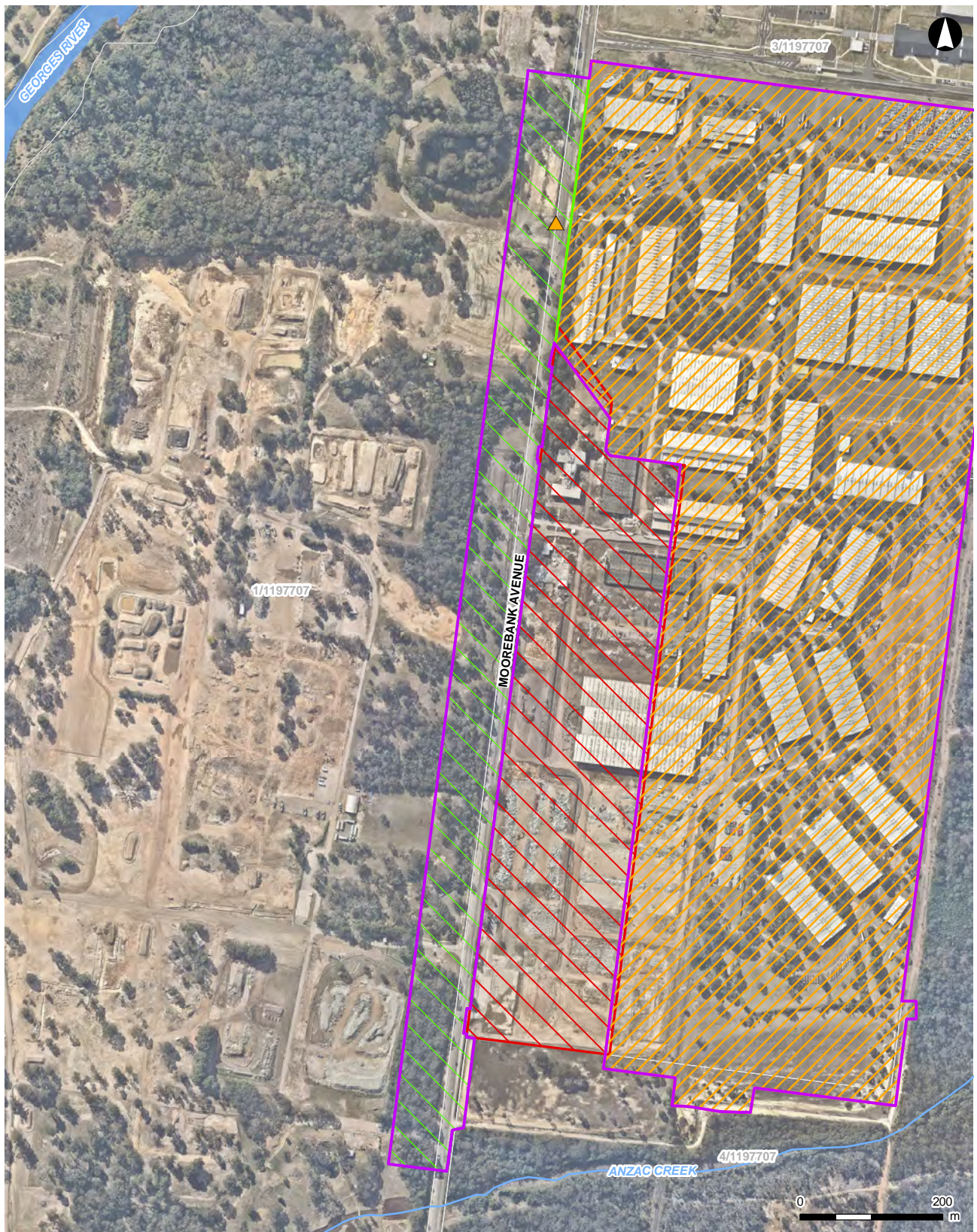
LEGEND

- MPE Stage 2 site
- Amended Proposal site
- Moorebank Avenue Site
- MPE Stage 1 operational area
- Site access
- Cadastre (NSW DFSI, 2017)
- Watercourse

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Aerial imagery supplied by nearmap (August, 2017)



Figure 1-2 Overview of the Proposal



LEGEND

- | | |
|--|---|
|  MPE Stage 2 site |  Site access |
|  Amended Proposal site |  Cadastre (NSW DFSI, 2017) |
|  Moorebank Avenue Site |  Watercourse |
|  MPE Stage 1 operational area | |

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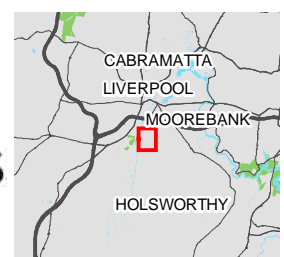


Figure 1-3 Overview of the Moorebank Avenue site

2 SITE DESCRIPTION

2.1 Regional context

The Amended Proposal site (comprising the MPE Stage 2 site and the Moorebank Avenue site) is located approximately 27 km south-west of the Sydney Central Business District (CBD) and approximately 26 km west of Port Botany. The MPE site is situated within the Liverpool Local Government Area (LGA), in Sydney's South West subregion, approximately 2.5 km from the Liverpool City Centre.

The Amended Proposal site is located approximately 800 m south of the intersection of Moorebank Avenue and the M5 Motorway. The M5 Motorway provides the main road link between the Amended Proposal site, and the key employment and industrial areas within Sydney's West and South-Western subregions, the Sydney orbital network and the National Road Network. The M5 connects with the M7 Motorway to the west, providing access to the Greater Metropolitan Region and NSW road network. Similarly, the M5 Motorway is the principal connection to Sydney's north and north-east via the Hume Highway. The regional context of the Amended Proposal is shown on Figure 2-1.

2.2 Local context

The Amended Proposal site is located approximately 2.5 km south of the Liverpool City Centre, 800 m south of the Moorebank Avenue/M5 Motorway interchange and one kilometre to the east of the SSFL providing convenient access to and from the site for rail freight (via a dedicated freight rail line) and for trucks via the Sydney Motorway Network.

The majority of the land surrounding the Amended Proposal site is owned and operated by the Commonwealth and comprises:

- The MPW site, formerly the School of Military Engineering (SME), on the western side of Moorebank Avenue directly adjacent to the MPE site (subject to the MPW Concept Plan Approval)
- The Holsworthy Military Reserve, to the south of the MPE site on the southern side of the East Hills Rail Corridor, which is owned and operated by Sydney Trains.

Residual Commonwealth Land (known as the Boot Land), to the east of the Amended Proposal site between the site boundary and the Wattle Grove residential area.

Glenfield Waste Services, south-west of the Amended Proposal is proposing to develop a Materials Recycling Facility on land owned by the Glenfield Waste Services Group within the boundary of the current landfill site at Glenfield. The facility is proposed to recycle a maximum of 450,000 tonnes of material per year. The Glenfield Waste Services Proposal is the subject of a DA (SSD_6249) under Part 4, Division 4.1 of the EP&A Act.

The area immediately south of the MPE site, known as the 'Southern Boot Land', includes an existing rail spur within heavily vegetated remnant bushland. The Southern Boot Land to the south of the Amended Proposal and forming part of the MPE Stage 1 Proposal site includes a range of vegetation, varying from remnant bushland to the north-east of the Sydney Trains East Hills Rail Corridor.

A number of residential suburbs are located in proximity to the Amended Proposal site. The approximate distances of these suburbs to the MPE Stage 2 site and the Moorebank Avenue site are provided in Table 2-1 below.

Table 2-1 Distance to residential suburbs from the Amended Proposal site

Suburb	Distance to MPE Stage 2 site	Distance to Moorebank Avenue site
Wattle Grove	360 m to the north-east	865 m to the north-east
Moorebank	1300 m to the north	1430 m to the north
Casula	820 m to the west	760 m to the west
Glenfield	1830 m to the south-west	1540 m to the south-west

The closest industrial precinct to the Amended Proposal is at Moorebank, comprising around 200 hectares of industrial development. This area includes (but is not limited to) the Yulong and ABB sites to the south of the M5 Motorway and the Goodman MFive Business Park and Miscellaneous industrial and commercial development to the north of the M5 Motorway. The majority of this development is located to the north of the M5 Motorway between Newbridge Road, the Georges River and Anzac Creek. The Moorebank Industrial Area supports a range of industrial and commercial uses, including freight and logistics, heavy and light manufacturing, offices and business park developments.

There are other areas of industrial development near the Amended Proposal at Warwick Farm to the north, Chipping Norton to the north-east, Prestons to the west and Glenfield and Ingleburn to the south-west.

The local context of the Amended Proposal is shown on Figure 2-2.

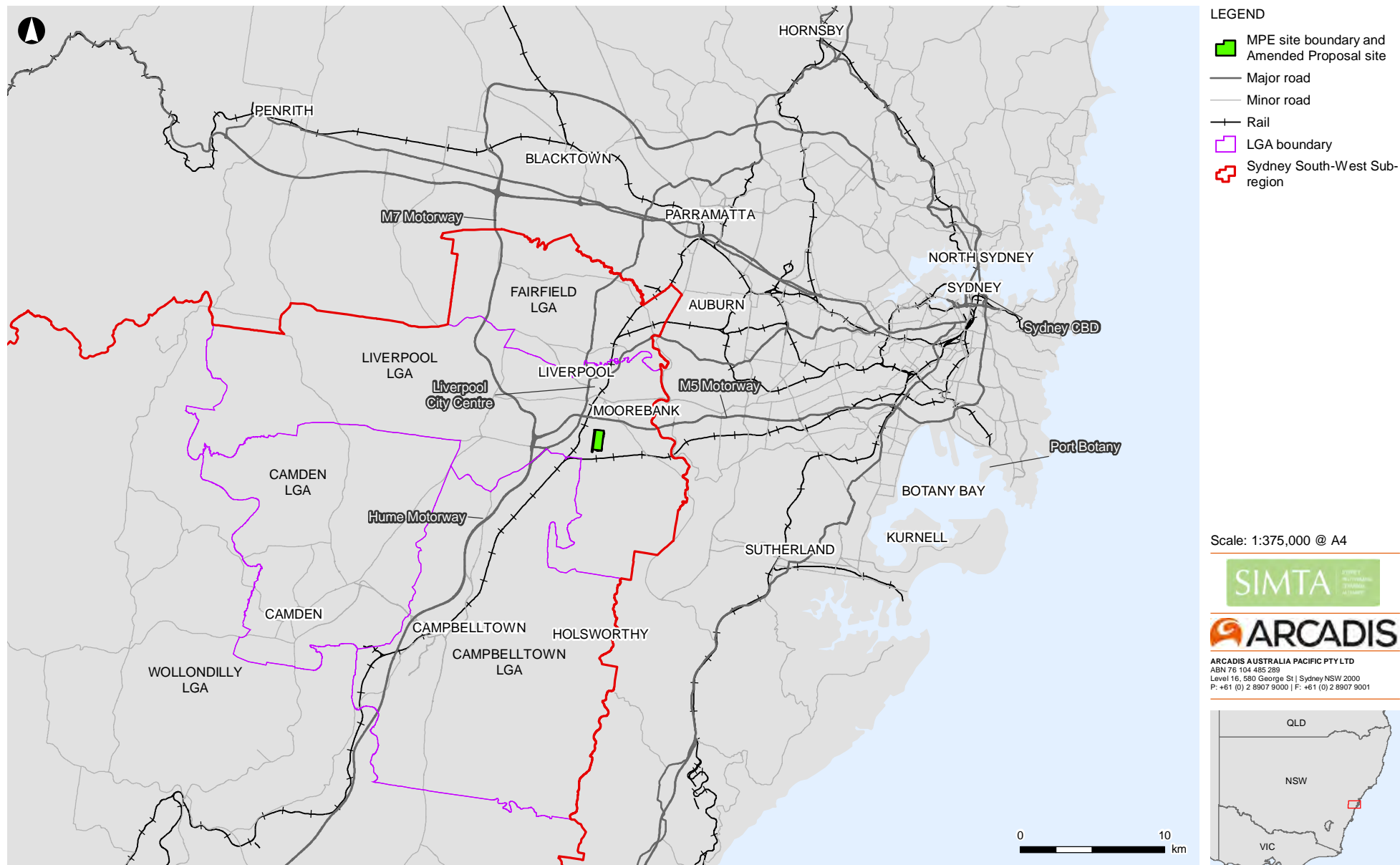
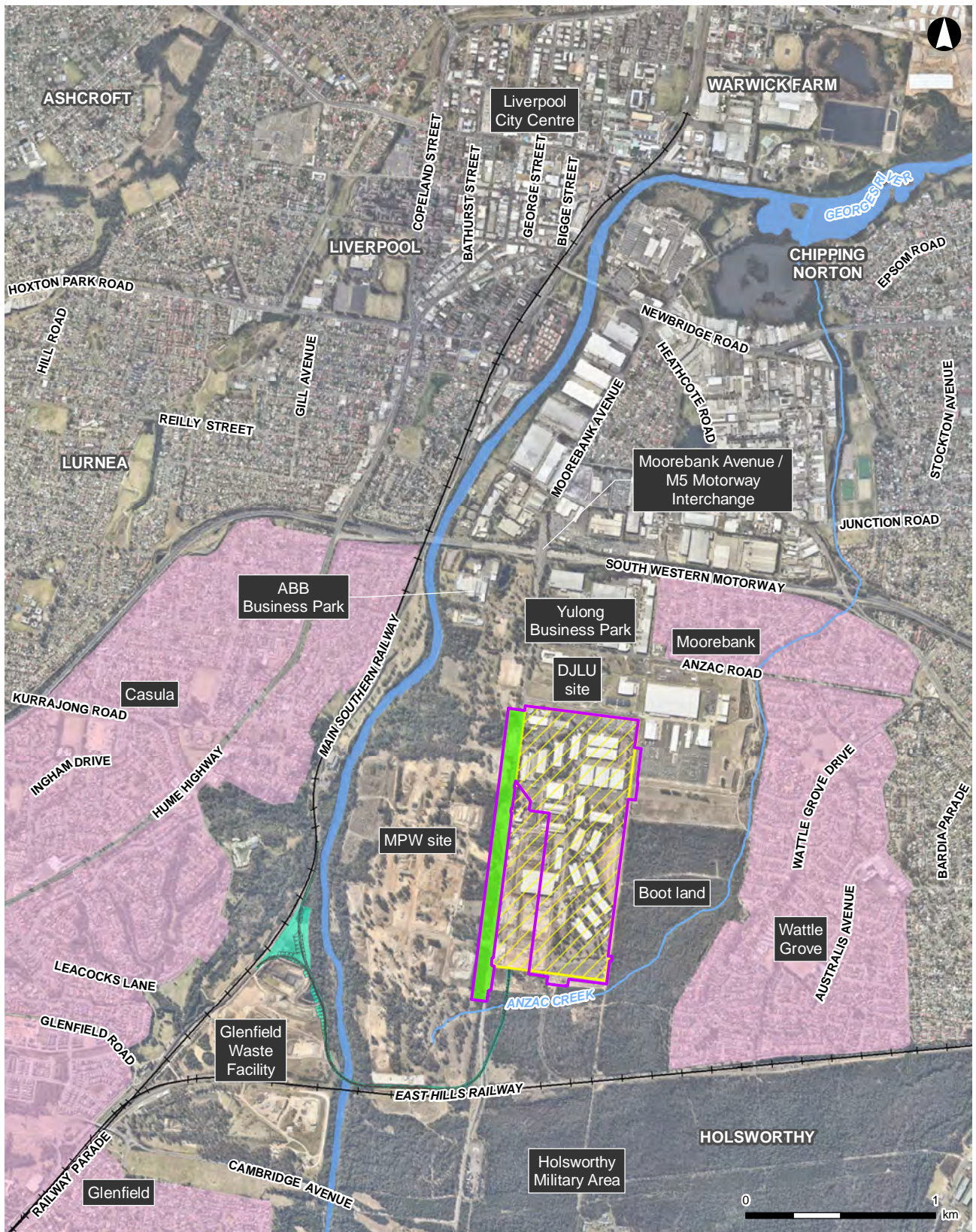


Figure 2-1 Regional context of the Amended Proposal site



LEGEND

- | | |
|---|------------------------------|
| MPE site | Residential area |
| Amended Proposal site | Rail link (Stage 1 Proposal) |
| Moorebank Avenue Site | Existing railway |
| Rail Link (including 20m width and variable buffer) | Watercourse |

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Figure 2-2 Local context of the Amended Proposal

3 LEGISLATION AND POLICY

3.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the EPBC Act as Matters of National Environmental Significance (MNES). MNES identified in the Act include:

- World heritage properties.
- National heritage places.
- Wetlands of international importance (listed under the Ramsar Convention).
- Threatened species and communities.
- Migratory species protected under international agreements.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mines).

In accordance with sections 67 and 67A of the EPBC Act, any works that have the potential to result in an impact on any MNES or on Commonwealth land are considered 'controlled actions' and require a referral to the Federal Minister for the Environment for approval. The MPE Project was determined to be a controlled action under the EPBC Act, as a result of the project's impacts on listed threatened species and communities and Commonwealth land. The MPE Project was granted approval as a controlled action under the EPBC Act in March 2014 (EPBC 2011/6229), subject to conditions.

3.2 NSW Environmental Planning and Assessment Act 1979

On 29 September 2014 Concept Plan Approval was granted, under Part 3A (Transitional), Section 75O of the EP&A Act for the "use of the site [Project Site] as an intermodal facility, including a Rail link to the Southern Sydney Freight Line within an identified Rail Corridor, warehouse and distribution facilities, freight village (ancillary site and operational services), stormwater, landscaping, servicing and associated works".

Notwithstanding this, as indicated in the Conditions of Approval, this Concept Plan Approval does not permit the construction or operation of any part of the MPE Project, which is subject to obtaining subsequent development consent under the EP&A Act. The Concept Plan Approval states that approval to carry out the MPE Project is subject to an application and approval under Part 4, Division 4.1 of the EP&A Act and the environmental assessment requirements specified in Schedule 3 of the Conditions of Approval. These are presented in Table 1-2.

3.2.1 NSW Biodiversity Offsets Policy for Major Projects and the Biodiversity Offsets Scheme

The *NSW Biodiversity Offsets Policy for Major Projects* was released in October 2014 and is applicable to projects that are SSD or State Significant Infrastructure (SSI) under the EP&A Act. The NSW Biodiversity Offsets Policy for Major Projects requires

proponents to apply the *Framework for Biodiversity Assessment* (FBA) to assess impacts on biodiversity. The FBA also guides the identification of reasonable measures and strategies that can be taken to avoid and minimise impacts on biodiversity associated with a proposal.

The SEARs for the proposal require that it be assessed under the Framework for Biodiversity Assessment, including an assessment of any potential impacts on riparian vegetation and groundwater dependent ecosystems.

The Biodiversity Offsets Policy for Major Projects has been replaced by the Biodiversity Offsets Scheme, which was established by the *Biodiversity Conservation Regulation 2017* commencing on 25 August 2017. The Biodiversity Offsets Policy for Major Projects and the FBA are still relevant for savings and transitional arrangements, including for all development applications (DAs) for which assessment requirements (SEARs) have been issued. The Amended Proposal has been assessed in accordance with the Biodiversity Offsets Policy for Major Projects and the FBA, as required by the SEARs.

3.3 NSW Threatened Species Conservation Act 1995 and Biodiversity Conservation Act 2016

The NSW *Threatened Species Conservation Act 1995* (TSC Act) provides for the protection and management of threatened species, populations and ecological communities listed under schedules 1, 1A and 2 of the Act. The purpose of the TSC Act is to:

- Conserve biological diversity and promote ecologically sustainable development.
- Prevent the extinction and promote the recovery of threatened species, populations and ecological communities.
- Protect the critical habitat of those species, populations and ecological communities that are endangered.
- Eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities.
- Ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed.
- Encourage the conservation of threatened species, populations and ecological communities through co-operative management.

The TSC Act was repealed on 25 August 2017 and replaced with the *Biodiversity Conservation Act 2016* (BC Act). The BC Act broadly incorporates similar objectives to those identified the TSC Act, and additionally seeks to establish a framework for assessment and offsetting of development impacts as well as investment in biodiversity conservation. The extent to which the BC Act applies to this BAR is limited to the listing of threatened species and ecological communities, as the Amended Proposal could potentially have impacts on threatened entities now listed under the BC Act (given that the TSC Act has been repealed).

As described in section 3.2.1, the Biodiversity Offsets Policy for Major Projects and the FBA are still relevant for savings and transitional arrangements, under which this BAR falls. Accordingly, the Amended Proposal has been assessed in accordance with the Biodiversity Offsets Policy for Major Projects and the FBA, as required by the SEARs, and outlines the corresponding offsetting requirements.

4 METHODOLOGY

4.1.1 Database Interrogation

Database searches were undertaken to identify State records of threatened entities under the BC Act and *Fisheries Management Act 1991* (FM Act). Databases interrogated for this purpose were:

- The NSW Threatened Species Profile Database (TSPD) which is managed by OEH.
- The Vegetation Information System (VIS) classification database which is managed by OEH.
- The over-cleared landscapes database (Mitchell landscapes)
- The Directory of Important Wetlands of Australia (DIWA), maintained by the Australian Government.

4.1.2 Literature/mapping review

A review of relevant information was undertaken to provide an understanding of ecological values occurring or potentially occurring in the Amended Proposal site and wider region. Reports, vegetation maps, topographic maps, aerial photography and literature reviewed included, but were not limited to, the following:

- *Soil Landscapes of the Penrith 1:100 000 Sheet* (Bannerman & Hazelton 1990).
- *Assessment of the Sydney Intermodal Terminal Facility, Moorebank: Aquatic Ecology* (ALS 2011)
- *The Native Vegetation of the Sydney Metropolitan Catchment Management Authority Area* (OEH 2013).
- *SIMTA Stage 1: Biodiversity Assessment Report* (Hyder Consulting 2015)
- *Moorebank Intermodal Terminal Project Ecological Impact Assessment* (Parsons Brinckerhoff 2014).
- *Framework for Biodiversity Assessment credit report. Appendix A of Appendix C of the Moorebank Intermodal Terminal Response to Submissions Report* (Parsons Brinckerhoff 2015a).
- *Moorebank Intermodal Terminal: Biodiversity Offset Areas Biodiversity Assessment Report* (Parsons Brinckerhoff 2015b).
- *Boot Land', Moorebank, NSW Ecological Impact Assessment of Remediation* (GHD 2015)
- *MPE Stage 1 Biodiversity Assessment Report* (updated) (Arcadis 2017).
- *Moorebank Precent West-Stage 2 Proposal Biodiversity Assessment Report* (Arcadis 2016).

4.1.3 Previous biodiversity assessments of relevance

A number of biodiversity surveys and assessments have been carried out across the MPE site and MPW site, including across areas that fall within the Moorebank Avenue site.

MPE Site

The biodiversity impacts of the MPE Concept Plan and MPE Stage 1 Project were assessed in an Ecological Impact Assessment (Hyder Consulting 2013) prepared for the MPE Concept Plan EIS, and an assessment of values under the NSW Framework for Biodiversity Assessment (FBA) prepared for the MPE Stage 1 EIS (Hyder Consulting 2015). The Biodiversity Assessment Report (BAR) prepared for the MPE Stage 1 Project was updated in September 2017 (Arcadis 2017).

MPW Site

The biodiversity impacts of MPW Concept Plan were assessed in an Ecological Impact Assessment (Parsons Brinckerhoff 2014), which was prepared to inform the *Moorebank Intermodal Terminal Project Environmental Impact Statement*. This assessment identified a diversity of biodiversity values within the MPW site, some of which fall within the Moorebank Avenue site. The survey effort (section 4.1.3) and results of surveys relevant to the Moorebank Avenue site (section 6 and 7) have been incorporated in this BAR.

A *Biodiversity Assessment Report* (BAR) was prepared by Arcadis (2016) to inform the *Moorebank Precinct West-Stage 2 Proposal Environmental Impact Statement*. The BAR identified biodiversity values within the MPW site that were generally consistent with the results of the Ecological Impact Assessment (Parsons Brinckerhoff 2014) some of which fall within the Moorebank Avenue site. The survey effort (section 4.1.3) and results of surveys relevant to the Moorebank Avenue site (section 6 and 7) have been incorporated in this BAR.

4.1.4 Field assessment

Field assessment of the biodiversity values of the Amended Proposal site, Moorebank Avenue site (previously surveyed as part of the MPW site) and surrounding areas has been conducted on a number of occasions between November 2010 and November 2017. The dates, locations of the surveys and personnel who undertook these surveys on the Amended Proposal site, Moorebank Avenue site and adjoining areas are listed in Table 4-1.

Table 4-1 Dates, location and personnel for flora and fauna surveys

Date	Project/Proposal	Survey details/purpose	Personnel
MPE site surveys, including Amended Proposal			
2 May 2011 to 25 May 2011	MPE Concept Plan Approval (MP 10_0193)	Fauna surveys across the MPE Project study area, including Amended Proposal site.	Jane Rodd (Arcadis) Laura Hoffman (Arcadis)
30 May 2012 and 31 May 2012	MPE Concept Plan Approval (MP 10_0193)	Fauna surveys of the riparian corridor and disturbed lands on and adjoining the Glenfield Waste Facility	Jane Rodd (Arcadis) Laura Hoffman (Arcadis)
13, 18, 26 and 27 November 2014	MPE Stage 1 Proposal (SSD 14-6766)	Revisiting the previous field survey plots within the MPE Concept Approval biodiversity study area (established during 2011-2012 surveys) to assess any changes to flora and fauna habitat since the field surveys that were carried out in 2011-2012; threatened species surveys in the Boot land.	Jane Rodd (Arcadis) Kate Carroll (Arcadis)
20 January and 11 March 2015	MPE Stage 1 Proposal (SSD 14-6766)	Targeted threatened flora surveys in the Boot land	Jane Rodd (Arcadis) Kate Carroll (Arcadis)
21 June 2016	MPE Stage 2 Proposal (SSD 7628)	Fauna habitat assessments, vegetation plots and targeted threatened flora surveys within the Amended Proposal site.	Jane Rodd (Arcadis) Laura Hoffman (Arcadis)
13 October 2016	MPE Stage 2 Proposal (SSD 7628)	Assessment of the trees within the Moorebank Avenue road reserve	Jane Rodd (Arcadis) Kate Carroll (Arcadis)
11 and 18 May 2017	MPE Stage 2 Proposal (SSD 7628)	Targeted threatened flora species surveys in areas within 30 metres of the eastern and southern	Jane Rodd (Arcadis)

Moorebank Precinct East Stage 2

Date	Project/Proposal	Survey details/purpose	Personnel
		boundary of the MPE site, to the east of the existing disused Defence rail spur	Kate Carroll (Arcadis)
24 and 26 October and 3 November 2017	MPE Stage 2 Proposal (SSD 7628)	Validation of February, March and May 2017 targeted threatened flora surveys, by carrying out surveys in flowering period of target species Reinspection and targeted threatened flora surveys within mown and slashed areas in the south of the Amended Proposal site and adjacent areas.	Jane Rodd (Arcadis)
MPW site surveys, relevant to Moorebank Avenue site			
8, 10 and 12 November 2010	MPW Concept Approval (SSD 5066)	Targeted threatened flora surveys, fauna surveys	Parsons Brinckerhoff (2014)
5 May to 23 May 2014	MPW Concept Approval (SSD 5066)	Assessment of the extent and condition of vegetation, vegetation plots	Parsons Brinckerhoff (2015a)
3 March 2016	MPW Stage 2 Proposal (SSD 7709)	Inspection of patches of native vegetation, with particular focus on the areas of potential additional impact within the Georges River riparian zone	Jane Rodd (Arcadis) Laura Hoffman (Arcadis)
9 and 14 February and 14 March 2017	MPW Stage 2 Proposal (SSD 7709)	Targeted threatened flora species surveys	Jane Rodd (Arcadis) Laura Hoffman (Arcadis) Kate Carroll (Arcadis)
3 November 2017	Moorebank Avenue (SSD 7268/SSD 7709))	Verification of threatened flora locations previously recorded	Jane Rodd (Arcadis) Meredith Leal (Arcadis)

Weather conditions at the time of surveys ranged from hot and sunny to cool and cloudy. The weather records from Holsworthy Aerodrome (station 06616) for the surveyed dates in 2016 and 2017 are as shown Table 4-2 (BOM 2016, 2017).

Table 4-2 Weather records from Holsworthy Aerodrome weather stations for the survey dates

Date	Temperature		Rain	Maximum wind gust	
	Min	Max		Direction	Speed
	°C	°C	mm		km/h
21 Jun 2016	11.9	17.4	0	Not available	Not available
13 Oct 2016	10.1	18.5	0	SSE	50
9 Feb 2017	19.8	34.6	14.2	NNW	35
14 Feb 2017	18.3	22.6	0	SSE	44
14 Mar 2017	20.8	25.0	1.6	E	41
11 May 2017	7.2	20.9	0	ESE	24
18 May 2017	8.6	21.3	0	E	31
24 Oct 2017	8.5	29.4	0.2	ENE	35
26 Oct 2017	15.4	23.7	1.8	E	31
3 Nov 2017	14.0	30.3	0	SE	44

Vegetation Plots

Quantitative (quadrat/transect) site surveys were undertaken on and adjacent to the Amended Proposal site in accordance with the guidelines in Section 5 of the FBA. The structure and floristics of each plant community present in the study area were sampled using a total of six 0.1 hectare quadrats. The quadrats were in the form of a 20 metre x 50 metre plot with a nested 20 metre x 20 metre plot (Figure 4-1).

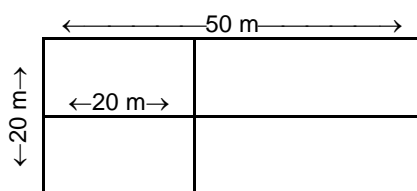


Figure 4-1 Flora quadrat layout

One of the flora quadrats used was sampled by Parsons Brinckerhoff (2015b) in the Boot land, as part of assessment of biodiversity credit value of proposed biodiversity offset areas. Quadrat 10 of Parsons Brinckerhoff (2015b) sampled vegetation close to the Amended Proposal site, and data from this quadrat was used to support the current assessment.

Four of the flora quadrats were sampled by Parsons Brinckerhoff (2015a) within or close to the areas of the MPW site that intersect the Moorebank Avenue site. Data from Quadrats 21, 27, 29 and 34 of Parsons Brinckerhoff (2015a) were used to support the current assessment.

The other flora quadrat used in the current assessment (QA) were sampled by Arcadis in June 2016. Plots should be randomly within each vegetation zone, however given the small size of vegetation fragments in the Amended Proposal site, there were limitations to where the plot could be located.

The quadrat locations are shown on Figure 4-2.

Floristic data were collected from each plot in accordance with the Table 1 of the FBA (Table 4-3).

Table 4-3 Data collected from vegetation plots

Variable	Data collected
Stratum (and layer)	Stratum and layer in which each species occurs
Growth form	Growth form for each recorded species
Species name	Scientific name and common name (where applicable)
Cover	A measure or estimate of the appropriate cover measure for each species recorded within the 20 m x 20 m plot. Recorded from 1–5% and then to the nearest 5%. If the cover of a species is less than 1% and the species is considered important, then the estimated cover is entered (e.g. 0.4)
Abundance rating	A relative measure of the number of individuals or shoots of a species within the 20 m x 20 m plot using the following intervals (numbers above about 20 are estimates only): 1,2,3,4,5,6,7,8,9,10,20,50,100,500,1000 or specify a number greater than 1000 if required

During the terrestrial flora survey the vegetation condition was assessed and rated according to the degree to which it resembled relatively natural, undisturbed vegetation. The initial condition assessment was based on visual assessment of the current habitat condition for each of the Plant Community Types (PCTs) identified in the study area.

Site attribute data were collected from each plot in accordance with Table 2 of the FBA (Table 4-4).

Table 4-4 Site attribute data collected from vegetation plots

Variable	Data collected
Indigenous plant species richness	Number of indigenous plant species within 20 m x 20 m plot
Native over-storey cover	Estimate of percent foliage cover at 10 points (every 5 m) along the 50 m transect
Native mid-storey cover	Estimate of percent foliage cover at 10 points (every 5 m) along the 50 m transect
Native ground cover (grasses)	At 50 points along the 50 m transect (every 1 m), recorded whether native grass intersects that point.
Native ground cover (shrubs)	At 50 points along the 50 m transect (every 1 m), recorded whether native ground cover (shrub) intersects that point.
Native ground cover (other)	At 50 points along the 50 m transect (every 1 m), recorded whether native ground cover (other) intersects that point.
Exotic plant cover	Measured as total percent foliage cover of all exotics in all strata; exotic cover measured using the same method as for native over-storey, mid-storey and ground cover.
Number of trees with hollows	Count of the number of living and dead trees within the 50 m x 20 m plot that have at least one hollow.
Regeneration	Measured as the proportion of over-storey species present in the zone that are regenerating (i.e. with diameter at breast height < 5 cm).
Total length of fallen logs	Total length of logs at least 10 cm in diameter and at least 0.5 m long.

The vegetation condition data obtained for each vegetation community in quadrats was used to obtain site attribute scores and given a weighting as per Table 2 in the FBA. The scores were assessed against the Vegetation Type Benchmarks for the identified vegetation types in the VIS classification database.

Tree survey

An assessment of trees on the MPE site was undertaken by Jane Rodd and Laura Hoffman in May 2011. Individual trees or groups of trees on the site were documented, with the species, approximate height, diameter at breast height and apparent health noted. Health was assessed by inspection of the tree canopy for dead limbs or diseased/dying leaves, signs of stress including epicormic resprouting, and evidence of bark disease or fungal infection. Tree health was assessed using the following measures:

- Good: Almost all branches living, no evidence of disease or stress.
- Moderate: Some dead branches in canopy, minor bark disease or fungal infestation.
- Poor: Numerous dead branches or limbs, significant bark disease or fungal infestation, signs of stress and/or senescence.

Assessment of the trees within the Moorebank Avenue road reserve was conducted by Jane Rodd and Kate Carroll on 13 October 2016.

Targeted threatened species surveys

MPE Stage 2 site

Targeted surveys for threatened flora species for species listed in Table 4-5 were undertaken in the following areas, as shown on Figure 4-2:

- Areas of marginal potential habitat in the south of the MPE Stage 2 site, using random meanders, within vegetation quadrats and using parallel transects.
- Within 30 m of the eastern boundary of the MPE Stage 2 site where it adjoins the Boot land, and within 30 m of the portion of the Boot land south of the MPE Stage 2 site that adjoins the fenceline to the south of the Amended Proposal.
- Areas of potential suitable habitat, comprising areas mapped as Castlereagh Scribbly Gum Woodland and Castlereagh Swamp Woodland, within the Moorebank Avenue site.

Targeted threatened flora surveys were conducted by Arcadis ecologists on 21 June 2016, 11 and 18 May 2017 and 24 and 26 October 2017 in and adjoining the MPE Stage 2 site.

The surveys were undertaken via walking parallel transects spaced approximately 5 m apart in dense bushland, and approximately 10 metres apart in cleared areas and open grassland. Where threatened flora species were detected, the number of individuals were recorded and GPS point locations captured. Surveys of *Grevillea parviflora* subsp. *parviflora* counted the number of stems, not individuals.

Table 4-5 Threatened flora species targeted in surveys

Scientific name	Common name	BC Act status	EPBC Act status
<i>Acacia bynoeana</i>	Bynoe's Wattle	Endangered	Vulnerable
<i>Acacia pubescens</i>	Downy Wattle	Vulnerable	Vulnerable
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Small-flowered Grevillea	Vulnerable	Vulnerable
<i>Hibbertia fumana</i>	-	Critically Endangered (provisional listing)	Not listed
<i>Hibbertia puberula</i> subsp. <i>puberula</i>	-	Endangered	Not listed
<i>Persoonia nutans</i>	Nodding Geebung	Endangered	Endangered

Moorebank Avenue site

The Moorebank Avenue site has been previously surveyed by Parsons Brinckerhoff in 2014 (to inform the *Moorebank Intermodal Terminal Project Environmental Impact Statement*) and by Arcadis in 2017 to inform *Moorebank Precinct West-Stage 2 Proposal Environmental Impact Statement*.

More recently, targeted threatened flora surveys were conducted by Arcadis ecologists on 9 and 14 February 2017 and 14 March 2017 in the Moorebank Avenue site. The surveys were undertaken via walking parallel transects spaced

approximately 5 m apart in dense bushland, and approximately 10 metres apart in cleared areas and open grassland. Where threatened flora species were detected, the number of individuals were recorded and GPS point locations captured. Surveys of *Grevillea parviflora* subsp. *parviflora* counted the number of stems, not individuals.

The Moorebank Avenue site was revisited on 3 November 2017 to validate previous identifications of *Hibbertia* species that occur in the Moorebank Avenue site.

Identification of *Hibbertia* species

The threatened *Hibbertia* species in the Boot land are known to flower mainly from September to December, and surveys undertaken in May 2017 were outside the known flowering period. *Hibbertia* spp. recorded in May 2017 surveys were identified by examining remnant fruiting and flowering material still attached to plants, which were present on almost all plants detected. One of the *Hibbertia puberula* subsp. *puberula* plants recorded in May 2017 was in flower at the time of surveys, and could be more reliably identified.

The identifications of *Hibbertia* spp. made in May 2017 were validated by the October-November 2017 surveys, during the species' flowering period, in accordance with FBA requirements. Most of the *Hibbertia* spp. in the Boot land to the east of the Amended Proposal site was not in flower at the time of the October surveys; microscopic examination of stems and leaves in situ found plants had only simple hairs, and not the stellate hairs typical of *Hibbertia fumana*. *Hibbertia* spp. recorded to the south of the Amended Proposal site and within the Amended Proposal site were in bud, with some in flower, and could be readily identified as *Hibbertia puberula* subsp. *puberula* based on the presence of 10-14 stamens and distinctively ridged and beaked calyx lobes. The species was not in flower on the Moorebank Avenue site during November surveys, but numerous plants were in bud and specimens were examined using a microscope to confirm their identification as *Hibbertia puberula* subsp. *puberula*.

Fauna habitat assessment

Components of fauna habitat were assessed using 20 x 20m quadrats, randomly located across the Amended Proposal site. Data collected included:

- Structure and floristics of vegetation
- Surface drainage features
- Rocky features
- Abundance and type of tree and log hollows
- Foraging resources
- Microhabitats.

Fauna surveys

MPE Stage 2 site

Numerous fauna field surveys were conducted between 2011 and 2014 (Table 4-1), including targeted surveys for those threatened species considered likely to occur. The entire Amended Proposal site was traversed on foot and all species and evidence of fauna presence observed was recorded. An inventory of fauna species recorded in the Amended Proposal site was compiled. Fauna survey locations are identified on

Figure 4-2. The Amended Proposal site was visited again in June 2016 to assess any change to habitat condition.

Diurnal fauna surveys involved:

- Direct visual observations of animal activity
- Aural recognition of bird and frog calls
- Raking leaf litter and turning logs, rocks and other debris
- Inspecting tree hollows, logs and built structures, including under bridges and culverts where access was possible
- Searches for indirect evidence of fauna (such as scats, nests, burrows, hollows, tracks, scratches and diggings)

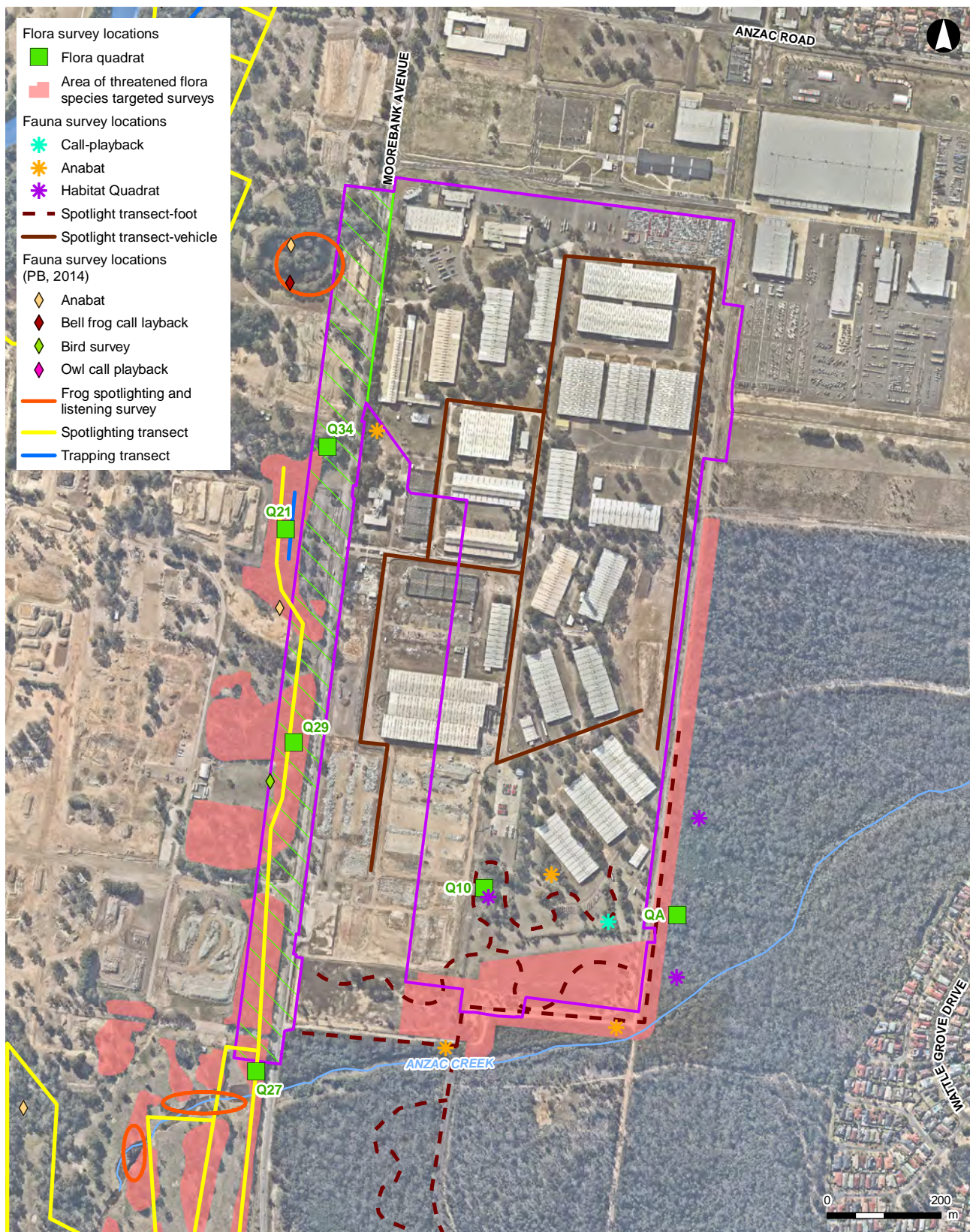
Nocturnal surveys involved:

- Spotlighting from a vehicle and along foot traverses for direct visual observations of animal activity. Spotlight effort comprised of 16 person hours across four nights during the survey period.
- Call-playback for aural recognition of threatened owls and frogs at one site within the study area, on each of four nights during the survey period. Upon arrival, listening for vocalisations for 10 minutes was undertaken. Calls were played intermittently for 15 minutes, followed by another listening period of 10 minutes.
- Searching microhabitats, including turning logs and rocks and searching fringing vegetation of waterbodies.
- Stationary placement of ultrasonic bat call detection equipment (Anabats) in potential flyways. Anabats were placed overnight in four locations within or immediately adjacent to the MPE site during the survey periods.

Moorebank Avenue site

Numerous flora and fauna field surveys were conducted in 2010 as part of the original MPW Environmental Impact Assessment (Parsons Brinckerhoff 2011) prepared for the MPW Concept Approval (SSD 5066), including targeted fauna surveys for those threatened species considered likely to occur. The surveys, relevant to the Moorebank Avenue site included:

- Bird surveys. a point surveys whereby all birds observed from a single point were noted for a set period of time (minimum 30 minutes).
- Spotlighting undertaken along a single transect by two persons on foot, each using a handheld 100 Watt spotlight. Spotlighting was used to target arboreal, flying and large ground-dwelling mammals, as well as nocturnal birds, reptiles and amphibians.
- Opportunistic observations.



LEGEND

- Amended Proposal site
- Moorebank Avenue site
- Watercourse

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 Coordinate System: GDA 1994 MGA Zone 56
 Aerial imagery supplied by nearmap (August, 2017)

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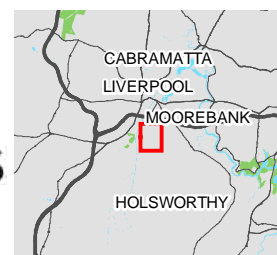


Figure 4-2 Flora and fauna survey locations on the Amended Proposal site

5 LANDSCAPE ASSESSMENT

5.1 Landscape regions

Bioregions and landscapes associated with the Amended Proposal site and outer assessment circle are mapped in Figure 5-1. The Amended Proposal site is located within the Sydney Basin Bioregion and the Cumberland Subregion classified under IBRA (Interim Biogeographic Regionalisation for Australia).

The Amended Proposal site is located within the Sydney Metropolitan Catchment Management Authority (CMA) Area and the Cumberland CMA subregion.

The Amended Proposal site is located within the Georges River Alluvial Plain Mitchell landscape. This Mitchell Landscape is not currently listed in the credit calculator, so the Cumberland Plain Mitchell Landscape was used following advice from OEH (pers. comm. Biobanking Team, OEH, 25 August 2015).

5.2 Assessment circles

Two assessment circles were mapped to enable assessment of landscape values, including the percent current extent of native vegetation cover within and adjacent to the Amended Proposal site. In accordance with the allowable combinations of inner and outer assessment circles in Table 8 of the FBA, an inner circle of 100 hectares and an outer circle of 1000 hectares were used. Both circles were centred on the Amended Proposal site (Figure 5-1).

5.3 Rivers, streams and wetlands

The Amended Proposal site is located within the Georges River catchment, covering approximately 960 square kilometres and managed by the Sydney Metropolitan CMA. Georges River is located between 600 metres to one kilometre west of the Amended Proposal site, where it flows to the north then meanders south-east from Chipping Norton before draining into Botany Bay.

Anzac Creek originates from the MPW site west of Moorebank Avenue and extends to the north-east, to the south of the Amended Proposal site; at its closest point, it is located approximately 70 metres from the south-eastern corner of the Amended Proposal site. The creek flows north past the adjoining suburbs of Wattle Grove and Moorebank before draining into Lake Moore in Chipping Norton, which flows into the Georges River. The section of Anzac Creek to the south of the Amended Proposal site is considered to be a 3rd order stream.

In addition to these named watercourses, there is a network of formalised drainage channels located in the south of the Amended Proposal site. These channels drain into the native vegetation to the east of the MPE site.

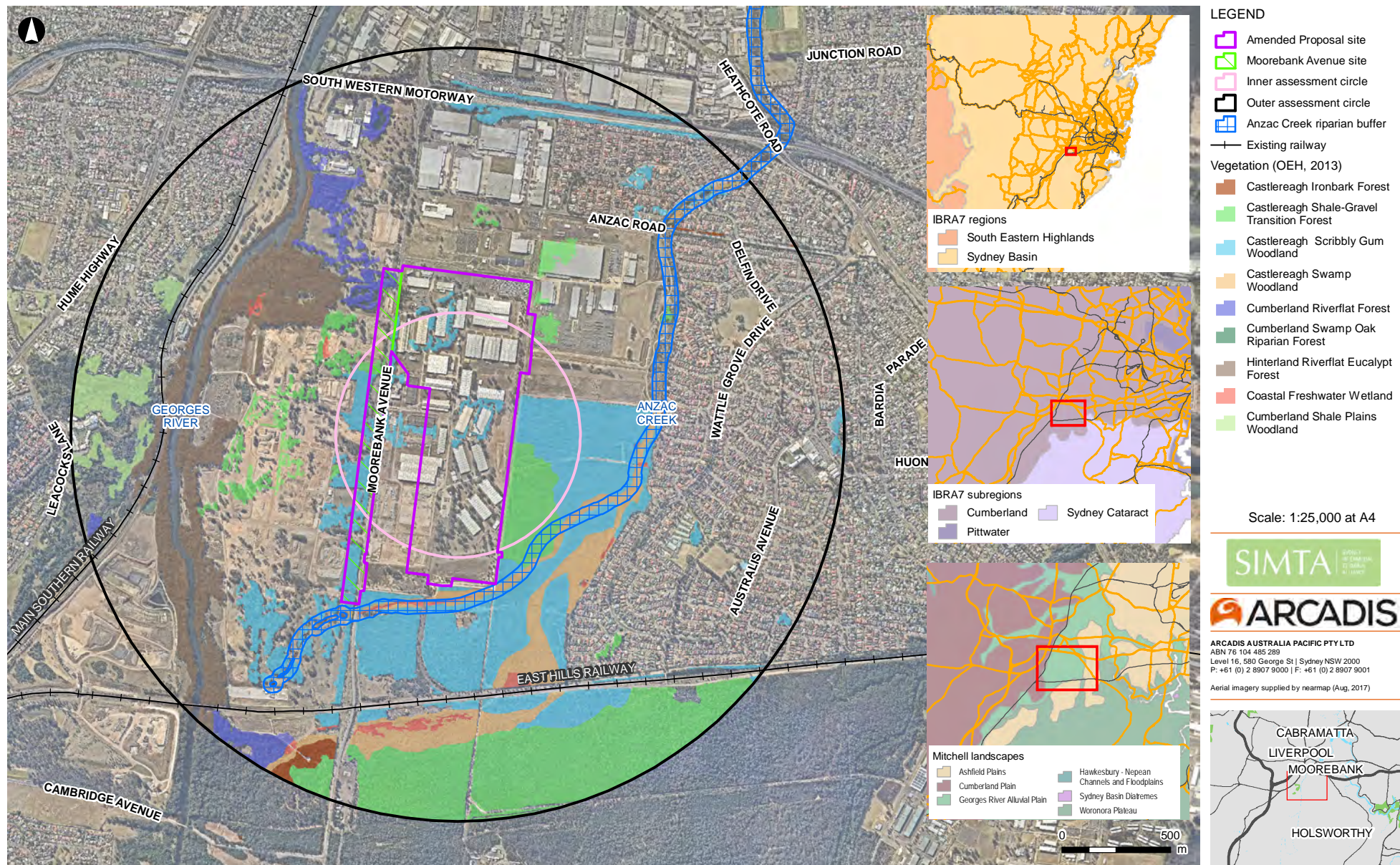


Figure 5-1 Landscape Assessment

No local or important wetlands occur in the outer assessment circle. Watercourses and wetlands in the locality are mapped in Figure 5-2.

5.4 Landscape Value Score

The landscape value has been calculated from the site-based methodology outlined in Appendix 4 of the FBA (OEH 2014) by determining the following:

1. Percent native vegetation cover in the landscape – percentage of all land within the inner and outer assessment circles that contains native vegetation is to be calculated for the current extent of cover and future extent of cover once clearing for the development has occurred.
2. Connectivity value – the value determined by identifying connecting links and state or regional biodiversity links. Where the development will impact on more than one connecting link, a connectivity value must be determined for each link based on the linkage widths and conditions. State significant biodiversity links have a connectivity value of 12 and regionally significant biodiversity links have a connectivity value score of 9.
3. Patch size score – determined from the percentage of native vegetation that has been cleared within the Mitchell landscape in which most of the development occurs and the patch size class. The patch size class considers the largest patch of native vegetation occurring within or connecting to the Amended Proposal site and attributing a size class between nil or small to extra large, dependent on the size of the patch in hectares and the percentage of native vegetation cleared.

A discussion of each of these determining factors in relation to the Amended Proposal site is provided below.

5.4.1 Native vegetation cover in landscape

The native vegetation cover in the landscape was determined with reference to the regional vegetation mapping by OEH (2013). All native vegetation types mapped by OEH (2013) within the inner and outer assessment circles were considered to represent the current native vegetation cover. The future native vegetation cover was determined by subtracting the area of native vegetation to be cleared for the Amended Proposal from the current summed native vegetation cover in each circle. Native vegetation cover percentages were calculated as a proportion of all land within each assessment circle that contains native vegetation.

The current and future percentage of native vegetation cover in the inner and outer assessment circles has been provided in Table 5-1. Scores for each percent cover were then determined using the score criteria in Table 9, Appendix 4 of the FBA.



Figure 5-2 Watercourses and waterbodies

Table 5-1 Scores for the assessment of landscape value

Criteria	Assessment Circle	% cover	Score
Current native vegetation cover	Inner assessment circle	25-30	4.5
	Outer assessment circle	25-30	7.5
Future native vegetation cover	Inner assessment circle	25-30	4.5
	Outer assessment circle	25-30	7.5

5.4.2 Connectivity value

One connecting link has been identified immediately adjacent to the Amended Proposal site, in the 'Boot land'. The vegetation in this area represents native vegetation in moderate to good condition, has a patch size greater than one hectare and minimal cleared or hostile land features between patches of vegetation.

The Amended Proposal has very minor overlap with areas of vegetation in the Boot land, and would not alter the existing connectivity values, further sever native vegetation or form a hard barrier within the connecting link.

5.4.3 Patch size

The largest patches of native vegetation occurring in and adjacent to the Amended Proposal site are those adjoining the western side of Moorebank Avenue. These patches connect to larger areas of bushland within Holsworthy Military Area to the south, which comprises approximately 18,000 hectares of continuous native vegetation. As such, the vegetation in the Amended Proposal site has been assigned the maximum patch size of 1,001 hectares. In accordance with the criteria in Table 15 of Appendix 4 of the FBA, the patch size class is considered to be *very large* with a corresponding patch size score of 12.

6 NATIVE VEGETATION

6.1 Mapped vegetation communities

OEH (2013) mapped the vegetation of the Sydney Metropolitan CMA Area. The Sydney CMA Area encompasses the eastern portions of the Sydney Metropolis, extending from the coastline to the catchments that flow to the Parramatta, Georges and Hacking River.

Seven different native vegetation communities were mapped within the outer assessment circle (Figure 6-1) and are listed in Table 6-4. All of these communities correspond to TECs as noted in Table 6-1.

Table 6-1 Vegetation communities mapped by OEH (2013) and corresponding TECs

Vegetation map unit (DECCW 2009)	Corresponding TEC	EPBC Act Status	BC Act Status
Castlereagh Ironbark Forest	Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion	Critically Endangered	Endangered
Castlereagh Shale-gravel Transition Forest	Shale/Gravel Transition Forest in the Sydney Basin bioregion	Critically Endangered	Endangered
Castlereagh Scribbly Gum Woodland	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Endangered	Vulnerable
Castlereagh Swamp Woodland	Castlereagh Swamp Woodland Community	Not listed	Endangered
Coastal Freshwater Reedland	Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions	Not listed	Endangered
Cumberland Riverflat Forest	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions	Not listed	Endangered
Cumberland Shale Plains Woodland	Cumberland Plain Woodland in the Sydney Basin bioregion	Critically Endangered	Critically Endangered

In addition to the described vegetation communities were two map units, “Urban_E/N” and “Weed_Ex” that were not described in the report accompanying the map, but are assumed to refer to degraded urban vegetation fragments and vegetation dominated by weeds and exotic species.

Parsons Brinckerhoff (2015b) mapped the vegetation of the “Boot land”, which adjoins the Amended Proposal site to the east and south, based on detailed site surveys conducted in 2014 and 2015. Four Plant Community Types (PCTs) were identified on the Boot land, all of which correspond to TECs (Table 6-2).

Table 6-2 Plant Community Types mapped by Parsons Brinckerhoff (2015b) on the Boot land and corresponding TECs

Vegetation map unit (Parsons Brinckerhoff 2015b)	Corresponding TEC (BC Act)
Broad-leaved Ironbark – Grey Box – Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin.	Shale/Gravel Transition Forest in the Sydney Basin bioregion
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion
Parramatta Red Gum Woodland on moist alluvium of the Cumberland Plain, Sydney Basin.	Castlereagh Swamp Woodland Community

Hyder Consulting (2015) mapped the vegetation of the southern part of the Boot land for the MPE Stage 1 EIS. Three PCTs were identified on the Boot land, two of which (Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin and Parramatta Red Gum Woodland on moist alluvium of the Cumberland Plain, Sydney Basin) were also mapped by Parsons Brinckerhoff (2015b). One additional PCT was identified within Anzac Creek: Coastal freshwater lagoons of the Sydney Basin Bioregion and South East Corner Bioregion. This PCT corresponds with the TEC Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregion, listed as Endangered under the BC Act.

Four PCTs were identified in the MPW site by Parsons Brinckerhoff (2014), following review of existing regional mapping (NPWS 2002/Tozer 2003), soil and geology attributes, landscape position and structural and floristic attributes recorded during site assessments. Arcadis revised this mapping in 2016, resulting in the identification of three PCTs. Patches of these three PCTs fall within the Moorebank Avenue site (Table 6-3).

Table 6-3: Plant Community Types mapped by Arcadis (2016) on MPW site, which occur within Moorebank Avenue site

Vegetation map unit (Arcadis 2016)	Corresponding TEC (BC Act)
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	Castlereagh Swamp Woodland
Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions

6.2 Vegetation observations

Following site survey and ground-truthing, six vegetation types were identified within the Amended Proposal site:

- MPE Stage 2 site: two native vegetation communities (Disturbed Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland and Broad-leaved Ironbark - *Melaleuca decora* shrubby open forest) and one modified vegetation type, Planted and disturbed vegetation.
- Moorebank Avenue site: three native vegetation communities (Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland, Parramatta Red Gum Woodland, and Forest Red Gum – Rough-barked Apple Grassy Woodland) and one modified vegetation type, Planted and disturbed vegetation.

6.2.1 MPE Stage 2 site

6.2.1.1 Planted and disturbed vegetation

The MPE site was formerly used for the Defence National Storage and Distribution Centre (DNSDC). The site contains numerous large warehouse buildings and is covered by a network of roads, carparks and other hardstand areas. The site was largely developed between 1939 and 1945 and trees were probably planted at or shortly after this time, as there are distinct rows of tree crowns visible on the 1955 aerial photograph. Further development occurred in the early 1990s (Artefact 2015), whereupon additional plantings or landscaping would have occurred.

There are currently mature and mainly healthy trees lining the roads and paved areas (Plate 1, Plate 2). Planted tree species are typical of cultivated eucalypts that are commonly found as mature street trees in suburban Sydney, with *Eucalyptus microcorys* (Tallowwood), *E. saligna* (Sydney Blue Gum), *Corymbia maculata* (Spotted Gum) and *C. citriodora* (Lemon-scented Gum) frequently recorded.



Plate 1. Mature trees of *Eucalyptus saligna* and *Corymbia maculata* on MPE site



Plate 2. Mature trees of *Eucalyptus microcorys* on MPE site

The ground layer in the non-paved areas of the Amended Proposal site consists of mown grass lawns, dominated by *Cynodon dactylon* (Couch), *Pennisetum clandestinum* (Kikuyu) and other exotic grass species; there was a native grass component persisting in some locations, with native grasses observed including *Paspalidium distans*, *Austrodanthonia* sp. (Wallaby Grass) and *Eragrostis leptostachya* (Paddock Lovegrass) as well as some small native herbs.

In the south of the Amended Proposal site is a network of drainage channels with some tree plantings and some apparent tree and shrub regeneration. The channels supported a mixture of native, non-local native and exotic trees and shrubs including *E. saligna*, *E. tereticornis* (Forest Red Gum), *C. maculata*, *Melaleuca quinquenervia* (Broad-leaved Paperbark), *Casuarina glauca* (Swamp Oak) and *E. parramattensis* (Parramatta Red Gum).

6.2.1.2 Disturbed Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland

There was one area adjoining the disused rail line in the south-east of the MPE site that supported native understorey (Plate 3, Plate 4); it is possible that this area has been subject to management as there were mesh tree guards around the bases of two trees. This area supported mature trees of *E. sclerophylla* (Hard-leaved Scribbly Gum) and numerous shrubs of *Acacia* spp., *Allocasuarina littoralis* (Black She-oak), *Hakea salicifolia* (Willow Hakea) and *Melaleuca nodosa* (Ball Honey-myrtle). The ground layer was characterised by native grasses including *Aristida ramosa* (Wiregrass), *Entolasia stricta* (Wiry Panic), *Paspalidium distans* and *Themeda australis* (Kangaroo Grass) and there were a number of small groundlayer herb and shrub species including *Astroloma humifusum* (Cranberry Heath), *Laxmannia gracilis* (Slender Wire Lily), *Pimelea linifolia* (Slender Rice Flower) and *Lomandra* spp. Exotic cover was low, with *Eragrostis curvula* (African Lovegrass) dominating in patches.



Plate 3. Native regrowth near existing rail line in MPE site



Plate 4. Native regrowth near rail spur in southern part of the MPE site

6.2.1.3 Broad-leaved Ironbark - *Melaleuca decora* shrubby open forest

A small area of native vegetation within the Boot land falls within the Amended Proposal site along its eastern boundary. This area within the Amended Proposal site adjoins a drainage channel that drains from the MPE site, and forms the disturbed edge of a larger patch of Broad-leaved Ironbark - *Melaleuca decora* shrubby open forest to the east (Plate 5).

The vegetation in this area consists of dense cover of trees and tall shrubs of *Angophora bakeri* (Narrow-leaved Apple), *Acacia binervia* (Coast Myall), *Acacia parramattensis* (Parramatta Wattle) and *Melaleuca decora* (White Feather Honey myrtle). The understorey is shrubby and grassy, with *Pultenaea villosa* (Hairy Bush-pea) and *Ozothamus diosmifolius* (White Dogwood) in the shrub layer and *Microlaena stipoides* (Meadow Rice-grass), *Lomandra longifolia* (Spiny-headed Mat-rush), *Imperata cylindrica* (Blady Grass) and the exotic *Eragrostis curvula* abundant, particularly at the cleared edge.

The drainage channel is an open trench, cleared and disturbed at the edge of the easement track, with only scattered groundcover present. Further east within the native vegetation, the channel is adjoined by ferns, mainly *Adiantum aethiopicum* (Maidenhair Fern).



Plate 5. Broad-leaved Ironbark - *Melaleuca decora* shrubby open forest in the east of the Amended Proposal site



Plate 6. Coastal freshwater lagoons within the Amended Proposal site.

6.2.2 Moorebank Avenue site

6.2.2.1 Planted and disturbed vegetation

The road reserve adjoining Moorebank Avenue is largely entirely cleared, with closely mown grass on the verges. There were some planted trees in sections along the road edge, mainly native eucalypts species; commonly occurring species were *E. microcorys*, *E. saligna* x *botryoides*, *E. camaldulensis* and *E. tereticornis*. The trees ranged in height from 6 to 8 metres, and in diameter at breast height (dbh) from 0.1 to over one metre. Most trees were in good health, although some had dead branches or had been pruned into poor shape.

6.2.2.2 Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland

Patches of Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland occur in the east of the MPW site, adjoining Moorebank Avenue. Portions of these patches are within the Moorebank Avenue site. Parsons Brinckerhoff (2015a) described this community as subject to high disturbance from edge effects, existing roads, foot paths, golf course and weed invasion.

The canopy is dominated by native species including *Eucalyptus sclerophylla* (Hard-leaved Scribbly Gum), *Eucalyptus globoidea* (White Stringybark), *Eucalyptus parramattensis* subsp. *parramattensis* (Parramatta Red Gum) and *Melaleuca decora*. The shrub layer includes *Leucopogon juniperinus* (Prickly Beard-heath), *Pittosporum undulatum* (Sweet Pittosporum), *Acacia* spp., *Exocarpos cupressiformis* (Cherry Ballart), *Grevillea parviflora* subsp. *parviflora* (Small-flower Grevillea) and *Persoonia nutans* (Nodding Geebung). The groundcover is dominated by native species including *Microlaena stipoides* (Weeping grass), *Lomandra longifolia* (spiny-headed mat-rush), *Dianella revolute* (Blue Flax-Lily), *Poa affinis*, *Dichondra repens* (Kidney weed), and *Echinopogon ovatus* (Forest Hedgehog Grass) with scattered exotic species such as *Ehrharta erecta* (Panic Veldtgrass), *Lantana camara* (Lantana), *Asparagus asparagoides* (Bridal Creeper), *Senecio madagascariensis* (Fireweed), *Eragrostis curvula* (African lovegrass), *Chloris gayana* (Rhodes Grass), *Ligustrum*

sinense (Small-leaved Privet) and *Olea europaea subsp. cuspidate* (African Olive) (Parsons Brinckerhoff 2015a).

6.2.2.3 Parramatta Red Gum woodland

Parramatta Red Gum Woodland occurs in the south of the Moorebank Avenue site. Parsons Brinckerhoff (2015a) describe this community as subject to high disturbance from edge effects, existing roads, foot paths, former Department of Defence activities and weed invasion.

The canopy and shrublayer are dominated by native species including *Melaleuca linariifolia* (Flax-leaved Paperbark), *Casuarina glauca* (Swamp Oak) and *Leptospermum trinervium* (Flaky-barked Tea-tree). The groundcover is dominated by native species including *Pteridium esculentum* (Common Bracken), *Persicaria decipiens* (Slender knotweed), *Imperata cylindrica* (Blady Grass), *Gratiola pedunculata*, *Typha orientalis* (Broadleaf Cumbungi), *Baumea articulate* (Jointed Twig-rush), *Hydrocotyle verticillata* (Shield Pennywort) and *Euchiton sphaericus* with scattered exotic species such as *Rubus fruticosus* (Blackberry), *Ludwigia peruviana* (Peruvian Primrose), *Araujia sericifera* (Moth vine), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) and *Paspalum urvillei* (Vasey Grass) (Parsons Brinckerhoff 2015a).

6.2.2.4 Forest Red Gum – Rough-barked Apple grassy woodland

The Forest Red Gum – Rough-barked Apple grassy woodland in the Moorebank Avenue site represents the eastern extent of larger patches of this community adjoining the Georges River to the west. Parsons Brinckerhoff (2015a) describe this community as subject to high disturbance from edge effects, existing roads, foot paths, former Department of Defence activities and weed invasion.

The canopy and shrublayer are dominated by native species including *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus amplifolia* (Cabbage Gum), *Angophora floribunda* (Rough-barked Apple), *Bursaria spinose* (Blackthorn, Boxthorn), *Breynia oblongifolia* (Coffee bush), *Leucopogon juniperinus* (Prickly Beard-heath), *Jacksonia scoparia* (Winged Broom-pea), *Acacia spp.*, and *Exocarpos cupressiformis* (Cherry Ballart). The groundcover is dominated by native species including *Microlaena stipoides* (Weeping grass), *Lomandra longifolia* (Spiny-headed mat-rush), *Entolasia stricta* (Wiry panic), *Austrostipa ramosissima* (Stout Bamboo Grass), *Dianella revolute* (Blue Flax-Lily), *Themeda triandra* (Kangaroo grass), *Cynodon dactylon* (Couch), *Aristida ramosa* (Purple Wiregrass), *Carex appressa* (Tall sedge), *Dichondra repens* (Kidney weed) and *Opilismenus imbecillis* (Basket grass). Some areas within this community were dominated by an exotic shrub layer such as *Ehrharta erecta* (Panic Veldtgrass), *Ligustrum spp.*, *Olea europaea subsp. cuspidate* (African Olive) and *Lantana camara* (Lantana) (Parsons Brinckerhoff (2015a).

6.3 Plant Community Types on the Amended Proposal site

The vegetation within the Amended Proposal site consisted predominantly of planted and disturbed vegetation. Native vegetation within the MPE Stage 2 site consists of small, fragmented patches of vegetation and the disturbed edges of larger patches, and the Moorebank Avenue site containing larger patches.

Four native Plant Community Types (PCTs) were identified within the Amended Proposal site following review of existing information and structural and floristic attributes recorded during site assessments (Table 6-4, Figure 6-1). Amendments to the Construction Area and Operational Area (as described in section 1) have avoided direct impacts on Coastal freshwater lagoons, as was previously shown in the BAR

that was prepared to support the *Moorebank Precinct East-Stage 2 Proposal Environmental Impacts Statement* (Arcadis 2016).

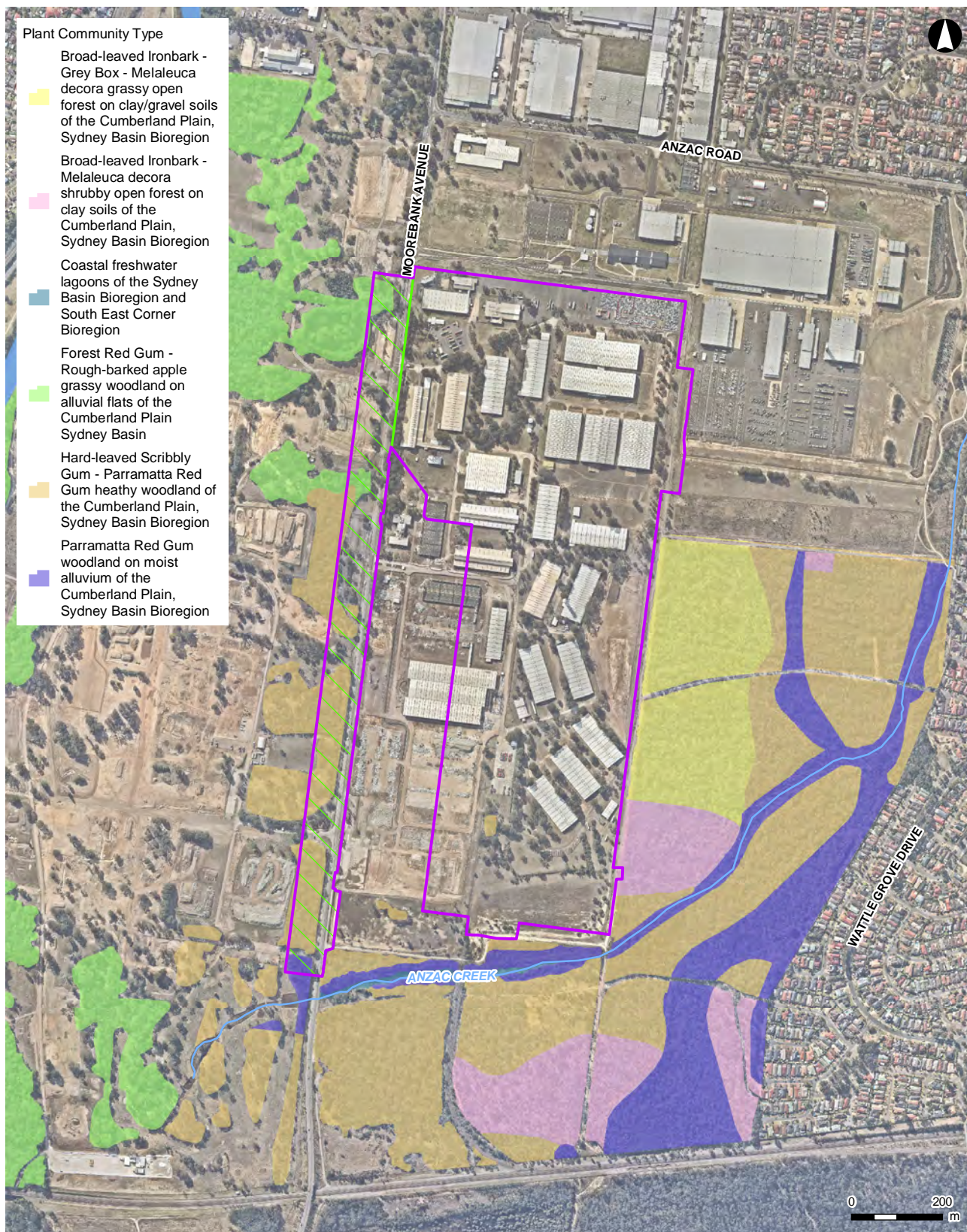
Table 6-4 Plant community types (PCTs) identified on the Amended Proposal site

Vegetation Class (Keith 2004)	PCT ID	Plant Community Type	Estimated clearance of PCT since European settlement	Area (ha) within Amended Proposal site
MPE Stage 2 site				
Sydney Sand Flats Dry Sclerophyll Forests	ME003	Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin	50%	0.1 ha
Cumberland Dry Sclerophyll Forests	ME002	Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	95%	0.05 ha
Moorebank Avenue site				
Sydney Sand Flats Dry Sclerophyll Forests	ME003	Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin	50%	3.73 ha
Sydney Sand Flats Dry Sclerophyll Forests	ME005	Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	45%	0.22 ha
Coastal Floodplain Wetlands	ME018	Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	95%	0.59 ha

The justification for assigning PCTs is provided below in Table 6-5

Table 6-5 Justification for identification of PCTs on the Amended Proposal site

Plant Community Type	Species relied upon for ID of PCT	Justification of evidence used to identify a PCT
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin	<i>Eucalyptus sclerophylla</i>	<p>Previous regional mapping as an equivalent vegetation type</p> <p>Landscape position</p> <p>Characteristic tree species present</p> <p>Structure and species composition is broadly consistent with descriptions in VIS database and published references.</p>
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	<i>Eucalyptus fibrosa</i> <i>Melaleuca decora</i>	<p>Landscape position</p> <p>Characteristic tree species present</p> <p>Structure and species composition is consistent with descriptions in VIS database and published references.</p>
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	<i>Melaleuca linariifolia</i>	<p>Previous regional mapping as an equivalent vegetation type</p> <p>Landscape position</p> <p>Characteristic tree species present</p> <p>Structure and species composition is consistent with descriptions in VIS database and published references.</p>
Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	<i>Eucalyptus tereticornis</i> <i>Eucalyptus amplifolia</i> <i>Angophora subvelutina</i> <i>Angophora floribunda</i> <i>Eucalyptus saligna</i> x <i>botryoides</i>	<p>Previous regional mapping as an equivalent vegetation type</p> <p>Landscape position</p> <p>Characteristic tree species present</p> <p>Structure and species composition is consistent with descriptions in VIS database and published references.</p>



6.3.1 Threatened Ecological Communities

Two PCTS identified in the Amended Proposal site and three PCTs identified in the Moorebank Avenue site fall within the definitions of threatened ecological communities listed under the BC Act and/or EPBC Act, as per Table 6-6.

Table 6-6 Threatened ecological communities on the Amended Proposal site and Moorebank Avenue site

Plant Community Type	Equivalent TEC	BC Act Status	EPBC Act Status
Amended Proposal site			
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (ME003)	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Vulnerable	Endangered
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion (ME002)	Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion	Endangered	Critically Endangered
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	Castlereagh Swamp Woodland	Endangered	Not listed
Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions	Endangered	Not listed
Moorebank Avenue site			
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (ME003)	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Vulnerable	Endangered
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	Castlereagh Swamp Woodland	Endangered	Not listed
Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions	Endangered	Not listed

6.5 Vegetation zones

For the purposes of the FBA assessment, the Amended Proposal site contained five vegetation zones in the moderate to good condition category. The vegetation zones are summarised in Table 6-7.

Table 6-7 Vegetation zones on the Amended Proposal site

Vegetation zone	1	2	3	4	5
Vegetation class	Dry Sclerophyll forests (Shrubby)	Dry Sclerophyll forests (Shrub/grass)	Dry Sclerophyll forests (Shrubby)	Dry Sclerophyll forests (Shrubby)	Forested Wetlands
Biometric code	ME003	ME002	ME003	ME005	ME018
PCT name	Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain	Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain	Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin
Condition class	Moderate/ Good	Moderate/ Good	Moderate/ Good	Moderate/ Good	Moderate/ Good
Area (ha)	0.1 ha	0.05 ha	3.73 ha	0.22 ha	0.59 ha
Plots	QA	Q10	Q21, Q29	Q27	Q34

6.6 Site value scores for vegetation zones

The site value score for each vegetation zone identified in the Amended Proposal site was determined through assessment of site attribute data collected in vegetation plots. The site attribute data was entered into the credit calculator to generate site value scores. The site attribute data entered into the credit calculator is shown in Table 6-8.

Table 6-8 Vegetation zone on the Amended Proposal site

Plot Name	Site attributes									
	NP S	NOS	NMS	NGCG	NGCS	NGCO	EP C	NT H	O R	F L
ME003 Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion: Moderate/Good										
Bench-mark	39	5-34	4-38	12-56	7-26	16-75	-	1	1	30
QA	29	32.5	13	24	20	18	46	1	0	38
ME002 Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion										
Bench-mark	35	9-31	6-42	12-61	6-24	9-46	-	1	1	30
Q10	22	51.5	16.5	6	10	30	10	3	1	20
ME003 Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion: Moderate/Good - Medium										
Bench-mark	39	5-34	4-38	12-56	7-26	16-75	-	1	1	30
Q21	33	22	18	44	2	22	0	0	1	2
Q29	7	13	3	16	0	2	62	0	1	4
ME005 Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion: Moderate/Good										
Bench-mark	36	6.5-41.5	5-25	12.2-38.2	0-10	12.2-38.2	-	0		0
Q27	12	35	0	0	0	52	0	0	1	4
ME018 Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion: Moderate/Good										
Bench-mark	16	15-44	4-34	32-82	8-37	32-82	-	1	1	>30

Plot Name	Site attributes									
	NP S	NOS	NMS	NGCG	NGCS	NGCO	EP C	NT H	O R	F L
Q34	4	15	0	32	0	0	8	0	1	0

Key to site attributes

NPS = Native plant species	NGCO = Native groundcover – other
NOS = Native overstorey cover	EPC = Exotic percent cover
NMS = Native midstorey cover	NTH = Number of trees with hollows
NGCG = Native groundcover – grass	OR = Overstorey regeneration
NGCS = Native groundcover - shrubs	FL = Fallen logs (m)

The site value scores for the vegetation zones are provided in Table 6-9.

Table 6-9 Area and site value score for vegetation zones

Vegetation Zone	Area mapped in Amended Proposal site	Site value score
MPE Stage 2 site		
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin: Moderate/Good (ME003)	0.1 ha	68.23
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion: Moderate/Good (ME002)	0.05 ha	74.48
Moorebank Avenue site		
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin: Moderate/Good - Medium (ME003)	3.73	55.73
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin: Moderate/Good	0.22	33.33
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin: Moderate/Good	0.59	34.38

6.7 Groundwater Dependent Ecosystems

Geotechnical and Phase 2 investigations of the Amended Proposal site have found groundwater at depths of between 5.2 and 12.4 m BGL (1.7 and 9.11 m Australian Height Datum (AHD)). Groundwater flow is inferred to be west to the north-west towards the Georges River (Parsons Brinckerhoff 2014b). Riparian woodland vegetation adjoining the Georges River was identified as having a high potential for groundwater interaction. Some of the fragmented patches of vegetation along the eastern boundary of the MPW site were identified as having a moderate potential for groundwater interaction (Arcadis 2016).

It is probable, due to local hydrogeology, that groundwater across the Amended Proposal site, Moorebank Avenue site and the wider region is interconnected. As such, if stygofauna were present they are unlikely to be isolated to the vicinity of the Amended Proposal site.

A search of the Australian Government's Atlas of Groundwater Dependent Ecosystems was undertaken on 7 April 2016. No data on subterranean groundwater-dependent ecosystems (GDEs) is available for the locality. Notwithstanding this, several GDEs with potential reliance on subsurface groundwater were identified in the locality including in the Amended Proposal site (Bureau of Meteorology 2016). Results are mapped in Figure 8-2.

6.8 Fauna habitats

6.8.1 Terrestrial habitats

Moorebank Avenue site

Structurally intact woodland occurs scattered throughout the Moorebank Avenue site providing a range of fauna habitat values. These areas contain a relatively intact native understorey and/or groundcover vegetation. They contain a complete vegetation structure, fallen timber, and dense leaf litter layers that are essential to the life cycles of many fauna. Patches of dense understorey and diverse groundcover in this habitat type provide potential foraging and nesting habitat for a variety of terrestrial reptiles, bird and mammals.

The canopy of this habitat type consists of a moderate to dense cover of immature, semi-mature and mature trees. The canopy provides foraging habitat for nectar-feeding and seed-eating animals and is likely to contain hollows suitable for birds such as small to large parrots, owls, tree roosting microchiropteran bat and small to large arboreal mammals. Foraging opportunities exist in the canopy for predatory species including Powerful Owl and Spotted-tailed Quoll. Overall, this fauna habitat type is in moderate to good condition providing potential habitat for species of animal that require diverse native understorey vegetation, canopy connectivity and tree hollows.

In addition to intact woodland, the Moorebank Avenue site also contains highly disturbed areas with scattered trees. This habitat type occurs in areas that have been subject to substantial human disturbance including hardstand areas on the MPW site and the Moorebank Avenue road reserve. This habitat type does not correspond to any native vegetation community. Native vegetation in this habitat type is restricted to occasional trees, shrubs and groundcover plants within otherwise exotic vegetation. This habitat is only likely to provide habitat for native and introduced fauna species that are adapted to open environments and tolerant of human disturbance. Many such native species (e.g. Willie Wagtail and Noisy Miners) have increased in abundance in response to human disturbance. This habitat type is in poor condition and generally of very limited value to threatened fauna species.

MPE Stage 2 site

Landscaped areas occur across the majority of the MPE Stage 2 site. Native vegetation has been predominantly cleared from these areas and persists as isolated trees amongst expanses of mown exotic and native grasses.

Isolated trees offer potential nesting, sheltering and roosting habitat to birds such as Pied Currawong (*Strepera graculina*) and Noisy Miner (*Manorina melanoccephala*). Flowering eucalypts also provide foraging habitat for Grey-headed Flying Fox (*Pteropus poliocephalus*). A small number of scribbly gums (*Eucalyptus sclerophylla*) located in the south of the Amended Proposal site support small and medium-sized hollows, offering nesting habitat to hollow-dependent species such as Rainbow Lorikeet (*Trichoglossus haematodus*) and Scaly-breasted Lorikeet (*Trichoglossus chlorolepidotus*). Seven eucalypts in the Moorebank Avenue road reserve were identified as containing small hollows or bark fissures that represent habitat for microbats.

A diversity of microchiropteran bat species were recorded in cleared and disturbed areas, including White-striped Mastiff Bat (*Tadarida australis*), Gould's Wattled Bat (*Chalinolobus gouldii*), Chocolate Wattled Bat (*Chalinolobus morio*), Little Forest Bat (*Vespadelus vulturinus*) and the threatened Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*).

Open grassy areas provide foraging habitat for ground-feeding birds such as White-winged Chough (*Corcorax melanorhamphos*), Red-rumped parrot (*Psephotus haematonotus*) and small terrestrial mammals such as the Brown Hare (*Lepus capensis*).

Scattered native and exotic shrubs and trees associated with the formalised drainage channels in the south of the Amended Proposal site, such as Black She-oak (*Allocasuarina littoralis*), eucalypts, Camphor Laurel (*Cinnamomum camphora*) and *Cotoneaster* sp., offer foraging, sheltering and roosting habitat to birds such as Noisy Miner (*Manorina melanocephala*), Raven (*Corvus coronoides*) and Magpie Lark (*Grallina cyanoleuca*). Other small trees and shrubs throughout the Amended Proposal site that may offer sheltering and nesting habitat to smaller birds are restricted to small areas of horticultural plantings.

Other fauna habitat features such as rocky features, well-developed leaf litter, ground timber and hollow logs are absent from cleared and disturbed areas. As a result, the availability of sheltering and foraging habitat for reptiles and cover-dependent terrestrial mammals is reduced. Depressions in open areas that contain temporary water following rain events offer habitat to colonising amphibians such as Common Eastern Froglet (*Crinia signifera*).

The buildings currently within the Amended Proposal site offer limited habitat features to native fauna, although they may support potential roosting habitat for microchiropteran bats. Given that inspection of these buildings was not possible during site surveys, it is assumed that some of the buildings offer potential fauna habitat. Further discussion on impacts and mitigation is provided in Sections 8.2 and 9 respectively.

6.8.2 Aquatic habitats

Anzac Creek comprises a named waterway with intermittent flow supporting semi-permanent to permanent water in pools and as such, is classified as Class 3 (Minimal Fish Habitat) in accordance with Fairfull and Witheridge (2003).

Aquatic habitat types of Anzac Creek within the study area included soft substrate pools and extensive macrophyte cover. Water in Anzac Creek was mostly static and shallow; small pools were heavily vegetated with floating and emergent macrophytes.

The introduced *Gambusia* (*Gambusia holbrooki*) was recorded at Anzac Creek. One Long-fin Eel (*Anguilla reinhardtii*) was identified in the upper reaches of Anzac Creek within the MPW site (outside of the study area).

A total of 23 macroinvertebrate families were recorded in Anzac Creek (ALS 2011). Family diversity was generally low and many sensitive taxa were not recorded. Anzac Creek falls into AUSRIVAS Band B, indicating that the macroinvertebrate community was 'significantly impaired'; fewer families than expected were observed. This result may be attributed to a current/existing 'potential' impact on water quality or habitat quality or both (ALS 2011).

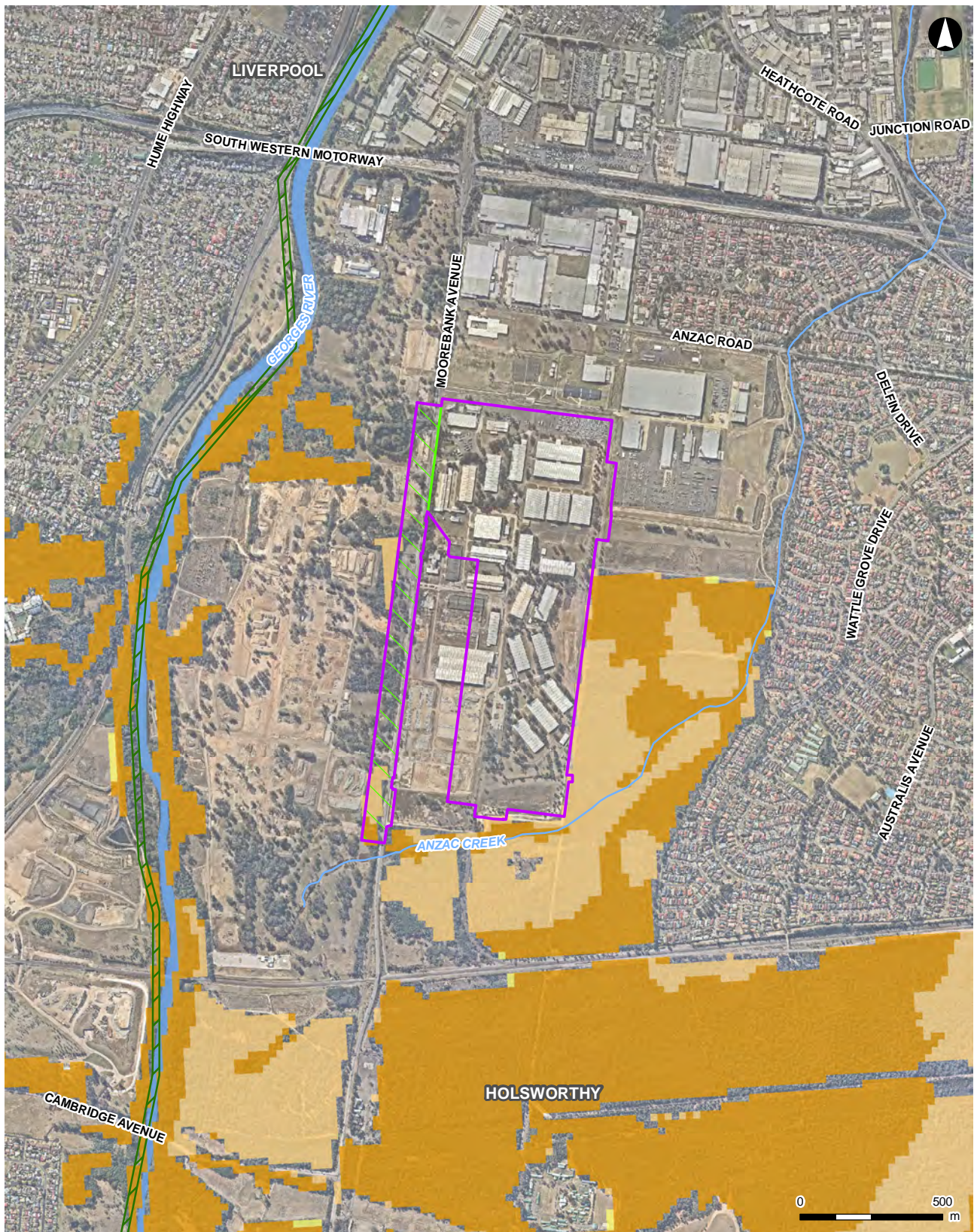
There is a network of formalised drainage channels in the south of the Amended Proposal site. These channels do not all support permanent water; some flow only ephemerally following rain. Channels that support aquatic and fringing vegetation, such as *Typha* sp, offer habitat for reptiles and amphibians such as Common Eastern Froglet (*Crinia signifera*).

6.8.3 Habitat connectivity

The Amended Proposal site is located within a relatively industrialised and urbanised landscape with small fragmented patches of structurally intact woodland, scattered trees and a narrow avenue of trees on the Moorebank Avenue site providing some connectivity across the landscape. Structurally intact woodland has some connectivity to other similar vegetation on the MPW site, which also occurs in a patchy/fragmented state. Vegetation of landscaped areas/disturbed areas with scattered trees are generally limited to single, isolated trees or patches of trees amongst expanses of mown exotic and native grasses and hardstand; habitat features of these areas do not maintain connectivity with larger areas of habitat to the east and south.

The fragmented habitat within the majority of the Amended Proposal site is further isolated from adjacent habitat due to the presence of significant barriers to fauna movement. These barriers include Moorebank Avenue and the chain-mesh fencing surrounding the MPE site and MPW site. The chain-mesh fencing would limit movement into and through the MPE Stage 2 site to small terrestrial mammals, reptiles, amphibians and birds and bats. Larger terrestrial mammals that may occur in the locality would be excluded from much of the MPE Stage 2 site as a result.

The small area of the Amended Proposal site that falls within the Boot land contains habitat that is continuous with approximately 83 hectares of native vegetation within the Boot land. The native vegetation in the Moorebank Avenue site is fragmented, but maintains connectivity with riparian vegetation adjoining the Georges River that extends to the north and south of the MPW site.



LEGEND

- Amended Proposal site
- Moorebank Avenue site
- Watercourse
- Surface Groundwater Dependent Ecosystems
- Potential for groundwater interaction
 - High potential
 - Moderate potential
 - Low potential
- Subsurface Groundwater Dependent Ecosystems
- Potential for groundwater interaction
 - High potential
 - Moderate potential
 - Low potential
- High potential

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 Coordinate System: GDA 1994 MGA Zone 56
 Aerial imagery supplied by nearmap (August 2017)



Figure 6-2 Groundwater-dependent ecosystems on the vicinity of the Amended Proposal site (BOM 2016)

7 THREATENED SPECIES

7.1 Predicted Ecosystem credit species

The following species were derived from the PCTs identified on the Amended Proposal site as predicted ecosystem credit species:

- Barking Owl (*Ninox connivens*)
- Black-chinned Honeyeater (eastern subspecies) (*Melithreptus gularis* subsp. *gularis*)
- Brown Treecreeper (eastern subspecies) (*Climacteris picumnus* subsp. *victoriae*)
- Bush-stone Curlew (*Burhinus grallarius*)
- Diamond Firetail (*Stagonopleura guttata*)
- Eastern False Pipistrelle (*Falsistrellus tasmaniensis*)
- Eastern Freetail-bat (*Mormopterus norfolkensis*)
- Flame Robin (*Petroica phoenicea*)
- Gang-gang Cockatoo (*Callocephalon fimbriatum*)
- Greater Broad-nosed Bat (*Scoteanax rueppellii*)
- Hooded Robin (south-eastern form) (*Melanodryas cucullata* subsp. *cucullata*)
- Little Eagle (*Hieraaetus morphnoides*)
- Little Lorikeet (*Glossopsitta pusilla*)
- New Holland Mouse (*Pseudomys novaehollandiae*)
- Painted Honeyeater (*Grantiella picta*)
- Powerful Owl (*Ninox strenua*)
- Scarlet Robin (*Phoenica boodang*)
- Speckled Warbler (*Chthonicola sagittata*)
- Spotted-tailed Quoll (*Dasyurus maculatus maculatus*)
- Square-tailed Kite (*Lophoictinia isura*)
- Swift Parrot (*Lathamus discolor*)
- Varied Sitella (*Daphoenositta chrysoptera*)
- Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*)

Each species has been assessed for potential presence in each of the vegetation zones in the Amended Proposal site in Table 7-1 using information obtained from the Threatened Species Profiles Database (TSPD).

Table 7-1 Predicted ecosystem credit species presence assessment

Predicted ecosystem credit species	Associated PCTs found on Amended Proposal site	Patch size	TS offset multiplier	Habitat requirements (from TSPD)	Ecosystem credit species habitat presence on Amended Proposal site?	Species likelihood of occurrence on Amended Proposal site
Barking Owl <i>Ninox connivens</i> V-BC Act	ME002 ME003	25-100 ha	3.0	Foraging habitat includes associated vegetation types and up to 250 m from these into adjoining grassland. Larger trees and hollow trees facilitate a more diverse and abundant prey base, thus improving breeding success. Living or dead trees with hollows >20 cm diameter that are > 4 m above the ground are required for breeding.	Yes	Moderate
Black-chinned Honeyeater (eastern subspecies) <i>Melithreptus gularis</i> subsp. <i>gularis</i> V-BC Act	ME002 ME003	5-25 ha	1.3	Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts. Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees. Recent studies have found that the Black-chinned Honeyeater tends to occur in the largest woodland patches in the landscape as birds forage over large home ranges of at least 5 hectares.	Yes	Moderate
Brown Treecreeper (eastern subspecies) <i>Climacteris picumnus</i> subsp. <i>victoriae</i> V-BC Act	ME002	5-25 ha	2.0	Associated vegetation types provide foraging and refuge habitat for the species. Hollows >6cm in live trees or in dead standing or fallen timber provide breeding habitat.	Yes	Unlikely

Predicted ecosystem credit species	Associated PCTs found on Amended Proposal site	Patch size	TS offset multiplier	Habitat requirements (from TSPD)	Ecosystem credit species habitat presence on Amended Proposal site?	Species likelihood of occurrence on Amended Proposal site
Bush Stone-curlew <i>Burhinus grallarius</i> E-BC Act	ME002 ME003	25-100 ha	2.6	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Associated vegetation types provide foraging and refuge habitat for the species. Open grassy woodland with fallen dead timber provides breeding habitat.	Yes	Unlikely
Diamond Firetail <i>Stagonopleura guttata</i> V-BC Act	ME002 ME003	<5 ha	1.3	Foraging habitat includes associated vegetation types with native grassy understorey or adjoining native grassland. Does not occur within grasslands which are further than 1.5 km from trees or woodland. Breeding occurs in vegetation with small patches of shrubs.	Yes	Unlikely
Eastern False Pipistrelle <i>Falsistrellus tasmaniensis</i> V-BC Act	ME002 ME003	5-25 ha	2.2	Prefers moist habitats, with trees taller than 20 m. Associated vegetation types provide foraging habitat for the species. Species roosts in live or dead hollow-bearing trees, under bark, caves buildings.	Unlikely – trees generally less than 20m tall	Unlikely
Eastern Freetail-bat <i>Mormopterus norfolkensis</i> V-BC Act	ME002 ME003	5-25 ha	2.2	Associated vegetation types provide foraging habitat for the species. Species roosts in tree hollows, loose bark or man-made structures. Breed in hollows in dead or alive trees.	Yes	High
Flame Robin <i>Petroica phoenicea</i>	ME002 ME003	25-100 ha	1.3	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The groundlayer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense.	No. Species prefers tall forest with clearings or open understorey.	Unlikely

Predicted ecosystem credit species	Associated PCTs found on Amended Proposal site	Patch size	TS offset multiplier	Habitat requirements (from TSPD)	Ecosystem credit species habitat presence on Amended Proposal site?	Species likelihood of occurrence on Amended Proposal site
V-BC Act					This veg zone is not tall or moist.	
Gang-gang Cockatoo <i>Callocephalon fimbriatum</i> V-BC Act	ME002 ME003	<5 ha	2.0	In summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas. Favours old growth attributes required for nesting and roosting purposes. Uses hollows for breeding >10cm diameter and >9m above the ground.	Yes	Moderate
Greater Broad-nosed Bat <i>Scoteanax rueppellii</i> V-BC Act	ME002 ME003	<5 ha	2.2	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings.	Yes	Moderate
Hooded Robin (south-eastern form) <i>Melanodryas cucullata</i> subsp. <i>cucullata</i> V-BC Act	ME002 ME003	5-25 ha	1.7	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	Yes	Unlikely
Little Eagle <i>Hieraaetus morphnoides</i> V-BC Act	ME002 ME003	<5 ha	1.4	Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	Yes	Moderate

Predicted ecosystem credit species	Associated PCTs found on Amended Proposal site	Patch size	TS offset multiplier	Habitat requirements (from TSPD)	Ecosystem credit species habitat presence on Amended Proposal site?	Species likelihood of occurrence on Amended Proposal site
Little Lorikeet <i>Glossopsitta pusilla</i> V-BC Act	ME002 ME003	<5 ha	1.8	Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Yes	High
New Holland Mouse <i>Pseudomys novaehollandiae</i> V-BC Act	ME003	<5 ha	2.6	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. Lives predominantly in burrows shared with other individuals. Distribution is patchy in time and space, with peaks in abundance during early to mid stages of vegetation succession typically induced by fire.	Marginal	Unlikely
Painted Honeyeater <i>Grantiella picta</i> V-BC Act	ME002	<5 ha	1.3	Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias.	Yes	Unlikely
Powerful Owl <i>Ninox strenua</i> V-BC Act	ME002 ME003	>100 ha	3.0	Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. Requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation. Nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old.	Yes	Moderate

Predicted ecosystem credit species	Associated PCTs found on Amended Proposal site	Patch size	TS offset multiplier	Habitat requirements (from TSPD)	Ecosystem credit species habitat presence on Amended Proposal site?	Species likelihood of occurrence on Amended Proposal site
Scarlet Robin <i>Petroica boodang</i> V-BC Act	ME002 ME003	25-100 ha	1.3	The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Abundant logs and fallen timber are important habitat components.	Yes	Moderate
Speckled Warbler <i>Chthonicola sagittata</i> V-BC Act	ME002 ME003	5-25 ha	2.6	The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy.	Yes	Unlikely
Spotted-tailed Quoll <i>Dasyurus maculatus</i> V-BC Act E-EPBC Act	ME002 ME003	25-100 ha	2.6	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites.	Yes	Unlikely
Square-tailed Kite <i>Lophoictinia isura</i> V- BC Act Not listed – EPBC Act	ME003	25-100 ha	1.4	Found in a variety of timbered habitats including dry woodlands and open forests, showing a particular preference for timbered watercourses. Appears to occupy large hunting ranges of more than 100km ² .	Yes	Unlikely

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Predicted ecosystem credit species	Associated PCTs found on Amended Proposal site	Patch size	TS offset multiplier	Habitat requirements (from TSPD)	Ecosystem credit species habitat presence on Amended Proposal site?	Species likelihood of occurrence on Amended Proposal site
Swift Parrot <i>Lathamus discolor</i> E-BC Act E-EPBC Act	ME002 ME003	<5 ha	1.3	Occurs in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> .	Yes	Moderate
Varied Sittella <i>Daphoenositta chrysoptera</i> V-BC Act	ME002 ME003	5-25 ha	1.3	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	Yes	Moderate
Yellow-bellied Sheath-tail-bat <i>Saccolaimus flaviventris</i> V-BC Act	ME002 ME003	<5 ha	2.2	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.	Yes	Moderate

7.2 Predicted Species credit species

7.2.1 Flora

The following threatened flora species listed under the BC Act were identified in the credit calculator as predicted flora species credit species:

- *Acacia bynoeana* Bynoe's Wattle
- *Acacia pubescens* (Downy Wattle)
- *Caladenia tessellata* (Thick Lip Spider Orchid)
- *Callistemon linearifolius* (Netted Bottle Brush)
- *Cynanchum elegans* (White-Flowered Wax Plant)
- *Dillwynia tenuifolia*
- *Epacris purpurascens* subsp. *purpurascens*
- *Grevillea parviflora* subsp. *parviflora* (Small-flower Grevillea)
- *Gyrostemon thesioides*
- *Hibbertia* sp. *Bankstown*
- *Hibbertia puberula*
- *Hypsela sessiliflora*
- *Leucopogon exolasius* (Woronora Beard-heath)
- *Persoonia hirsuta* (Hairy Geebung)
- *Persoonia nutans* (Nodding Geebung)
- *Pimelea curviflora* subsp. *curviflora*
- *Pultenaea pedunculata* (Matted Bush-pea)

Table 7-2 assesses the potential for these flora species credit species to be present on the Amended Proposal site using information from the TSPD. It also identifies species that cannot withstand further loss and whether further action is required.

Four of the threatened flora species credit species identified by the credit calculator were recorded in the Boot land to the south and east of the Amended Proposal site: *Acacia bynoeana*, *Acacia pubescens*, *Persoonia nutans* and *Grevillea parviflora* subsp. *parviflora*.

One threatened flora species not identified by the credit calculator, *Hibbertia puberula* subsp. *puberula*, was recorded in the Amended Proposal site and in the Boot land to the south and east of the Amended Proposal site. Another threatened species not identified by the calculator, *Hibbertia fumana*, was recorded in the Boot land to the south of the Amended Proposal site. This species occurs in several locations, varying between 77 and 133 metres from the Amended Proposal site boundary. The locations of the threatened flora species recorded in the Amended Proposal site and adjacent areas are shown on Figure 7-1.

The majority of the MPE Stage 2 site represents low quality habitat for threatened flora species, with highly modified and fragmented native vegetation. Threatened flora species were recorded in areas of marginal habitat in the south-east of the MPE Stage 2 site and adjoining cleared access tracks in the Boot land adjoining the southern and eastern boundaries of the Amended Proposal site. The Moorebank Avenue site contains threatened flora habitat within patches of Hard-leaved Scribbly

Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin, although much of this is also disturbed.

Detailed consideration of the threatened flora species recorded on the Amended Proposal site and adjoining lands is provided in section 7.2.1.1.

Three threatened flora populations were also identified in the credit calculator as potentially occurring:

- *Acacia prominens* (Gosford Wattle) population, Hurstville and Kogarah local government areas
- *Pomaderris prunifolia* (Plum-leaf Pomaderris) population, Parramatta, Auburn, Strathfield and Bankstown local government areas
- *Wahlenbergia multicaulis* (Tadgells Bluebell) population, Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield local government areas.

None of the identified threatened flora populations occur within the Liverpool local government area, in which the Amended Proposal site is located.

Table 7-2 Flora species credit species and their presence status

Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Acacia bynoeana</i> Bynoe's Wattle E-BC Act V-EPBC Act	ME003	Heath or dry sclerophyll forest on sandy soils. Prefers open, sometimes slightly disturbed sites. Associated overstorey species include Red Bloodwood, Scribbly Gum, Parramatta Red Gum, Saw Banksia and Narrow-leaved Apple.	Marginal habitat may be present in ME003	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Unlikely to occur across majority of Amended Proposal site, and not found within Amended Proposal site during targeted surveys; populations of the species were recorded to the south and east, including one plant located approximately 6m to the east of the MPE Stage 2 site boundary.	No	Assess indirect impacts

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Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Acacia pubescens</i> Downy Wattle V-BC Act V-EPBC Act	ME002	Occurs on alluviums, shales and at the intergrade between shales and sandstones. Occurs in open woodland and forest, in a variety of plant communities, including Cooks River/ Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland.	Marginal habitat present in ME002	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Unlikely to occur across majority of Amended Proposal site, and not found within Amended Proposal site during targeted surveys; populations of the species were recorded to the south and east, including approximately 20m east of the MPE Stage 2 site boundary.	No	Assess indirect impacts
<i>Caladenia tessellata</i> Thick Lip Spider Orchid E – BC Act V – EPBC Act	ME002 ME003	Generally found in grassy sclerophyll woodland on clay loam or sandy soils.	Marginal habitat present in ME002	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Unlikely. The species was not found during targeted surveys.	No	Not required

Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Callistemon linearifolius</i> Netted Bottle Brush V-BC Act	ME002	For the Sydney area, recent records are limited to the Hornsby Plateau area near the Hawkesbury River. Grows in dry sclerophyll forest on the coast and adjacent ranges.	Marginal habitat present in ME002	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Unlikely. The species was not found during targeted surveys.	No	Not required
<i>Cynanchum elegans</i> White-flowered Wax Plant E-BC Act E-EPBC Act	ME018	Usually occurs on the edge of dry rainforest vegetation. Other associated vegetation types include littoral rainforest; <i>Leptospermum laevigatum</i> – <i>Banksia integrifolia</i> subsp. <i>integrifolia</i> coastal scrub; <i>Eucalyptus tereticornis</i> aligned open forest and woodland; <i>Corymbia maculata</i> aligned open forest and woodland; and <i>Melaleuca armillaris</i> scrub to open scrub.	No suitable habitat exists within the Amended Proposal site.	N/A – species not targeted as unlikely to occur	N/A	Unlikely. No suitable habitat present.	No	Not required

Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Dillwynia tenuifolia</i> V-BC Act	ME002 ME003	May be locally abundant particularly within scrubby/dry heath areas within Castlereagh Ironbark Forest and Shale Gravel Transition Forest on tertiary alluvium or laterised clays. May also be common in transitional areas where these communities adjoin Castlereagh Scribbly Gum Woodland.	Marginal habitat may be present in ME003	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Unlikely. The species was not found during targeted surveys.	No	Not required
<i>Epacris purpurascens</i> subsp. <i>purpurascens</i> V-BC Act	ME002	Found in a range of habitat types, most of which have a strong shale soil influence.	Marginal habitat present in ME002.	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Unlikely. The species was not found during targeted surveys.	No	Not required
<i>Grevillea parviflora</i> subsp. <i>parviflora</i> Small-flower Grevillea V-BC Act V-EPBC Act	ME002 ME003	Grows in sandy or light clay soils usually over thin shales, often with lateritic ironstone gravels and nodules. Sydney region occurrences are usually on Tertiary sands and alluvium, and soils derived from the Mittagong Formation. Soil landscapes include Lucas Heights or Berkshire Park.	Marginal habitat may be present in ME003.	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Recorded in Moorebank Avenue site.	No	Not required

Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Gyrostemon thesioides</i> E-BC Act	ME002	Has only been recorded at three sites in NSW, near the Colo, Georges and Nepean River. Grows on hillsides and riverbanks and may be restricted to fine sandy soils.	Habitat in the Amended Proposal site was considered unlikely to be suitable.	N/A – species not targeted as unlikely to occur.	June 2016, October 2016, October 2017	Unlikely.	No	Not required
<i>Hibbertia</i> sp. <i>Bankstown</i> (syn. <i>Hibbertia puberula</i> subsp. <i>glabrescens</i>) CE-BC Act CE-EPBC Act	ME002	The species is currently known to occur in only one population at Bankstown Airport. The airport site is very heavily modified from the natural state, lacks canopy species and is currently a low grass/shrub association with many pasture grasses and other introduced herbaceous weeds. Soil at the site is a sandy (Tertiary) alluvium with a high silt content.	Habitat in the Amended Proposal site was considered unlikely to be suitable.	N/A – species not targeted as unlikely to occur.	June 2016, October 2016, October-November 2017	Unlikely.	No	Not required

Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Hibbertia puberula</i> E – BC Act Not listed – EPBC Act	ME003	Occurs on sandy soil often associated with sandstone, or on clay. Habitats are typically dry sclerophyll woodland communities, although heaths are also occupied. One of the recently (2012) described subspecies also favours upland swamps.	Occupied habitat present	Targeted searches within potential habitat areas.	November 2010, February 2013, May 2014, September 2014, February-March 2017, October-November 2017	<i>Hibbertia puberula</i> subsp. <i>puberula</i> recorded during targeted surveys	Yes	Yes
<i>Hypsela sessiliflora</i> (syn. <i>Isotoma sessiliflora</i>) Not listed – BC Act Ex-EPBC Act (Note: this species was removed from the TSC Act on 25 November 2016).	ME018 ME005	Currently known from only two adjacent sites on a single private property at Erskine Park in the Penrith LGA. Previous sightings are all from western Sydney, at Homebush and at Agnes Banks. Known to grow in damp places, on the Cumberland Plain, including freshwater wetland, grassland/alluvial woodland and an alluvial woodland/shale plains woodland (Cumberland Plain Woodland) ecotone.	No.	N/A – species not targeted as unlikely to occur.	N/A	Unlikely. No suitable habitat present.	No	Not required

Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Leucopogon exolasius</i> Woronora Beard-heath V-BC Act V-EPBC Act	ME003	Occurs in woodland on sandstone.	Marginal habitat may be present in ME003.	Targeted searches within potential habitat areas	June 2016, October 2016, October 2017	Unlikely. The species was not found during targeted surveys.	No	Not required
<i>Persoonia hirsuta</i> Hairy Geebung E-BC Act E-EPBC Act	ME018	Found in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone	Marginal habitat may be present.	Targeted searches within potential habitat areas	November 2010, February 2013, May 2014, September 2014, February-March 2017	Unlikely. The species was not found during targeted surveys.	No	Not required
<i>Persoonia nutans</i> Nodding Geebung E-BC Act E-EPBC Act	ME002 ME003	This species occupies tertiary alluvium, extending onto shale sandstone transition communities and into Cooks River / Castlereagh Ironbark Forest.	Habitat present in ME002 and ME003.	Targeted searches within potential habitat areas	June 2016, May 2017, October 2017	Unlikely to occur across majority of Amended Proposal site. Four small seedlings found in southernmost part of MPE Stage 2 site and 12 plants in Moorebank Avenue site.	No	Assess direct and indirect impacts

Predicted species credit species	Associated PCTs on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
<i>Pimelea curviflora</i> subsp. <i>curviflora</i> V-BC Act V-EPBC Act	ME003	Confined to the coastal area of Sydney between northern Sydney in the south and Maroota in the north-west. Distribution associated with shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands.	No. The Amended Proposal site is outside of the known distribution of the species in the Sydney region. Typical habitat does not occur in the Amended Proposal site,	N/A – species not targeted as unlikely to occur.	N/A	Unlikely.	No	Not required
<i>Pultenaea pedunculata</i> Matted Bush-pea E-BC Act	ME002	Generally among woodland vegetation but plants have also been found on road batters and coastal cliffs. In the Liverpool - Fairfield area the majority of occurrences are in lower-lying areas and often close to creek lines. Soils are moderately to poorly drained.	Habitat present in ME002	Targeted searches within potential habitat areas	May 2017, October 2017	Unlikely. The species was not found during targeted surveys.	No	Not required

7.2.1.1 Threatened flora species recorded on the Amended Proposal site and adjoining areas

Three threatened flora species were recorded within the Amended Proposal site: *Hibbertia puberula* subsp. *puberula*, *Persoonia nutans* and *Grevillea parviflora* subsp. *parviflora*. Three other threatened flora species were recorded during surveys of adjacent areas of the Boot land between 2011 and 2017 (Table 7-3). The locations of threatened species recorded are shown in Figure 7-1, 7-2 and 7-3. A discussion of each threatened species is also provided below.

Table 7-3 Threatened flora species recorded during surveys of the Amended Proposal site and Boot land

Scientific name	Common name	EPBC Act status	BC Act status	Distance between closest record and Amended Proposal site
<i>Acacia bynoeana</i>	Bynoe's Wattle	Vulnerable	Endangered	6 metres
<i>Acacia pubescens</i>	Downy Wattle	Vulnerable	Vulnerable	18 metres
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Small-flowered Grevillea	Vulnerable	Vulnerable	N/A – occurs within Amended Proposal site
<i>Hibbertia fumana</i>	-	Not listed	Critically Endangered (provisional listing)	100 metres
<i>Hibbertia puberula</i> subsp. <i>puberula</i>	-	Not listed	Endangered	N/A – occurs within Amended Proposal site
<i>Persoonia nutans</i>	Nodding Geebung	Endangered	Endangered	N/A – occurs within Amended Proposal site

Hibbertia puberula* subsp. *puberula

Hibbertia puberula was listed as endangered under the TSC Act (now BC Act) on 12 September 2003. At the time of listing, the following advice was included in the final determination:

Hibbertia puberula is found in the central coast botanical subdivision in sandy soil often associated with sandstone. Early records are from the Hawkesbury River area and Frenchs Forest in northern Sydney, South Coogee in eastern Sydney, the Hacking River area in southern Sydney, and the Blue Mountains. *Hibbertia puberula* has not been collected for over 40 years.

Toelken and Miller (2012) described seven new species and four new subspecies of *Hibbertia*, including *Hibbertia puberula* subsp. *puberula*. *Hibbertia puberula* subsp. *puberula* was identified as being more widespread than previously thought, based on over 50 specimens collected from varying locations including Wollemi National Park,

Voyager Point, Simmos Beach Reserve at Macquarie Fields, Kentlyn, Warrimoo, Royal National Park and areas south-west of Nowra, near Morton National Park. None of these records appear to have been assigned to the species in the NSW Wildlife Atlas or Australia's Virtual Herbarium (<http://avh.chah.org.au/>). *Hibbertia puberula* subsp. *puberula* has been recorded from a wide range of habitats and Toelken and Miller (2012) state that the species seems to be adequately conserved.

Hibbertia puberula subsp. *puberula* is considered to form part of the endangered listing of *Hibbertia puberula* at the species level under the BC Act.

Surveys of the Boot land in October-November 2016 recorded *Hibbertia puberula* subsp. *puberula* in the central southern part of the Boot land, south of Anzac Creek, where it was found to be abundant in Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (Arcadis 2017). Further investigations of areas of this PCT to the north of Anzac Creek in May 2017 found additional records of the species. *Hibbertia puberula* subsp. *puberula* was also recorded in disturbed areas next to the cleared tracks along the northern and western boundaries of the Boot land where it adjoins the MPE site, in May and September 2017. A total of 1,230 plants of *Hibbertia puberula* subsp. *puberula* were identified in the Boot land by Arcadis (2017). Validation of the May 2017 surveys, undertaken in October 2017, identified additional plants of *Hibbertia puberula* subsp. *puberula* in disturbed areas, including within the Amended Proposal site.

Approximately 88 plants of *Hibbertia puberula* subsp. *puberula* were recorded within the MPE Stage 2 site, in three locations:

- Five plants in an area of sparse regrowth adjoining the fenceline in the south of the Amended Proposal site, next to the access track;
- One plant in denser regrowth adjoining the fenceline in the south-east of the Amended Proposal site, next to the powerline easement;
- Approximately 82 plants in mown grassland in the south-east of the Amended Proposal site (Plates 7 and 8). Plants in the mown grassland were difficult to detect due to their very small size, even within the open grassland habitat. The patch of *Hibbertia puberula* subsp. *puberula* in the south-east of the Amended Proposal site is located directly west of records of the species in Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland in the Boot land, and the distribution of the species in this part of the Amended Proposal site appears to correlate with the habitat to the east.



Plate 7. *Hibbertia puberula* subsp. *puberula* in bud in the south-east of the Amended Proposal site



Plate 8. Area of mown grassland in south-east of Amended Proposal site where *Hibbertia puberula* subsp. *puberula* was recorded

Another 22 plants of *Hibbertia puberula* subsp. *puberula* are located in the Moorebank Avenue site. Of these, 16 were recorded in February and March 2017 surveys, with an additional six plants identified during validation surveys in November 2017. The species was recorded in two of the larger patches of Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland.

***Persoonia nutans* (Nodding Geebung)**

Persoonia nutans is listed as Endangered under the EPBC Act and the BC Act. This species is an erect to spreading shrub 0.5–1.5 metres high, with linear leaves and hairy young branches (DotE 2017).

Persoonia nutans is restricted to the Cumberland Plain in Western Sydney, between Richmond in the north and Macquarie Fields in the south. Northern populations are confined to aeolian and alluvial sediments and occur in a range of sclerophyll forest and woodland vegetation communities, with the majority of individuals occurring within Agnes Banks Woodland or Castlereagh Scribbly Gum Woodland and some in Cooks River / Castlereagh Ironbark Forests. Peak flowering is from November to March with sporadic flowering all year round (OEH 2017).

Persoonia nutans was recorded in the Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland north of Anzac Creek in the Boot land. Targeted searches for this species between 2011 and 2015 recorded 126 individual plants (Hyder Consulting 2015), with a further 60 plants recorded in the eastern part of the Boot land by Parsons Brinckerhoff (2015b) and 11 additional scattered plants recorded between October 2016 and May 2017 (Arcadis 2017). A total of 197 plants of *Persoonia nutans* have been recorded in the Boot land to date.

Three individuals of *Persoonia nutans* were recorded adjoining the fenceline to the south of the MPE Stage 2 site in May 2017. Reinspection of this area in October 2017 found an additional two small plants near the previous records. Another four small plants of *Persoonia nutans* (10-25 centimetres in height) were recorded in the far south of the MPE Stage 2 site.



Plate 9. *Persoonia nutans* seedlings recorded in the Amended Proposal site



Plate 10. *Persoonia nutans* adjoining southern fenceline south of the Amended Proposal site

Records of *Persoonia nutans* previously identified by PB (2015b) along the eastern boundary of the MPE site were reinspected in October 2016 and found to be completely cleared, with no evidence of the species presence remaining. There are additional records of *Persoonia nutans* just outside the southern boundary of the Amended Proposal site where it adjoins Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland in the Boot land (Figure 7-1).

Another eight plants of *Persoonia nutans* were recorded in the Moorebank Avenue site in Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland in surveys conducted between 2011 and 2017.

***Acacia bynoeana* (Bynoe's Wattle)**

Acacia bynoeana is listed as Vulnerable under the EPBC Act and Endangered under the BC Act.

Acacia bynoeana occurs in heath or dry sclerophyll forest on sandy soils. The species seems to prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches. Associated overstorey species include Red Bloodwood, Scribbly Gum, Parramatta Red Gum, Saw Banksia and Narrow-leaved Apple (OEH 2017).

Acacia bynoeana has been recorded in the Boot land (GHD 2015, Arcadis 2017), with most individuals clustered in the central southern section of the Boot land east of the existing disused Defence rail spur, and scattered isolated occurrences elsewhere (Figure 7-1). A total of 35 individuals were recorded by Arcadis (2017).

One individual of *Acacia bynoeana* was recorded in October 2017, in a clearing next to the cleared powerline easement to the east of the Amended Proposal site. The species was growing in a patch of bare sandy soils with sparse grass cover, with some regenerating eucalypts and shrubs nearby (Plates 7 and 8). The individual of *Acacia bynoeana* is located approximately 6 metres east of the eastern boundary of the Amended Proposal site.



Plate 11. *Acacia bynoeana* recorded east of the Amended Proposal site



Plate 12. Area where *Acacia bynoeana* was recorded (species is in foreground)

***Acacia pubescens* (Downy Wattle)**

Acacia pubescens is listed as Vulnerable under the EPBC Act and the BC Act. *A. pubescens* is a spreading shrub growing from 1 to 4 metres high with bright yellow flowers, bipinnate leaves and conspicuously hairy branchlets.

Acacia pubescens occurs on alluviums, shales and at the intergrade between shales and sandstones in open woodland and forest. It is found in a variety of plant communities, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland (OEH 2017; DotE 2017).

Acacia pubescens has previously been recorded in the Boot land by Hyder Consulting (2011), Parsons Brinckerhoff (2015b) and GHD (2015). Two individuals of *Acacia pubescens* were recorded by Hyder Consulting (2011) at the edge of bushland immediately to the east of the MPE site. The species was recorded in three distinct

patches in the Boot Land by Parsons Brinckerhoff (2015b). Due to its suckering habit resulting in clonal reproduction, it is difficult to determine how many genetic individuals are represented. The total number of stems over the three patches was estimated by PB (2015b) at 100 stems. GHD estimated a larger population of 263 individuals in the Boot land.

The two stems recorded in the native vegetation east of the powerline easement that borders the MPE site in 2012 were resurveyed in May 2017, and a larger population of 43 stems was recorded. Given that this stand of *Acacia pubescens* is in a location where GHD (2015) also recorded the species, it is assumed that the 43 stems are captured in their population count of 263.

The closest record of *Acacia pubescens* is located approximately 18 metres east of the eastern boundary of the Amended Proposal site, at the edge of Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion (Figure 7-1).

Hibbertia fumana

Hibbertia fumana is a recently rediscovered species that was previously known only from historical herbarium records and was presumed to be extinct. *Hibbertia fumana* is provisionally listed as Critically Endangered under the BC Act.

The core population of *Hibbertia fumana* is located in a transitional zone between Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin and Broad-leaved Ironbark - Grey Box- Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin, in the central southern part of the Boot Land, south of Anzac Creek. The population within the Boot Land is the only known population of the species recorded to date. The core population size of *Hibbertia fumana* was estimated at 14,270 by Arcadis (2017).

Hibbertia fumana was additionally recorded in disturbed edge habitat adjacent to and partially within the East Hills rail corridor adjoining the southern boundary of the Boot Land, and in scattered locations in disturbed areas next to the cleared tracks along the northern boundary of the Boot Land where it adjoins the MPE site (Arcadis 2017). The closest record of *Hibbertia fumana* to the Amended Proposal site is approximately 100 metres south-west of the south-western corner of the Amended Proposal site.

***Grevillea parviflora* subsp. *parviflora* (Small-flowered Grevillea)**

Grevillea parviflora subsp. *parviflora* is listed as Vulnerable under the EPBC Act and in Schedule 2 of the BC Act. *G. parviflora* subsp. *parviflora* is a spindly shrub varying from prostrate to erect, usually 0.3–1m high but growing up to 1.5 to 2 metres. The species suckers readily from rhizomes, although individuals sometimes have single stems (DotE 2017).

Grevillea parviflora subsp. *parviflora* was recorded in a large patch of Castlereagh Scribbly Gum Woodland south of Anzac Creek in the Boot land (Arcadis 2017). Hyder Consulting (2015) estimated approximately 7063 stems of the species occurred in the western parts of the Boot land, based on transect surveys undertaken in 2012 and 2014. Parsons Brinckerhoff (2015b) used the results of the Hyder Consulting surveys (2015), in conjunction with habitat inspection and mapping, to produce a stem count estimate of 13,600 for *Grevillea parviflora* subsp. *parviflora* across the proposed Wattle Grove offset biobank site, which is located within the Boot Land.

No individuals of *Grevillea parviflora* subsp. *parviflora* are located within the MPE Stage 2 site; the closest records are approximately 18 metres east of the eastern boundary of the Amended Proposal site within Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland in the Boot land (Figure 7-1). A total of 79 stems of *Grevillea parviflora* subsp. *parviflora* were recorded in the Moorebank Avenue site.

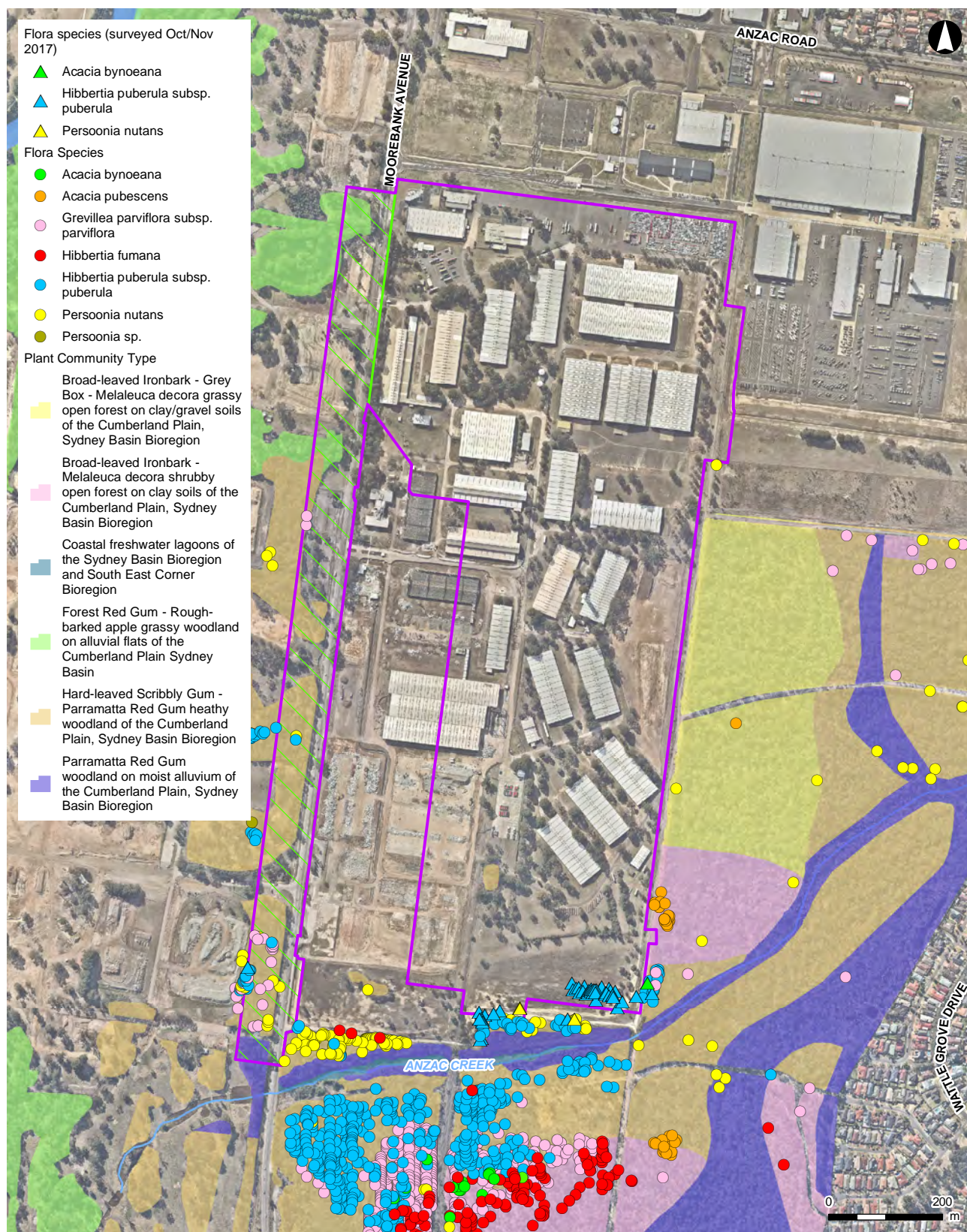


Figure 7-1 Threatened flora species recorded within and adjacent of the Amended Proposal

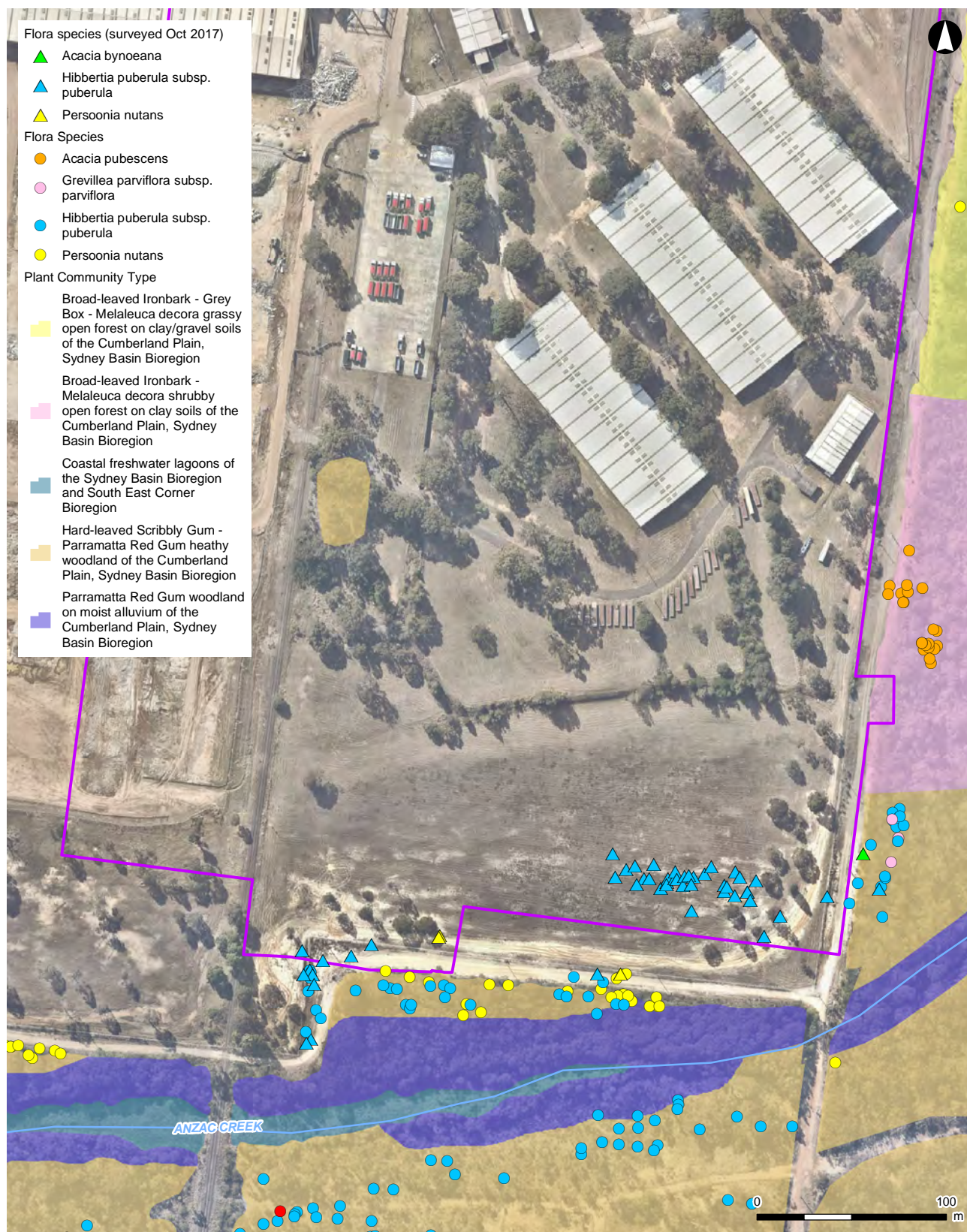


Figure 7-2 Threatened flora species recorded within and adjacent to the Amended Proposal (detail)

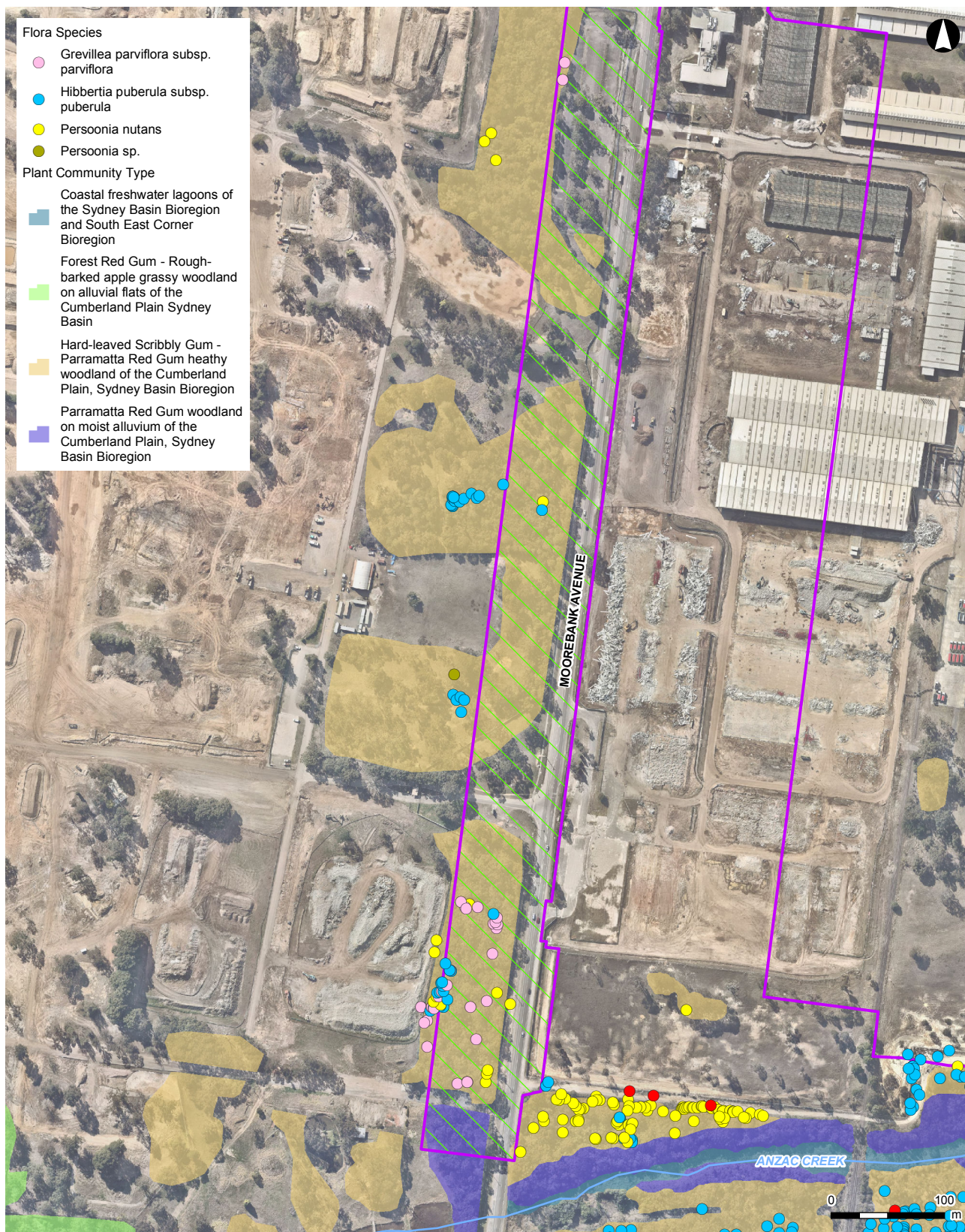


Figure 7-3 Threatened flora species recorded within and adjacent to the Moorebank Avenue site

7.2.2 Fauna

The following were identified in the credit calculator as predicted fauna species credit species:

- Cumberland Plain Land Snail (*Meridolum corneovirens*)
- Eastern Pygmy-possum (*Cercartatus nanus*)
- Green and Golden Bell Frog (*Litoria aurea*)
- Koala (*Phascolarctos cinereus*)
- Regent Honeyeater (*Anthochaera phrygia*)
- Squirrel Glider (*Petaurus norfolkensis*).

Table 7-4 assesses the potential for fauna species credit species to be present on the Amended Proposal site using information obtained from the TSPD. Habitat requirements for each species were assessed against the habitat values on the Amended Proposal site. Habitat information was obtained from OEH's Threatened Species Profiles Database. Where applicable, targeted survey methods and timing for each identified species is noted and an assessment of the presence status of each species was determined based on targeted survey results and habitat presence. Table 7-4 also identifies species that cannot withstand further loss and whether any further assessment is required.

Of the six species, none are considered likely to occur on the Amended Proposal site based on the assessment provided in Table 7-4.

7.2.2.1 Koala

No koalas or incidental observations of koala presence (i.e. scats or scratches) have been recorded within the Moorebank Precinct (MPE site, MPW site nor the Biobanking Sites) during any ecological field survey carried out between 2011 and 2016.

MPE Stage 2 site

No *Core* habitat for koalas was identified in the MPE Stage 2 site. While several koala feed trees listed under Schedule 2 of SEPP 44 were recorded in landscaped areas (which cover the majority of the MPE Stage 2 study area), such as *Eucalyptus microcorys* (Tallowood), *Eucalyptus camaldulensis* (River red gum) and *Eucalyptus tereticornis* (Forest red gum), they do not constitute at least 15% of the total number of trees in the upper or lower strata of the tree component. Accordingly, MPE Stage 2 study area does not comprise *Potential* koala habitat.

Several barriers to koala movement, such as chain-mesh fencing along the southern boundary of the MPE Site, the fenced East Hills Rail Corridor south of MPE site, Moorebank Avenue to the west and expanses of landscaped areas (from which intact native vegetation is absent), reduce the likelihood of koalas that have been previously recorded in the surrounding locality (OEH Bionet) moving into or through the MPE Stage 2 site.

The potential for koalas to occur in the MPE Stage 2 site was determined using information obtained from the TSPD. It was determined that the probability of koalas occurring within the MPE Stage 2 site is "unlikely", based on the lack of *Core* or *Potential* habitat for koala and barriers to koala movement. Accordingly, no further surveys for koalas within the MPE Stage 2 site were required, and no further assessment was required.

Moorebank Avenue site

No koalas or incidental observations of koala presence (i.e. scats or scratches) were identified during field surveys carried out in the MPW Stage 2 study area, which includes the Moorebank Avenue site.

The potential for koalas to occur in the Moorebank Avenue site has been determined using information obtained from the TSPD. It was determined that the probability of koalas occurring within the Moorebank Avenue site is “unlikely”, based on the lack of *Core* or *Potential* habitat for koala and barriers to koala movement. Only one koala feed species listed under Schedule 2 of SEPP 44, *Eucalyptus tereticornis* (Forest Red Gum) occurs in the Moorebank Avenue site. Koala feed trees for the Central Coast KMA that occur in the Moorebank Avenue site include two primary feed tree species, *Eucalyptus parramattensis* and *Eucalyptus tereticornis*. One secondary food tree species, *Eucalyptus baueriana*, also occurs in low densities. Accordingly, no further surveys for koalas within the Moorebank Avenue site were required, and no further assessment was required.

Table 7-4 Fauna species credit species and their presence status

Predicted species credit species	Associated PCTs found on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
Cumberland Plain Land Snail <i>Meridolum corneovirens</i> E-BC Act	ME002 ME003	Occurs in bark or leaf litter accumulation in associated vegetation types. Primarily inhabits Cumberland Plain Woodland; also known from Shale Gravel Transition Forests, Castlereagh Swamp Woodlands and the margins of River-flat Eucalypt Forest. It lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. Occasionally shelters under rubbish.	Marginal habitat may be present in ME002 and ME003, however there was minimal leaf litter observed within the small area to be impacted	N/A	N/A	Unlikely.	Yes	Not required
Eastern Pygmy-possum <i>Cercartetus nanus</i> V-BC Act	ME003	Inhabits woodlands and heath, occasionally rainforest where it forages for nectar and pollen of banksias, eucalypts and bottlebrushes. Shelters in tree hollows, rotten stumps, holes in the ground or abandoned bird-nests.	Potential habitat on site in ME003 is unlikely to be occupied by this species due to fragmentation.	N/A	N/A	Unlikely.	Yes	Not required

Predicted species credit species	Associated PCTs found on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
Green and Golden Bell Frog <i>Litoria aurea</i> E-BC Act V-EPBC Act	ME002 ME003	Breeding habitat comprises natural and constructed waterbodies including wetlands, stormwater detention basins, marshes, dams and streams-side, preferably those that are unshaded but with fringing vegetation. Forage for invertebrates within grassy habitats near breeding habitat. May shelter under vegetation, rocks and building materials such as fibro, sheet iron or bricks.	Marginal habitat present in basins and drainage lines. Infestation of <i>Gambusia holbrooki</i> (a predator of tadpoles) reduces the likelihood of occurrence.	Call playback and night time water body searches in two locations within marginal potential habitat.	May 2011	Unlikely. Habitat is marginal and species not recorded during targeted surveys.	Yes	Not required
Koala <i>Phascolarctos cinereus</i> V-BC Act V-EPBC Act	ME002 ME003	Species inhabits eucalypt woodlands and forests. The species feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species.	Potential habitat on site in ME003 is unlikely to be occupied by this species due to fragmentation. ME002 does not include potential feed trees.	Spotlight survey from a vehicle and along foot traverses for direct visual observations of animal activity	May 2011	Unlikely.	Yes	Not required

Predicted species credit species	Associated PCTs found on Amended Proposal site	Habitat requirements (from TSPD)	Habitat presence on Amended Proposal site?	Targeted survey effort/ methods	Targeted survey timing	Presence status	Can species withstand further loss?	Further action?
Regent Honeyeater <i>Anthochaera phrygia</i> CE-BC Act E-EPBC Act	ME002 ME003	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Only three known key breeding regions remaining: north-east Victoria, and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests.	Potential habitat on site in ME003 is unlikely to be occupied by this species due to fragmentation. May forage sporadically on the site in winter but unlikely to breed locally.	Diurnal visual and aural observations of bird calls by ecologist with experience in bird identification.	May 2011	Unlikely. The species was not found during targeted surveys. Species records within 10km are 20 years old or more.	Yes	Not required
Squirrel Glider <i>Petaurus norfolcensis</i> V-BC Act	ME002 ME003	Inhabits Blackbutt-Bloodwood forest with heath understorey in coastal areas. Require abundant tree hollows for refuge and nest sites. Forages for nectar, sap, invertebrates and pollen.	No. Species requires abundant hollows. Hollows are a limited resource in the Amended Proposal site.	Spotlight survey from a vehicle and along foot traverses for direct visual observations of animal activity	May 2011	Unlikely. The species was not found during targeted surveys.	Yes	Not required

8 AVOID AND MINIMISE IMPACTS

The FBA requires consideration of the steps taken to avoid and minimise the direct and indirect impacts of a development proposal on biodiversity values. Section 8.3.2 of the FBA sets out guidelines for the avoidance and minimisation of impacts to biodiversity during all phases of the project life cycle, comprising:

- Site selection phase
- Planning phase
- Construction phase
- Operational phase

8.1 Measures to avoid impacts

8.1.1 Site selection phase

The guidelines for site selection phase in sections 8.3.2.2 to 8.3.2.6 of the FBA and the biodiversity assessment process undertaken for the Amended Proposal are presented in Table 8-1.

Table 8-1 Site selection phase FBA guidelines for avoidance and minimisation of biodiversity impacts

FBA section	FBA guidelines	Consistency of the Amended Proposal with FBA guidelines
8.3.2.2	Selecting a suitable development site for a Major Project or a route for linear projects, should be informed by knowledge of biodiversity values. An initial desktop assessment of biodiversity values would assist in identifying areas of native vegetation cover, EECs or CEECs, and potential habitat for threatened species.	A desktop assessment of the biodiversity values of the MPE site was undertaken as part of a preliminary assessment of the MPE Project and as part of the Ecological Assessment for the Concept Plan Approval (MP10_0193).
8.3.2.3	Stage 1 of the FBA will provide the preliminary information necessary to inform project planning. Early consideration of biodiversity values is recommended in site selection, or route selection for linear projects, and the planning phase.	Early consideration of biodiversity values was undertaken in preliminary assessments and in the Ecological Assessment for the Concept Plan Approval (MP10_0193).
8.3.2.4	The site/route selection process should include consideration and analysis of the biodiversity constraints of the proposed development site and consider the suitability of the Major Project based on the types of biodiversity values present on the development site.	The majority of the MPE site is located within cleared and disturbed land, with no native vegetation communities and low habitat values for flora and fauna.

FBA section	FBA guidelines	Consistency of the Amended Proposal with FBA guidelines
8.3.2.5	<p>When considering and analysing the biodiversity constraints for the purpose of selecting a development site, the following matters should be addressed:</p> <p>(a) whether there are alternative sites within the property on which the proposed development is located where siting the proposed Major Project would avoid and minimise impacts on biodiversity values</p> <p>(b) how the development site can be selected to avoid and minimise impacts on biodiversity values as far as practicable</p> <p>(c) whether an alternative development site to the proposed development site, which would avoid adversely impacting on biodiversity values, might be feasible.</p>	<p>There were limited alternative options for a viable intermodal facility within the area.</p> <p>The MPE site represents an ideal position for an intermodal facility as:</p> <ul style="list-style-type: none"> There is a direct intersection linking the adjacent Moorebank Avenue to the M5 Motorway reducing the need for road works and subsequent additional biodiversity impacts. It is zoned as industrial land for use as industrial warehousing. Buffer zones are provided between the facility and nearby residential areas. It is within the freight catchment for which there is a freight demand, resulting in minimal use of road transport between origins / destinations and the IMT. <p>The location has also been identified in both state and federal strategies as the best and only location for an IMT facility to service a defined catchment in South-Western Sydney.</p>
8.3.2.6	<p>For linear projects, the route selection process must include consideration and an analysis of the biodiversity constraints of the various route options. In selecting a preferred option, loss of biodiversity values must be weighed up and justified against social and economic costs and benefits.</p>	<p>Not applicable – the Amended Proposal is not a linear project.</p>

The Amended Proposal site has been granted approval, in the form of a Concept Plan (MP10_0193), for the development of an intermodal facility and therefore is considered suitable.

8.1.2 Planning phase

The guidelines for planning phase in sections 8.3.2.7 to 8.3.2.8 of the FBA and the biodiversity assessment process undertaken for the Amended Proposal are presented in Table 8-2.

Table 8-2 Planning phase FBA guidelines for avoidance and minimisation of biodiversity impacts

FBA section	FBA guidelines	Consistency of the Amended Proposal with FBA guidelines
8.3.2.7	Once a suitable development site has been selected, further analysis of the biodiversity constraints of the proposed development site can then be used to inform concept planning, project siting and design. This includes the proposed location of temporary construction infrastructure such as roads, camps, stockpile sites and parking bays.	The identified biodiversity constraints have been considered during the development of the MPE Project, and the biodiversity impacts of the Amended Proposal have been approved within the Concept Plan.
8.3.2.8	<p>The Major Project should be located in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower site value) or which avoid an EEC or CEEC. The following matters should be considered for this purpose:</p> <ol style="list-style-type: none"> 1. siting of the project – the Major Project should be located in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower site value score) or which avoid an EEC or CEEC. 	<p>The majority of the Amended Proposal site is located within cleared and disturbed land, with no native vegetation communities and low habitat values for flora and fauna.</p> <p>The areas of native vegetation to be impacted in the MPE Stage 2 site are a fragmented, isolated patch (0.1 ha) and a small area (0.05 ha) at the edge of a much larger patch of native vegetation that will be conserved as part of offsetting for the larger Moorebank Project. Some larger areas of native vegetation will be impacted in the Moorebank Avenue site.</p>
	<ol style="list-style-type: none"> 2. minimise the amount of clearing or habitat loss – the Major Project (and associated construction infrastructure) should be located in areas that do not have native vegetation, or in areas that require the least amount of vegetation to be cleared (i.e. the development footprint is minimised), and/or in areas where other impacts to biodiversity will be the lowest 	<p>Given the location and nature of the Amended Proposal and its context with regard to existing road and rail infrastructure, there is no scope for using alternative locations to entirely avoid impacts on biodiversity. Given the scale and type of development, and the raising of the site levels, there are very few possibilities for the incorporation of patches of vegetation into the design of a large industrial and warehouse development.</p> <p>The Amended Proposal has minimised clearing and habitat loss, as the Amended Proposal site is largely comprised of cleared and disturbed areas. Direct impacts to Coastal Freshwater Lagoons associated with Anzac Creek have been avoided.</p>

FBA section	FBA guidelines	Consistency of the Amended Proposal with FBA guidelines
	3. loss of connectivity – some developments can impact on the connectivity and movement of species through areas of adjacent habitat. Minimisation measures may include providing structures that allow movement of species across barriers or hostile gaps.	The Amended Proposal site is located within an urban area and consists of predominantly cleared former Defence land. The development of the site will not result in a change in the connectivity value of adjoining areas of habitat in the Boot land.
	4. other site constraints – any other constraints that the assessor has considered in determining the siting and layout of the Major Project, e.g. bushfire protection requirements including clearing for asset protection zones, flood planning levels, servicing constraints.	N/A

8.2 Unavoidable impacts

Likely impacts are those impacts that may arise as a result of unmitigated activities associated with the construction of the Amended Proposal. Potential impacts specified in point 11a) of the SEARs as requiring assessment are considered below.

Endangered (and vulnerable) ecological communities

The Amended Proposal will require clearing of all vegetation within the Amended Proposal site, including threatened ecological communities. The threatened ecological communities to be directly impacted and the total areas of impact are listed in Table 8-3.

Table 8-3 Areas of direct impact to threatened ecological communities

Plant Community Type	Equivalent TEC	Conservation status	Area of impact		Total area of impact
			MPE Stage 2 site	Moorebank Avenue site	
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Vulnerable (BC Act) Endangered (EPBC Act)	0.1 ha	3.73 ha	3.74 ha
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion	Endangered (BC Act) Critically Endangered (EPBC Act)	0.05 ha	0 ha	0.05 ha
Parramatta Red Gum woodland on	Castlereagh Swamp Woodland	Endangered (BC Act)	0 ha	0.22 ha	0.22 ha

Plant Community Type	Equivalent TEC	Conservation status	Area of impact		Total area of impact
			MPE Stage 2 site	Moorebank Avenue site	
moist alluvium of the Cumberland Plain, Sydney Basin Bioregion					
Forest Red Gum - Rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain Sydney Basin	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions	Endangered (BC Act)	0 ha	0.59 ha	0.59 ha

The total area of native vegetation to be cleared from the Amended Proposal is 4.69 ha. A total of 0.15 ha will be cleared from the MPE Stage 2 site; the areas to be cleared consist of small, fragmented patches of vegetation and the disturbed edges of larger patches. The total area of native vegetation to be cleared from the Moorebank Avenue site is 4.54 ha.

Ecosystem credits are required to offset the impacts to these threatened ecological communities. The credit requirements are provided in Section 10.1.1.

Threatened flora and fauna species and their habitat

MPE Stage 2 site

Populations of several threatened plant species have been identified in the Boot land, to the east and south of the MPE Stage 2 site. Potential habitat for these species in the MPE Stage 2 site is marginal, and subject to fragmentation and/or edge effects.

The MPE Stage 2 site will have direct impacts on two threatened plant species; *Hibbertia puberula* subsp. *puberula* and *Persoonia nutans*. The *Hibbertia puberula* subsp. *puberula* to be directly impacted are growing in areas of marginal habitat in the regularly mown grassland in the south-east of the MPE Stage 2 site. The *Persoonia nutans* to be directly impacted are recently-sprouted seedlings growing at the southern extent of the MPE Stage 2 site.

There are additional records of *Persoonia nutans* and *Hibbertia puberula* subsp. *puberula* in the Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland adjoining the southern extent of the MPE Stage 2 site. There is potential for indirect impacts on these individuals, such as increased sedimentation, changes to hydrology and increased risk of weed invasion, from adjoining areas of proposed fill.

Moorebank Avenue site

The Amended Proposal will have direct impacts on three threatened plant species in the Moorebank Avenue site: *Hibbertia puberula* subsp. *puberula*, *Persoonia nutans* and *Grevillea parviflora* subsp. *parviflora*. The number of each species to be cleared is presented in Table 8-4.

The number of plants/stems to be cleared for the Amended Proposal has been compared with the total number of plants/stems in the Amended Proposal site plus the Wattle Grove Offset Area, as specified in the BAR prepared for the application for the Biobanking agreement (WSP Parsons Brinckerhoff 2017) as discussed in Section 10.1.

Table 8-4 Impacts to threatened flora species

Threatened Flora Species	Population in Amended Proposal site + Wattle Grove Offset Area	Number to be cleared		Total number to be cleared	Percentage of known/ estimated population on the Amended Proposal site + Boot Land to be cleared
		MPE Stage 2 site	Moorebank Avenue site		
<i>Acacia bynoeana</i> Endangered (EPBC Act) Vulnerable (BC Act)	33 plants	0	0	0	0%
<i>Acacia pubescens</i> Vulnerable (EPBC Act) Vulnerable (BC Act)	Estimated stem count of 100	0	0	0	0%
<i>Grevillea parviflora</i> subsp. <i>parviflora</i> Vulnerable (EPBC Act) Vulnerable (BC Act)	Estimated stem count of 13,679	0	79	79	0.58%
<i>Hibbertia fumana</i> Not listed (EPBC Act) Critically Endangered (BC Act)	370 individuals*	0	0	0	0%
<i>Hibbertia puberula</i> subsp. <i>puberula</i> Not listed (EPBC Act) Endangered (BC Act)	653 plants	88 plants	22 plants	110 plants	17%
<i>Persoonia nutans</i>	193 plants	4 plants	8 plants	12 plants	6%

Threatened Flora Species	Population in Amended Proposal site + Wattle Grove Offset Area	Number to be cleared		Total number to be cleared	Percentage of known/estimated population on the Amended Proposal site + Boot Land to be cleared
		MPE Stage 2 site	Moorebank Avenue site		
Endangered (EPBC Act)					
Endangered (BC Act)					

*Additional investigations in September 2017 resulted in a population estimate of 14,270 individuals of this species (see Arcadis 2017).

The Amended Proposal would result in the removal of structurally intact woodland, highly disturbed areas with scattered trees and landscaped vegetation providing habitat for fauna. The clearing of this vegetation will result in the loss of specific fauna habitat components, including live trees, tree hollows, foraging resources, and groundlayer habitats such as ground timber and minor leaf litter. These resources offer sheltering, foraging, nesting and roosting habitat to a variety of fauna, including threatened fauna, occurring within the locality. The Amended Proposal will require removal of seven trees identified as containing small hollows or bark fissures, located in the Moorebank Avenue road reserve (MPE Stage 2 site) and another two hollow-bearing trees identified by PB (2014a) on the Moorebank Avenue Site.

The removal of buildings currently within the Amended Proposal site may remove potential marginal roosting habitat for microchiropteran bats; this habitat is not considered likely to be significant. It is recommended that buildings are checked for roosting bats by an ecologist prior to demolition, to avoid potential mortality.

The assessment of ecosystem credit species associated with PCTs on the Amended Proposal site found that two threatened fauna species have a high likelihood of occurrence and 10 have a moderate likelihood of occurrence (Table 7-1). Ecosystem credits are required to offset the impacts to these threatened fauna species; the credit requirements are provided in Section 10.1.1.

The six fauna species credit species identified by the credit calculator were all assessed as being unlikely to occur on the Amended Proposal site.

Groundwater dependent ecosystems

Impacts to groundwater dependent ecosystems, such as drawdown of groundwater from the root zone, may occur as a result of earthworks and geotechnical construction activities. This may have the potential to affect adjacent areas of retained vegetation and habitat that may utilise the shallow groundwater aquifers present. The vegetation adjoining Anzac Creek to the south of the Amended Proposal site has been identified as having high potential for groundwater interaction.

Any impacts are expected to be minor given the limited scope of excavation proposed, particularly in the southern portion of the Amended Proposal site. The detailed design process would further consider potential groundwater impacts and effects on groundwater-dependent ecosystems. In most cases, any impacts would be mitigated at the design phase.

Impacts on wildlife and habitat corridors and habitat fragmentation

The areas of habitat to be removed from within the Amended Proposal site for the Amended Proposal are currently fragmented by the existing development and other cleared land. There is good quality fauna habitat immediately adjacent to the MPE Stage 2 site, in the Boot land. The Boot land contains approximately 83 hectares of native vegetation in moderate to good condition.

The Amended Proposal has very minor overlap with the Boot land, and would not alter the existing connectivity values, further sever native vegetation or form a hard barrier within the connecting link.

The removal of vegetation in the Moorebank Avenue site would impact a narrow linear patch of trees that provides some connectivity for urban fauna in the road reserve, and allows for movement of some native fauna species across the MPW site and broader landscape (although much of the surrounding vegetation is fragmented).

Riparian land and aquatic habitat

Construction activities in proximity to Anzac Creek have the potential to adversely affect aquatic habitat, particularly the potential construction of stormwater drainage works in the south of the Amended Proposal site. The Amended Proposal includes construction of a fill mound in the south of the MPE Stage 2 site that would direct surface flows away from the MPE site, and towards Anzac Creek similar to the natural drainage patterns. The construction of this fill mound is unlikely to increase the volumes of sediments carried downstream or reduce water quality downstream.

No instream vegetation within Anzac Creek would be directly impacted as a result of the Amended Proposal.. Other minor areas of aquatic habitat will be lost, such as the formalised channels/swales in the south of the Amended Proposal site that support aquatic and fringing vegetation and, offer habitat for reptiles and amphibians such as Common Eastern Froglet (*Crinia signifera*).

8.3 Cumulative impacts

There are three additional major approved and proposed developments within the immediate vicinity of the Amended Proposal: the MPE Stage 1 Project, the Moorebank Precinct West (MPW) Project and the Glenfield Recycling Facility.

The development of the three adjoining sites (MPW, MPE Stage 1 and Glenfield Waste facility) would reduce or remove a range of biodiversity values, including available fauna habitat (roosting, nesting and foraging habitat), potential threatened fauna habitat, threatened plant species, TECs, local provenance plant species and potential seedbanks.

The Glenfield Waste Facility proposal requires clearing of 9.5 hectares of the PCT Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, which forms part of the Critically Endangered Ecological Community (CEEC) Cumberland Plain Woodland, listed under the *Environmental Protection and Biological Conservation Act* 1999 (EPBC Act) and BC Act. As the Amended Proposal does not impact on Cumberland Plain Woodland, cumulative impacts on this TEC as a result of the Proposal are not predicted.

The total impacts to native vegetation, including TECs, are detailed in Table 8-5.

Table 8-5 Cumulative impacts to native vegetation from the Amended Proposal, MPE Stage 1 Project and MPW Stage 2 Proposal

Plant Community Type	Equivalent TEC	Area impacted by Amended Proposal		Area impacted by MPE Stage 1	Area impacted by MPW Stage 2*	Total area of impact
		Area impacted in the MPE Stage 2 site	Area impacted in the Moorebank Avenue site			
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion Endangered (BC Act) Critically Endangered (EPBC Act)	0.05 ha	0 ha	0	0	0.05 ha
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion Vulnerable (BC Act) Endangered (EPBC Act)	0.1 ha	3.73 ha	0.74 ha	13.54 ha	14.38 ha
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	Castlereagh Swamp Woodland Endangered (BC Act)	0	0.22 ha	0.05 ha	0.68 ha	0.73 ha
Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney	0	0.59 ha	0.41 ha	28.47 ha	28.88 ha

Plant Community Type	Equivalent TEC	Area impacted by Amended Proposal		Area impacted by MPE Stage 1	Area impacted by MPW Stage 2*	Total area of impact
		Area impacted in the MPE Stage 2 site	Area impacted in the Moorebank Avenue site			
Cumberland Plain, Sydney Basin	Basin and South-east Corner bioregions Endangered (BC Act)					
Coastal freshwater lagoons of the Sydney Basin Bioregion and South East Corner Bioregion	Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions Endangered (BC Act)	0	0	0.03 ha	0	0.03 ha
Total area of native vegetation cleared		0.15 ha	4.54 ha	1.23 ha	42.69 ha	44.07 ha

*Note that the MPW Stage 2 Proposal includes the area within the Moorebank Avenue site. As such, the Moorebank Avenue impacts are not included in the total.

The MPW Stage 2 Proposal will have direct impacts on populations of three threatened flora species listed under the BC Act and EPBC Act, all of which were also recorded on the Stage 1 Project site. A summary of the impacts to threatened flora species from the MPW Stage 2 Proposal and the Stage 1 Project is shown in Table 8-6.

Table 8-6 Cumulative impacts to threatened flora species from the Amended Proposal, MPE Stage 1 Project and MPW Stage 2 Proposal

Threatened flora species	Conservation Status	Amended Proposal impacts		MPE Stage 1 impacts	MPW Stage 2 impacts*	Total impacts
		MPE Stage 2 site impacts	Moorebank Avenue site impacts			
<i>Persoonia nutans</i>	Endangered (EPBC Act, BC Act)	4 plants	8 plants	11 plants	16 plants	31 plants
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Vulnerable (EPBC Act, BC Act)	0 stems	79 stems	20 stems	333 stems	353 stems
<i>Hibbertia fumana</i>	Critically endangered (BC Act)	0 plants	0 plants	Up to 3 plants	0 plants	Up to 3 plants
<i>Hibbertia puberula</i> subsp. <i>puberula</i>	Endangered (BC Act)	88 plants	22 plants	45 plants	83 plants	216 plants

*Note that the MPW Stage 2 Proposal includes the area within the Moorebank Avenue site. As such, the Moorebank Avenue site impacts are not included in the total.

Two threatened fauna species have a high likelihood of occurrence and 11 have a moderate likelihood of occurrence on the Amended Proposal Site. Given the modified and fragmented nature of fauna habitat in the Amended Proposal site, potential impacts on these species are considered likely to be minimal, and mainly comprise removal of marginal foraging, sheltering and roosting habitat. As a result, cumulative impacts to threatened fauna species from the Amended Proposal are considered to be unlikely.

9 MITIGATION OF IMPACTS

Biodiversity impacts cannot be avoided for many aspects of the Amended Proposal. As such, the measures in Table 9-1 should be implemented to mitigate these impacts during construction and operation.

Table 9-1 Measures to be implemented to minimise impacts on biodiversity

Mitigation measure	Outcome	Timing	Responsibility
<p>A Construction Flora and Fauna Management Plan (CFFMP) would be prepared as part of the CEMP for the Amended Proposal. Native vegetation clearing for southern and eastern swales located outside of the MPE site would not occur until the Flora and Fauna Management Plan is approved. This would include the following:</p> <ul style="list-style-type: none"> • Clear identification of vegetation exclusion zones • Site induction procedure, including briefings regarding the local threatened flora and local fauna of the site and protocols to be undertaken if they are encountered • Pre-clearance surveys of threatened flora species to determine the number of individuals impacted and requiring offset • A pre-start up check for sheltering native fauna of all infrastructure, plant and equipment and/or during relocation of stored construction materials • Application of speed limits in areas adjacent to native vegetation. 	<p>Flora and fauna would be managed in accordance with the requirements of the FFMP; prevention of over clearing of vegetation; prevention of weed establishment and invasion.</p>	<p>Pre-construction and construction</p>	<p>SIMTA and construction contractor</p>

Mitigation measure	Outcome	Timing	Responsibility
The threatened plant populations identified to the south of the Amended Proposal site would be protected by a minimum 10 metre setback between the edge of the area of occupied habitat and the proposed works. Where a 10 metre setback cannot be implemented, further assessment of impacts would be required and alternative mitigation strategies would be considered.	Prevention of indirect impacts to threatened plant species.	Construction	Construction contractor
During detailed design, investigations will be undertaken to refine the footprint of proposed drainage design to minimise impacts the threatened plant species recorded within and adjacent to the Amended Proposal site. Where possible, the soils on the Amended Proposal site would be used instead of imported fill to construct batters and mounds, and revegetation of batters and mounds would use local native shrub and groundlayer species.	Prevention of direct impacts to threatened plant species, conservation of existing soils that may contain propagules of threatened plant species	Pre-construction and construction	SIMTA and construction contractor
Potential bat roosting locations in buildings to be demolished would be checked, as far as is practicable, by a qualified ecologist or wildlife carer for presence of bats prior to demolition. Any bats found would be relocated.	Prevents fauna injury/mortality	Construction	Construction contractor
Undertake a two-stage approach to clearing: <ul style="list-style-type: none"> Remove non-hollow bearing trees at least 48 hours before habitat trees are removed. 	Prevents fauna injury/mortality	Construction	Construction contractor

Mitigation measure	Outcome	Timing	Responsibility
<ul style="list-style-type: none"> Hollow bearing trees are to be knocked with an excavator bucket or other machinery to encourage fauna to evacuate the tree immediately prior to felling. Felled trees must be left for a short period of time on the ground to give any fauna trapped in the trees an opportunity to escape before further processing of the trees. <p>Felled hollow bearing trees must be inspected by an ecologist as soon as possible (not longer than 2 hours after felling).</p>			
<p>Site inductions are to include a briefing regarding the local fauna of the site and protocols to be undertaken if fauna are encountered.</p>	Prevents fauna injury/mortality	Construction	Construction contractor
<p>If any animal is injured, contact the relevant local wildlife rescue agency (e.g. WIRES) and/or veterinary surgery as soon as practical.</p> <p>Until the animal can be cared for by a suitably qualified animal handler, if possible minimise stress to the animal and reduce the risk of further injury by:</p> <ul style="list-style-type: none"> Handling fauna with care and as little as possible. 	Prevents fauna injury/ mortality	Pre-construction, construction and operation	Construction contractor and SIMTA

Mitigation measure	Outcome	Timing	Responsibility
<ul style="list-style-type: none"> Covering larger animals with a towel or blanket and placing in a large cardboard box. Placing small animals in a cotton bag, tied at the top. <p>Keeping the animal in a quiet, warm, ventilated and dark location.</p>			
Directional lighting will be used where lighting is required in construction areas.	Minimises disruption to fauna foraging, nesting or roosting behaviours	Construction	Construction contractor
Frequent maintenance of construction machinery and plant will be undertaken to minimise unnecessary noise.	Minimises disruption to fauna foraging, nesting or roosting behaviours	Construction	Construction contractor
A Flora and Fauna Management Plan would be prepared as part of the OEMP for the Amended Proposal. This FFMP would focus on minimising impacts on biodiversity values on the adjacent Boot Land.	Prevention of impacts to flora and fauna within conservation area.	Pre-construction/construction	Construction contractor

10 OFFSETTING IMPACTS

A comprehensive Biodiversity Offset Strategy (BOS) for the MPE Project is required to be prepared and implemented under the MPE Concept Plan Approval. The BOS will be prepared in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* including the Framework for Biodiversity Assessment (OEH 2014), consistent with the 'avoid, minimise or offset' principle.

10.1 Offset credit requirements

Under the *NSW Biodiversity Offsets Policy for Major Projects*, a biobanking agreement is required to be used to secure an offset site. The direct offsets for threatened species and communities impacted by the Amended Proposal will be delivered through the establishment of a Biobanking site to offset the broader project impacts under the NSW Biobanking scheme.

A Biobanking agreement application has been submitted to, and is currently being assessed by, the NSW Office of Environment and Heritage. The proposed Biobanking agreement will provide funded management actions, monitoring and long-term security of the Biobank site in-perpetuity.

Upon execution of the Biobanking agreement, the appropriate number of Biobanking credits generated from the Biobank site to offset the impacts of the Amended Proposal will be retired. Should additional credits not available on the offset sites included in the Biobanking Agreement be required, these would be sourced from the market or additional offset sites outside the Moorebank precinct, in accordance with the BOS.

It should be noted that the impacts to PCTs and threatened species in the Moorebank Avenue site have also been assessed in the MPW Stage 2 BAR prepared by Arcadis (2017). The Moorebank Avenue site is located within the larger MPW Stage 2 Proposal site. The offset requirements related to values in the Moorebank Avenue site may be included within either the BOS for the MPE Project or the MPW Project, subject to the timing of determination of the MPE Stage 2 Proposal (Amended Proposal) and the MPW Stage 2 Proposal.

Offset credit requirements were calculated using the FBA calculator, by Jane Rodd (Assessor No. 0023) for the Amended Proposal. The full credit report for both calculations are provided in Appendix A.

10.1.1 Impacts on native vegetation

Loss of landscape and site value for each PCT identified on the Amended Proposal site and its associated ecosystem species, as determined using the credit calculator, is presented in Table 10-1. The PCTs to be offset are shown in Figure 6-1.

Table 10-1 Impact summary for PCTs and associated ecosystem credit species requiring offsets and their required credits

Vegetation zone	Associated EECs and/or Threatened Species	Area to be impacted	Loss in landscape value	Loss in site value score	Number of Ecosystems credits required
MPE Stage 2 site					
Hard-leaved Scribbly Gum - Parramatta Red	Castlereagh Scribbly Gum Woodland of the	0.1 ha	12	68.23	4

Vegetation zone	Associated EECs and/or Threatened Species	Area to be impacted	Loss in landscape value	Loss in site value score	Number of Ecosystems credits required
Gum heathy woodland of the Cumberland Plain, Sydney Basin (ME003): Moderate/Good	Sydney Basin bioregion (VEC)				
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion (ME002): Moderate/Good	Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion	0.05 ha	12	74.48	3
Moorebank Avenue site					
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin: Moderate/Good - Medium (ME003)	Castlereagh Scribbly Gum Woodland of the Sydney Basin bioregion (VEC)	3.73	12	55.73	167
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin: Moderate/Good	Castlereagh Swamp Woodland	0.22	12	33.33	6
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin: Moderate/Good	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions	0.59	12	34.38	17

10.1.2 Impacts on threatened species

Impacts to threatened species credit species and their associated species are summarised in Table 10-2.

Table 10-2 Impact summary for threatened species credit species requiring offsets and their required credits

Common name	Scientific name	BC Act Status	Impacts (number of individuals)		Total impacts	Number of species credits required
			MPE Stage 2 site	Moorebank Avenue site		
Nodding Geebung	<i>Persoonia nutans</i>	Endangered	4	8	12	924
-	<i>Hibbertia puberula</i> subsp. <i>puberula</i>	Endangered	88	22	110	4400
Small-flower Grevillea	<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Vulnerable	0	79	79	1106

11 CONCLUSION

This Biodiversity Assessment Report (BAR) has been prepared by accredited ecologists to support the *Moorebank Precinct East-Stage 2 Proposal Response to Submissions* (Arcadis 2017). This BAR replaces the BAR that was prepared to support the *Moorebank Precinct East-Stage 2 Proposal Environmental Impacts Statement* (Arcadis 2016), and provides the following additional information:

- RtS updates:
 - Details on how comments received by key government agencies (specifically, NSW OEH and DP&E) provided during the public exhibition of the EIS have been addressed.
 - Details of additional environmental assessment that has been carried out for the Amended Proposal (including the results of additional threatened flora surveys along and near the MPE site boundary).
- Additional verification surveys:
 - A validation of previous identification of *Hibbertia* species that occur in the MPE Stage 2 site.
 - Identification of additional *Hibbertia* species that occur in the MPE Stage 2 site, in areas that were previously surveyed.
- Moorebank Avenue site:
 - Consideration of all impacts related to the clearing required in the Moorebank Avenue site, for Moorebank Avenue Upgrade Works.
 - A validation of previous identification of *Hibbertia* species that occur in the Moorebank Avenue site.
- Revised mapping and calculations relating to impacts, predicted species and ecosystem credits and offsetting requirements.

This BAR has been prepared in accordance with the Framework for Biodiversity Assessment (FBA), as required by the SEARs. The BAR provides an assessment of potential biodiversity impacts of the Amended Proposal, at the Amended Proposal site which includes both the MPE Stage 2 site and the Moorebank Avenue site.

The assessment is based on desktop research and detailed field surveys, undertaken across the MPE site on a number of occasions between 2011 and 2017. Supplementary field investigations of the MPE Stage 2 site were conducted in June and October 2016 and May and October 2017. Field surveys of the MPW site, some of which are relevant to the Moorebank Avenue site, have been undertaken on a number of occasions between 2010 and 2016. The Moorebank Avenue site was reinspected in November 2017 specifically to validate previous identification of *Hibbertia* species.

The biodiversity impacts and offset requirements for the MPE Stage 2 site and the Moorebank Avenue site (collectively the Amended Proposal site) were calculated using the FBA Credit Calculator in accordance with the FBA guidelines.

The vegetation within the MPE Stage 2 site consisted predominantly of planted and disturbed vegetation. Native vegetation within the MPE Stage 2 site consists of small, fragmented patches of vegetation and the disturbed edges of larger patches. Vegetation within the Moorebank Avenue site consists predominantly of remnant and regrowth native vegetation that has been subjected to weed invasion in some areas.

Following review of existing information and structural and floristic attributes recorded during field investigations, two PCTs identified in the MPE Stage 2 site and three PCTs identified in the Moorebank Avenue site fall within the definitions of threatened ecological communities listed under the BC Act and/or EPBC Act, as per Table 11-1.

Table 11-1 Threatened ecological communities on the MPE Stage 2 site and Moorebank Avenue site

Plant Community Type	Equivalent TEC	BC Act Status	EPBC Act Status
MPE Stage 2 site			
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (ME003)	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Vulnerable	Endangered
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion (ME002)	Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion	Endangered	Critically Endangered
Moorebank Avenue site			
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (ME003)	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Vulnerable	Endangered
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin	Castlereagh Swamp Woodland	Endangered	Not listed
Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions	Endangered	Not listed

A total of 17 threatened flora species were identified in the FBA credit calculator as predicted flora species credit species. Three of the threatened flora species credit species identified by the credit calculator were recorded within the Amended Proposal site: *Hibbertia puberula* subsp. *puberula*, *Persoonia nutans* and *Grevillea parviflora* subsp. *parviflora*. These species as well as another two species credit species identified by the credit calculator, *Acacia bynoeana* and *Acacia pubescens*, were recorded in the Boot land to the south and east of the Amended Proposal site. Another threatened species not identified by the calculator, *Hibbertia fumana*, was recorded in the Boot land to the south of the Amended Proposal site. This species occurs in several locations, varying between 77 and 133 metres from the Amended Proposal site boundary.

The majority of the MPE Stage 2 site represents low quality habitat for threatened flora species, and threatened flora species were recorded in areas of marginal scattered regrowth habitat within this part of the Amended Proposal site. There are populations of several threatened flora species in the Boot land to the south and east of the MPE Stage 2 site. The threatened flora species recorded in the Moorebank Avenue site are within patches of Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin.

A total of 23 threatened fauna species were derived from the PCTs identified on the Amended Proposal site as predicted ecosystem credit species. None of the predicted threatened fauna ecosystem credit species were recorded on the Amended Proposal site. Assessment of the potential presence of each species in the Amended Proposal site found that two species have a high likelihood of occurrence and 10 have a moderate likelihood of occurrence.

Six threatened fauna species were identified in the credit calculator as predicted fauna species credit species. None of the predicted threatened fauna species credit species were recorded or are considered likely to occur on the Amended Proposal site.

The assessment considered the construction and operational impacts of the Amended Proposal. The potential biodiversity impacts of the Amended Proposal are as follows:

- Clearing of four Plant Community Types within the Amended Proposal site:
 - Clearing of all vegetation within the MPE Stage 2 site, including threatened ecological communities (TECs). The total area of native vegetation to be cleared is 0.15 ha; the areas to be cleared comprise small, fragmented patches of vegetation and the disturbed edges of larger patches. The total area to be cleared consists of two plant community types (PCTs):
 - 0.1 hectares of Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin. This PCT corresponds with the TEC Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion, which is listed as vulnerable under the BC Act and endangered under the EPBC Act.
 - 0.05 hectares of Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain. This PCT corresponds with the TEC Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion, which is listed as endangered under the BC Act and critically endangered under the EPBC Act.
 - Clearing of all vegetation within the Moorebank Avenue site, including threatened ecological communities (TECs). The total area of native vegetation to be cleared is 4.54 ha; the areas to be cleared comprise small, fragmented patches of vegetation and the disturbed edges of larger patches. The total area to be cleared consists of three PCTs:
 - 3.72 hectares of Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin, which is listed as vulnerable under the BC Act and endangered under the EPBC Act.
 - 0.22 hectares of Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion. This PCT corresponds with the TEC Castlereagh Swamp Woodland, which is listed as endangered under the BC Act.
 - 0.59 hectares of Forest Red Gum - Rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain Sydney Basin. This PCT corresponds with the TEC River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions, which is listed as endangered under the BC Act.
- The Amended Proposal will have direct impacts on three threatened plant species;
 - Clearing of two threatened species that occur within MPE Stage 2 site:
 - *Hibbertia puberula* subsp. *puberula* (88 plants).
 - *Persoonia nutans* (4 plants).
 - Clearing of three threatened species that occur in the Moorebank Avenue site:
 - *Hibbertia puberula* subsp. *puberula* (22 plants).
 - *Persoonia nutans* (8 plants).
 - *Grevillea parviflora* subsp. *parviflora* (79 stems).
- Potential indirect impacts on records of *Persoonia nutans* and *Hibbertia puberula* subsp. *puberula* in the Hard-leaved Scribbly Gum – Parramatta Red Gum heathy

woodland immediately adjoining the southern extent of the MPE Stage 2 site. Indirect impacts may include increased sedimentation, changes to hydrology and increased risk of weed invasion, from adjoining areas of proposed fill.

- Some loss of specific fauna habitat components, including live trees, tree hollows, foraging resources, and groundlayer habitats such as ground timber and minor leaf litter. Removal of buildings currently within the Amended Proposal site may remove potential marginal roosting habitat for microchiropteran bats.
- Potential for minor impacts to groundwater dependent ecosystems, such as drawdown of groundwater from the root zone, may occur as a result of excavation during construction. While this may have some potential to affect adjacent areas of retained vegetation and habitat that may utilise the shallow groundwater aquifers present, any impacts are expected to be minor given the limited scope of excavation proposed, particularly in the southern portion of the Amended Proposal site. The detailed design process would further consider potential groundwater impacts and effects on groundwater-dependent ecosystems. In most cases, any impacts would be mitigated at the design phase
- The small areas of habitat to be removed from within the Amended Proposal site for the Amended Proposal are currently fragmented by the existing development. There is good quality fauna habitat on land immediately adjacent to the Amended Proposal site, known as the Boot land, which would be retained. The Boot land contains approximately 83 hectares of native vegetation in moderate to good condition which would not be impacted by the Amended Proposal.
- Minimal impact on wildlife and habitat corridors as neither the Amended Proposal would not alter existing connectivity values and would not further sever native vegetation or form a hard barrier within existing connecting links.
- Construction activities in proximity to Anzac Creek have the potential to adversely affect aquatic habitat, particularly the construction of a swale in the south of the Amended Proposal site to drain stormwater to Anzac Creek. Impacts to aquatic habitat are expected to be minor.

Impacts on the identified ecological values have been avoided in the Amended Proposal as far as practicable. Where impacts cannot be avoided, the scale and extent of impacts has been determined, and a range of mitigation measures have been recommended to ameliorate impacts on the biodiversity values during and following construction.

A comprehensive Biodiversity Offset Strategy (BOS) for the MPE Project is required to be prepared and implemented under the MPE Concept Plan Approval. The BOS will be prepared in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* including the Framework for Biodiversity Assessment (OEH 2014), consistent with the 'avoid, minimise or offset' principle.

The following offset requirements have been determined for the Amended Proposal:

- 171 ecosystem credits for Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin.
- 3 ecosystem credits for Broad-leaved Ironbark - *Melaleuca decora* shrubby open forest on clay soils of the Cumberland Plain.
- 6 ecosystem credits for Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin.
- 17 ecosystem credits for Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin.
- 4400 species credits for *Hibbertia puberula* subsp. *puberula*.
- 924 species credits for *Persoonia nutans*.

- 1106 species credit species for *Grevillea parviflora* subsp. *parviflora*.

The offset requirements related to values in the Moorebank Avenue site may be included within either the BOS for the MPE Project or the MPW Project, subject to the timing of determination of the MPE Stage 2 Proposal (Amended Proposal) and the MPW Stage 2 Proposal.

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APPENDIX A

BIOBANKING CREDIT REPORT

Biodiversity credit report



This report identifies the number and type of biodiversity credits required for a major project.

Date of report: 6/11/2017

Time: 6:25:47PM

Calculator version: v4.0

Major Project details

Proposal ID: 0023/2017/4638MP

Proposal name: MPE Stage 2 Amended Proposal

Proposal address: Moorebank Avenue Moorebank NSW 2170

Proponent name: Tactical Group

Proponent address: Level 15, 124 Walker Street North Sydney NSW 2060

Proponent phone: 89070700

Assessor name: Jane Rodd

Assessor address: Level 5, 141 Walker Street NORTH SYDNEY NSW 2060

Assessor phone: 8907 8266

Assessor accreditation: 0023

Summary of ecosystem credits required

Plant Community type	Area (ha)	Credits created
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	0.05	3.00
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	0.59	17.00
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion	3.83	171.00
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion	0.22	6.16
Total	4.69	197

Credit profiles

1. Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion, (ME002)

Number of ecosystem credits created	3
IBRA sub-region	Cumberland - Sydney Metro

Offset options - Plant Community types	Offset options - IBRA sub-regions
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion, (ME002)	Cumberland - Sydney Metro and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

2. Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion, (ME003)

Number of ecosystem credits created	167
IBRA sub-region	Cumberland - Sydney Metro

Offset options - Plant Community types	Offset options - IBRA sub-regions
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion, (ME003)	Cumberland - Sydney Metro and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

3. Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion, (ME003)

Number of ecosystem credits created	4
IBRA sub-region	Cumberland - Sydney Metro

Offset options - Plant Community types	Offset options - IBRA sub-regions
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion, (ME003)	Cumberland - Sydney Metro and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

4. Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion, (ME005)

Number of ecosystem credits created	6
IBRA sub-region	Cumberland - Sydney Metro

Offset options - Plant Community types	Offset options - IBRA sub-regions
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion, (ME005)	Cumberland - Sydney Metro and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

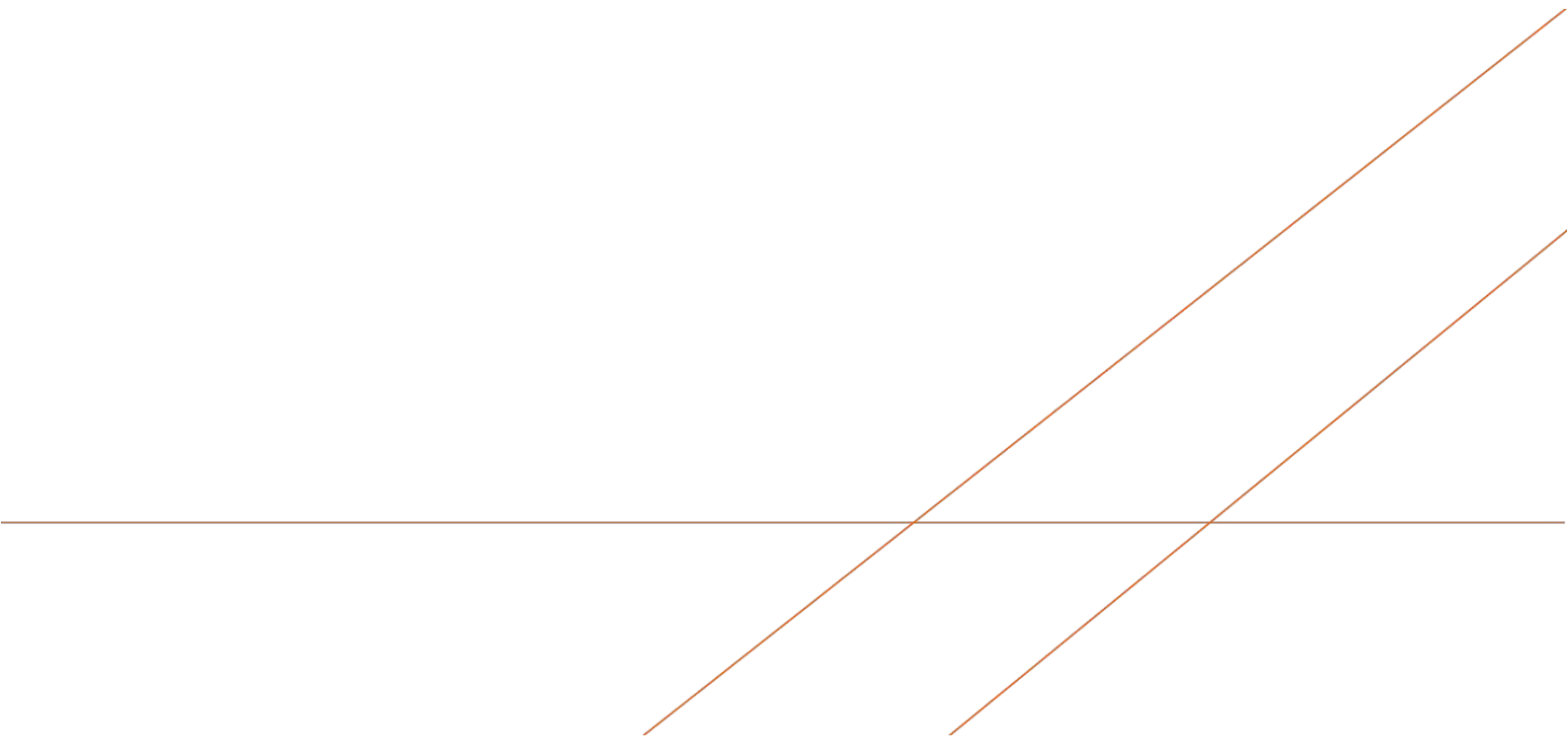
5. Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion, (ME018)

Number of ecosystem credits created	17
IBRA sub-region	Cumberland - Sydney Metro

Offset options - Plant Community types	Offset options - IBRA sub-regions
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion, (ME018)	Cumberland - Sydney Metro and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

Summary of species credits required

Common name	Scientific name	Extent of impact Ha or individuals	Number of species credits created
Hibbertia puberula	Hibbertia puberula	110.00	4,400
Nodding Geebung	Persoonia nutans	12.00	924
Small-flower Grevillea	Grevillea parviflora subsp. parviflora	79.00	1,106



Attachment L

ATTACHMENT A: OVERALL STORMWATER PLAN

Attachment M

ATTACHMENT 1 – RESPONSE TO EPA COMMENTS – MPE STAGE 2 (26/10/2017)

Aspect	Issue	Response	Reference
Air Quality – Assessment	<p>The EPA has reviewed the following information provided by the DPE:</p> <ul style="list-style-type: none"> Item 1: Table outlining response to additional information requests; and Item 2: Email correspondence dated 12th October 2017 providing additional information. <p>The additional information provided, advises that:</p> <ul style="list-style-type: none"> The Air Quality Impact Assessment (AQIA) submitted during public exhibition for the importation of fill was based on an annual average activity rate. Revised analysis has been conducted based on a peak daily importation rate of 22,000 tonnes (T) for all material handling activities. This importation rate corresponds to the maximum daily fill importation rate for the whole precinct (both MPW and MPE proposals). The revised analysis shows: <ul style="list-style-type: none"> The maximum predicted cumulative ground level concentration of 24-hour average PM2.5 is 24 µg/m³, which is below the impact assessment criteria of 25 µg/m³; The maximum predicted cumulative ground level concentration of 24-hour PM10 is 50.9 µg/m³, which is above the impact assessment criteria of 50 µg/m³; and One additional exceedance of the 24 hour PM10 impact assessment criteria at five locations is predicted. The additional predicted exceedance of PM10 occurs on a day when referenced background concentration is 48 µg/m³. The consideration of boilers within the AQIA provided during public exhibition was a general assumption. The response clarifies that no gas boilers are proposed for heating or cooling of the proposed warehouses; 	Noted and agreed.	N/A

Aspect	Issue	Response	Reference
	<ul style="list-style-type: none"> The emission rates contained in Table 5-6 are incorrectly labelled as “tonnes/annum”, and that the emission rates are confirmed to be kg/annum as per the emission rates in Table 5-3 and Table 5-5 of the original air quality impact assessment. <p>The proponent has committed to:</p> <ul style="list-style-type: none"> The development and implementation of a Construction and Operational Environmental Management Plan Incorporating Air Quality Management Plans for construction and operation; and Not to exceed a total importation of 22,000 m3 of material per day. 		
Air Quality – Advice	<p>The EPA advises that the additional information addresses the issues raised by the EPA during public exhibition. The revised analysis provided predicts the potential for an additional exceedance of the PM₁₀ 24-hour impact assessment criteria on a cumulative basis. However, it is noted that:</p> <ul style="list-style-type: none"> The background PM₁₀ concentrations dominate the predicted cumulative impact on the day the exceedance is predicted. Background accounts for ~ 94% of the predicted cumulative PM₁₀ ground level concentration; The assessment assumes maximum daily rate will occur for all days of the modelled scenario; The predicted exceedances are within the bounds of typical assessment uncertainty for fugitive dust; The construction activities will need to be managed through a robust Construction Environmental Management Plan, with the inclusion of proactive and reactive management strategies. The EPA understands that the proponent proposes to conduct ambient air monitoring during the construction phase of the project. Ambient air monitoring can be a useful tool in implementing reactive management strategies, however it should be supplemented with proactive 	Noted and agreed.	N/A

Aspect	Issue	Response	Reference
	management strategies to prevent and minimise dust emissions at all times.		
Air Quality - Recommendations	<p>The EPA recommends that the following conditions be included as consent conditions:</p> <p>1. Prior to construction and operation:</p> <p>The proponent must prepare and implement an Air Quality Management Plan (AQMP) for both construction and operation. The AQMP must include, but is not limited to, the following information:</p> <ul style="list-style-type: none"> • Best practice reactive and proactive management measures; • For all emission sources at the site: <ul style="list-style-type: none"> – i. Key performance indicator(s); – ii. Monitoring method(s); – iii. Location, frequency and duration of monitoring; – iv. Record keeping; – v. Response mechanisms; and – vi. Compliance reporting. 	<p>SIMTA does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument for the following reasons:</p> <p>As detailed in the Section 9 of the MPE Stage 2 EIS:</p> <p>Key emissions considered for the construction of the Proposal are fugitive dust or particulate matter (PM) generated during demolition, site clearing and earthworks activities. These impacts can be effectively controlled through the implementation of standard control measures, including the use of water carts along unsealed pavement areas and during other particulate emission generating construction activities. The Air Quality Management Plan, included in the Air Quality Impact Assessment would be further progressed and incorporated into the CEMP for the Proposal.</p> <p>The modelling results indicated that the construction phase emissions would comply with all relevant impact assessment criteria. The predicted increase in annual average PM₁₀, PM_{2.5}, Total Suspended Particulate matter (TSP) and dust deposition are considered minor, when compared against existing background conditions. Cumulative predictions are also presented and the results indicate that the construction for the Proposal would result in no additional days over the criteria.</p> <p>With regards to operation of the Proposal, For the operational phase of the Proposal the maximum increase in PM₁₀ and PM_{2.5} is minor when compared to existing background conditions. When background is added, there are no additional exceedances of the short term impact assessment criteria. The annual average background concentrations of PM_{2.5} already exceed the NEPM reporting standard, therefore cumulative predictions are also above the standard at all receptors. It is noted, however, that despite the existing exceedance of the annual average background concentration, the Proposal results in a relatively minor additional increase in annual average PM_{2.5} (<0.1 µg/m³ at</p>	<p>Section 9 and Appendix M of the MPE Stage 2 EIS.</p> <p>Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter</p>

Aspect	Issue	Response	Reference
		<p>all sensitive receptors). The predicted NO₂, CO, SO₂ and VOC concentrations are well below the relevant impact assessment criteria.</p> <p>Measures to further mitigate air quality impacts would be implemented as per the Air Quality Management Plan, included in the Air Quality Impact Assessment (Appendix M of this EIS), and would be integrated into the OEMP.</p> <p>The Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017, included:</p> <ul style="list-style-type: none"> • Mitigation Measure 3A: The Air Quality Management Plan (Ramboll, 2016), included within Appendix M of the EIS, would be further progressed and incorporated into the CEMP for the Amended Proposal. • Mitigation Measure 3B: The Air Quality Management Plan (Ramboll, 2016), included within Appendix M of the EIS would be further progressed and integrated into the OEMP for the Amended Proposal. <p>The mitigation measures included within the construction and operational Air Quality Management Plans are considered suitable and adequate for the scale and proposed construction methodology and operational requirements of the Proposal.</p>	
Air Quality - Recommendations	<p>2. During construction and operation works - Potentially Offensive Odour</p> <p>The works must not cause or emit an offensive odour beyond the boundary of the premises.</p>	<p>SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 (SSD 7628) approval instrument.</p>	N/A
Air Quality - Recommendations	<p>3. For the operation works - Dust:</p> <ul style="list-style-type: none"> • The site must be maintained in a condition which prevents or minimises the emission of dust from the premises; 	<p>This recommendation is consistent with the Air Quality Management Plan, included within Appendix M of the EIS and to be updated as part of Mitigation Measure 3B of the RtS (refer to Section 8).</p>	<p>Appendix M of the EIS</p> <p>Section 8 of the RtS</p>

Aspect	Issue	Response	Reference
	<ul style="list-style-type: none"> All operations and activities occurring in or on the premises must be carried out in a manner that will minimise the generation or emission of dust from the premises. All trucks entering and exiting the site must have their loads covered. A maximum of 22,000 tonnes of fill may be received at the premises per day. 	<p>In the context of the above, the following amendments (with additions bold and underlined and deletions bold, underlined and struck through) should be made to the EPA's recommendation:</p> <p>3. For the <u>operation construction</u> works - Dust:</p> <ul style="list-style-type: none"> The site must be maintained in a condition which prevents or minimises the emission of dust from the premises; All operations and activities occurring in or on the premises must be carried out in a manner that will minimise the generation or emission of dust from the premises. All trucks entering and exiting the site must have their loads covered. A maximum of 22,000 tonnes of fill may be received at the premises per day. 	
Noise and Vibration – assessment	<p><u>Construction works should be restricted to standard hours</u></p> <p>The proponent's response to the EPA's submission in Table 4-2 regarding out of hours construction works states that the out of hours works comply with the criteria in the Interim Construction Noise Guideline (ICNG). However, the EPA notes that the proponent's response to the EPA's submission states that LAeq,15minute construction noise levels for out of standard hours works comply with noise management levels at all residential noise catchments except Wattle Grove, where a 1dB exceedance is predicted. Those works do not comply with background + 5dBA at Wattle Grove.</p> <p>The proponent's justification for out of hours works is that the works are 'required' and 'necessary' to reduce traffic impacts and to reduce congestion during the morning and afternoon peak periods. The proponent does not clarify why it is 'necessary' or by whom it is 'required'.</p> <p>.</p>	<p>As stated in the Table 4-2 of the MPE Stage 2 RtS, out of hours (OOH) construction activities are proposed primarily to reduce traffic congestion impacts associated with material delivery. These hours have been developed based on a balanced consideration of reducing the overall length of the construction program and the need to minimise noise and traffic related impacts to nearby sensitive receivers. Further, the activities proposed within these out of hours have been specifically chosen to minimise noise impacts during construction.</p> <p>As presented in Table 6-9 of the EIS NVIA (Appendix L of the EIS), worst-case LAeq,15min construction noise levels during OOH periods 2, 3 and 4 were predicted to exceed the established NML at the most affected receivers in Wattle Grove by 1 dB. Due to the generally conservative nature of the noise modelling, this 1 dB exceedance is considered negligible, and, in practice, the LAeq,15min construction noise levels would be expected to comply with the established NMLs in all receiver catchments during all proposed OOH periods.</p> <p>Further, the Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan</i></p>	<p>Appendix L of the EIS.</p> <p>Table 4-2 of the MPE Stage 2 RtS</p> <p>Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter</p>

Aspect	Issue	Response	Reference
		<p>MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter on 11 September 2017 included Mitigation Measure 2A:</p> <p><i>A Construction Noise and Vibration Management Plan (CNVMP), or equivalent, would be prepared for the Amended Proposal in accordance with the Interim Construction Noise Guideline (DECC, 2009).</i></p> <p>The CNVMP will include reasonable and feasible work practices and mitigation measures, consistent with the requirements of the ICNG would be implemented to manage potential noise impacts. Of further consideration is that the conditions of approval for the MPE Stage 1 Project allow for construction works to occur outside standard hours, providing that LAeq,15min noise levels associated with the works are no more than 5 dBA above the rating background level.</p> <p>In summary, the potential minor noise exceedance could be mitigated through the preparation a Construction Noise and Vibration Management Plan for future stages of development (MPE Stage 2) and the MPE Concept Plan Approval currently allows for outside of hours works and that this has been approved for other stages of the MPE Stage 1 Project. On this basis, it is recommended that the proposed OOH works are approved s proposed, and conditioned to comply with the established NMLs, demonstrated via compliance monitoring.</p>	
Noise and Vibration – assessment	<p><u>Crushing and concrete batch plant on site not clearly justified</u></p> <p>The EPA does not necessarily agree with the proponent's justification for an onsite crushing and concrete plant that it will 'reduce traffic impacts during construction'.</p> <p>The proponent also states that predicted construction noise levels during standard hours are below the criteria therefore the batching plant is justified. However, the predicted construction noise levels from MPW, MPE Stage 1 and MPE Stage 2 combined indicate that the criteria will be exceeded by around 2dBA in Casula.</p>	<p>The construction methodology for the Proposal, as included within Section 4 of the MPE Stage 2 EIS considered the use of a concrete batch plant and materials crushing facilities within the Proposal site, due to the advantages that this would have on traffic and transport impacts on the local road network surrounding the Proposal site. By undertaking these activities within the Proposal site, additional heavy vehicle movements for the delivery of this material is not required, thereby minimising the impacts of the local road network during construction.</p> <p>In addition, the use of an on-site materials crushing facility would promote and enable the re-use of materials on-site, rather than the importation of additional construction materials.</p>	<p>Section 4 and Appendix L of the MPE Stage 2 EIS</p> <p>Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank</i></p>

Aspect	Issue	Response	Reference
		<p>On-site crushing and batching are proposed during standard construction hours only, and, during these times, construction noise levels at the most affected receivers are predicted to comply with the established NML. Therefore, restrictions to on-site crushing and batching do not appear justified based on noise.</p> <p>The EPA notes that predicted cumulative construction noise levels, associated with proposed activities under the MPW Stage 2, MPE Stage 1 and MPE Stage 2 proposals, exceed the NML in Casula by 2 dB.</p> <p>As outlined in the EIS NVIA for the Proposal (Appendix L), these cumulative construction noise levels are conservative, and it is considered rather unlikely that, in practice, the predicted exceedance would occur. In addition to this, mitigation measures are to be implemented for both the MPE and MPW Projects to minimise these noise impacts.</p>	<i>Precinct East Stage 2 (SSD 7628) letter</i>
Noise and Vibration – assessment	<p><u>Tonal movement alarms (“reversing beepers”) may not be necessary</u></p> <p>The EPA notes that the proponent has responded to the EPA’s comment regarding detailed design to minimise the use of reversing alarms. The EPA believes that reversing alarms may be able to be replaced with other measures that do not have the same off-site impacts.</p>	<p>All reasonable efforts would be made to ensure that any site-owned vehicles or mobile plant would not be fitted with tonal reversing alarms. All tenants would also be encouraged to replace tonal reversing alarms with broadband devices.</p> <p>Further, Mitigation Measure 2A of the Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter</i> on 11 September 2017 noted that:</p> <p><i>A Construction Noise and Vibration Management Plan (CNVMP), or equivalent, would be prepared for the Amended Proposal in accordance with the Interim Construction Noise Guideline (DECC, 2009) (or equivalent), and will include the following:</i></p> <ul style="list-style-type: none"> <i>Description of what work practices (generic and specific) will be applied to minimise noise and vibration</i> <i>Consider the selection of plant and processes with reduced noise emissions</i> 	Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter</i>

Aspect	Issue	Response	Reference
Noise and Vibration – assessment	<p><u>Cumulative intrusive operational noise should be assessed</u></p> <p>The EPA recommended that the proponent predict the cumulative intrusive noise impacts from operation of both the MPE and MPW sites. The proponent responded that the assessment for LAeq,period amenity criteria for multiple industrial sources has been based on the INP. The assessment acknowledged that noise sensitive receivers would see both Moorebank projects as one facility.</p>	<p>The Moorebank Precinct may be considered by some as one facility, however this is not correct. The two projects are separate, are being pursued under separate approvals, and will have separate approval conditions. Prior attempts to regulate cumulative LAeq,15min noise levels from separate sites has been rejected by the NSW Land & Environment Court (<i>Bulga Milbrodale Progress Association Inc v Minister for Planning and Infrastructure and Warkworth Mining Limited [2013] NSWLEC 48</i>).</p> <p>A detailed cumulative operational impact assessment was included as Section 19 of the MPE Stage 2 EIS. This included the cumulative noise emissions of the Proposal from the simultaneous operation of the Proposal with the MPW Stage 2 Proposal and MPE Stage 1 Project.</p>	Section 19 of the MPE Stage 2 EIS.
Noise and Vibration – assessment	<p><u>Amendments to proposal justify reviewing feasible and reasonable noise mitigation measures</u></p> <p>The RTS report includes amendments to the MPE Stage 2 Proposal. With regard to the assessment of Lmax noise levels for sleep disturbance impacts, the proponent states that none of the amendments are likely to result in Lmax levels that differ to those already modelled. The EPA does not agree, as the changes to the warehouse layout, described also on page 292, will influence the flow of trucks on the internal road networks, which in turn may change the Lmax noise levels resulting from the truck movements.</p>	<p>The sleep disturbance assessment in the EIS NVIA (Appendix L) identified truck parking brakes as the most significant source of LAmax noise levels. It is considered unlikely that trucks would need to use parking brakes on the internal road network. Rather, parking brakes would typically be used in the loading areas of the warehouses. The Amended Proposal does not considerably change the locations of the warehouse loading areas with respect to the most potentially affected receivers. Therefore, the changes under the Amended Proposal are unlikely to significantly affect LAmax from the operation of the Proposal, and the sleep disturbance assessment presented in the EIS NVIA remains valid.</p>	Appendix L of the MPE Stage 2 EIS.
Noise and Vibration – recommendations	<p>1. The proponent clarifies why it is ‘necessary’ or by whom it is ‘required’ to conduct out of hours construction works. At present the proponent has not provided adequate clear justification for out of hours works other than for convenience.</p>	<p>Refer to Noise and Vibration – Assessment response above, relating to the ‘<u>Construction works should be restricted to standard hours</u>’ issue raised by the EPA.</p>	N/A
Noise and Vibration – recommendations	<p>2. DPE to consider whether the proponent has justified to its satisfaction that an onsite crushing and concrete batch plant is desirable in this case.</p>	<p>Refer to Noise and Vibration – Assessment response above, relating to the ‘<u>Crushing and concrete batch plant on site not clearly justified</u>’ issue raised by the EPA.</p>	N/A

Aspect	Issue	Response	Reference
Noise and Vibration – recommendations	3. Relevant WH&S legislation will need to be considered, but reversing alarms may be able to be replaced with other measures that do not have the same off-site impacts.	Refer to Noise and Vibration – Assessment response above, relating to ' <u>Tonal movement alarms (“reversing beepers”) may not be necessary</u> ' issue raised by the EPA.	N/A
Noise and Vibration – recommendations	4. The proponent should predict the cumulative maximum LAeq,15minute operational noise levels from the entire precinct as the Moorebank Precinct could be considered one facility (not 'multiple industrial sources').	Refer to Noise and Vibration – Assessment response above, relating to ' <u>Cumulative intrusive operational noise should be assessed</u> ' issue raised by the EPA.	N/A
Noise and Vibration – recommendations	5. The proponent comprehensively assess the potential noise impacts from the amended proposal, including Lmax noise levels.	Refer to Noise and Vibration – Assessment response above, relating to ' <u>Amendments to proposal justify reviewing feasible and reasonable noise mitigation measures</u> ' issue raised by the EPA	N/A
Noise and Vibration – recommendations	6. The proponent should consider whether the mitigation measures adequately cover the proposed increased duration of construction to ensure that impacts of construction noise are minimised.	LAeq,15min construction noise levels during standard hours are predicted to comply with the established NML at all receivers. Therefore, in general accordance with the ICNG, no additional mitigation of construction noise associated with the increased duration of works is considered necessary.	N/A

Attachment N

LIVERPOOL CITY COUNCIL – MOOREBANK PRECINCT EAST STAGE 2

Aspect	Issue	Response	Reference
Modification to the Concept Plan as a result of the amendments to the Proposal	<p>It is noted that the RtS document contains a number of modifications to the MPE Stage 2 proposal that have been added at the RtS stage, which substantially change the range and extent of the proposal.</p> <p>Specifically, the RtS document is seeking the following additional amendments:</p> <ul style="list-style-type: none"> • Realignment of the OSD in the north-eastern corner of the Proposal site • Changes to the horizontal extent of the Moorebank Avenue Upgrade • Changes to Warehouse layout in two separate locations • Alterations to the drainage design to the south of the MPE site • Amendments to the Construction Area and Operational Area as a result of the above amendments <p>It is unreasonable to add these changes late in the assessment program without a formal modification to the Concept Approval. Introducing these amendments at this point is likely to limit the scrutiny these items are subject to, reducing the transparency of the assessment.</p>	<p>Under the Part 4, Division 4.1 of the EP&A Act there is the opportunity for the design amendments to be undertaken at the Response to Submissions (RtS) stage. These amendments to the Proposal result in a minor change from the Proposal as originally included within the EIS and remain consistent with the objectives of the Proposal provided within Section 1.3 of the EIS. A detailed environmental impact assessment has been provided in Section 7 of the MPE Stage 2 RtS to supplement the EIS and address any impacts posed by these Proposal Amendments. Mitigation measures have also been included with the MPE Stage 2 RtS to further reduce impacts of these Proposal Amendments in the context of the Amended Proposal.</p> <p>The design amendments proposed are consistent with the MPE Concept Plan Approval (MP 10_0193) as identified in the MPE Concept Plan RtS (i.e. no associated amendments were required at this stage to accommodate the Amended Proposal in the MPE Stage 2 Proposal). A modification to the MPE Concept Plan (MP 10_0193) is, therefore, not considered necessary.</p>	<p>MPE Concept Plan Approval</p> <p>Sections 7 and 8 of the MPE Stage 2 RtS</p>
Legislation (RtS ID LCC-215)	<p>Whilst there is some evidence that the two sites have tried to evaluate the cumulative impacts of the two projects, the two sites will be able to operate independently of each other. There is no consolidated infrastructure that services both sites such as one rail link, container storage facilities or freight villages. All these aspects have been duplicated, increasing impacts on surrounding land uses that could have otherwise</p>	<p>SIMTA has entered into an agreement with MIC to build and operate the MPW Project (under SSD 5066), however the MPW and MPE Projects will retain their separate approvals and remain viable as standalone projects.</p> <p>Notwithstanding this, a precinct approach has been taken with respect to site operations, with both sites being developed in consideration with one another, including container storage locations and freight village requirements across the precinct. This is evident in the cumulative assessments provided for key issues including traffic, noise and vibration, air quality, human health, hazard and risk,</p>	<p>MPE Stage 1 project</p> <p>MPW Stage 2 Proposal</p> <p>Section 19 and 22 of the MPE Stage 2 EIS</p>

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	<p>been mitigated had a holistic master planning exercise been undertaken that encompassed both sites.</p> <p>It is noted that site works have commenced however no infrastructure has been constructed to this point, with activities occurring on site relating to demolishing works. For a fully efficient site to satisfactorily operate in this location, detailed master planning should occur to ensure that operational efficiencies can be achieved whilst reducing the wide range of environmental impacts that will occur should the proposed works proceed in their current forms.</p>	<p>biodiversity and visual amenity (refer to Section 19 of the EIS), that considered the potential impacts of the Proposal in conjunction with the adjacent MPW development . Further, potential impacts to the broader Moorebank area are also considered in these assessments. Mitigation measures have been provided in Section 22 of the EIS, and Section 8 of the MPE Stage 2 RtS (?).</p> <p>In addition to this, the MPE Stage 2 Proposal includes the upgrade of Moorebank Avenue from two lanes to four in part, which would support traffic from the Moorebank Precinct and background traffic. The MPW Stage 2 Proposal includes the upgrade of the Moorebank Avenue/Anzac Road intersection to accommodate traffic from the MPW Project, the MPE Project and background traffic.</p> <p>Overall, albeit under separate approvals, the Moorebank Precinct has undertaken a ‘whole of precinct’ approach to the design, development and assessment for the construction and operation of the proposed terminals, warehousing, freight villages and infrastructure. The whole of precinct approach has also assessed and considered the traffic impacts of the MPE Project, MPW Project with background traffic growth and incorporated suitably sized upgrades into the overall design of the Moorebank Precinct to mitigate the traffic impacts. Further integration of the MPE and MPW Projects would be considered as part of detailed design development, where practicable and feasible.</p>	
Legislation (RTS ID LCC-216, LCC-217, LCC-218, LCC-219, LCC-220)	<p>It is acknowledged that an IMT is required within south-east Sydney to service the growing freight needs of Port Botany and reduce freight transport movements both from Port Botany and the Western Sydney Airport (WSA).</p> <p>However, the strategic justification has not been adequately addressed within the documentation prepared for both the MPW and MPE sites with respect to other potential sites throughout the area.</p> <p>With the proposed WSA at Badgerys Creek there is the opportunity to provide a consolidated freight handling precinct in close proximity to the new airport, further increasing efficiencies with infrastructure utilisation across the Greater Sydney Area. The area around the airport has extensive land that could be better utilised as an IMT, greater access to the M7 and the connecting road networks to both the north and west whilst still remaining in close proximity to the SSFL. This</p>	<p>As discussed in Section 4.9 of the MPE Stage 2 RtS, the MPE Concept Approval (10_0193) was granted approval by the PAC on 29 September 2014. This approval affirms that the NSW State Government supports, subject to satisfying conditions of approval, the operation of the MPE Project.</p> <p>Further, as described within both the MPE Concept Approval documentation and Section 3 of the EIS, the location of the MPE Project and Proposal has been identified and supported by planning and freight strategy documents prepared by a number of government agencies.</p> <p>The Our Greater Sydney 2056 Draft Western City District Plan –Connecting Communities (p. 63, Greater Sydney Commission 2017) identifies the strategic requirement for co-existing intermodals at Moorebank and in Western Sydney, with the latter to be investigated by 2036. The Collaboration Area considerations for Liverpool encompass the CBD, health and education precincts and the Moorebank Intermodal Terminal (p.74). Specifically, the Plan states:</p> <p>“The District must also connect port and airport activities, linking the Western Sydney Airport, the Moorebank Intermodal Terminal and a potentially expanded container port at Port Kembla via the Outer Sydney Orbital.” (p. 86).</p>	<p>Section 4.9 of the RtS</p> <p>Section 3 of the MPE Stage 2 EIS</p>

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	position is supported in A Plan for Growing Sydney (2014), with an IMT at Badgerys Creek given a significant role within Sydney's freight handling network.	<p>It is a misstatement to claim that "A Plan for Growing Sydney"(2014) identifies that "The area around the airport has extensive land that could be better utilised as an IMT", as the proposition is entirely false.</p> <p>Further discussion on alternative uses for the site, job creation and alternate locations is, therefore, not considered relevant to this stage of development/approval.</p>	
	<p>The Moorebank precinct is poorly placed adjacent to the M5, which is close to capacity with reduced accessibility to both the north and west. It appears that this site has been solely chosen for its ease of connection to the SSFL without taking a more holistic view of connections to the wider transport network. The aim should be to remove freight from Sydney's road network, not move it into an already congested area of western Sydney.</p> <p>The MPW Stage 2 and all the documentation that has proceeded it has not appropriately assessed the optimal use for the former School of Military Engineering site. The location is located between the Georges River and Moorebank Avenue, providing a picturesque location whilst including good access to public transport and the wider road network. The site is ideally placed to support mixed use residential and commercial development that would support greater economic growth through job creation and infrastructure delivery than currently proposed by the IMT use.</p>	<p>As discussed in Section 4.9 of the MPE Stage 2 RtS, the MPE Concept Approval (10_0193) was granted approval by the PAC on 29 September 2014. This approval affirms that the NSW State Government supports, subject to satisfying conditions of approval, the operation of the MPE Project.</p> <p>Further, as described within both the MPE Concept Approval documentation and Section 3 of the EIS, the location of the MPE Project and Proposal has been identified and supported by planning and freight strategy documents prepared by a number of government agencies.</p> <p>Further discussion on alternative uses for the MPW site, job creation and alternate locations is, therefore, not considered relevant to this stage of development/approval. In addition, the MPW Stage 2 Proposal does not form part of the approval for the MPE Stage 2 Proposal and, therefore, it is not relevant to this SSD application (SSD-7628)</p>	<p>Section 4.9 of the MPE Stage 2 RtS</p> <p>Section 3 of the MPE Stage 2 EIS</p>
Legislation (RtS ID LCC_221, LCC-227)	A partial assessment of the proposal against the Liverpool DCP has been included at Appendix J of the RtS document. This assessment addresses a number of DCP controls but does not address the strategic intent of Council for this key piece of land within the Liverpool LGA. The site is recognised as having a wide range of potential uses for residential, commercial and industrial applications. The use of the site as an IMT is very one-dimensional and does not provide the activation that a more diverse mix of uses could	<p>As the Proposal is SSD and accordingly, the Liverpool DCP does not apply. However, for completeness, this EIS has considered the relevant provisions of the Liverpool DCP. A detailed assessment of the consistency of the Proposal with the relevant sections of the Liverpool DCP has been undertaken and is provided at Appendix K of the MPE Stage 2 RtS. The table provided in Appendix K demonstrates that the Proposal is generally consistent with the Liverpool DCP requirements for developments on industrial lands.</p> <p>As detailed in Section 3.5 of the MPE Stage 2 RtS, the MPE Stage 2 EIS does not include consideration of the project location and site suitability, which has already been determined in the MPE Concept Approval. As such, this issue is considered to be</p>	Section 3.5 of the MPE Stage 2 RtS

Aspect	Issue	Response	Reference
	<p>achieve. The scale of the site would create the potential for clustering of various industries if it was to be developed as a high tech industrial area, providing diverse jobs in an environmentally benign setting.</p>	<p>outside of the scope of the Proposal and further assessment is not considered warranted or necessary.</p>	
	<p>Additionally, an IMT is better suited to a high transport orientated environment, where there is significant areas of land that could support extensive warehousing and distribution operations. Whilst the proposal includes some of these facilities, the site is essentially land locked and would require further facilities to be developed in south-west Sydney, thereby directing traffic onto the existing road network which this project is seeking to reduce.</p> <p>Overall, the location of the site relies primarily on its close proximity to the SSFL and its former defence use as justification for its use as an IMT. Rather, more extensive and broad reaching assessment of a number of sites should have been undertaken to determine a more appropriate site.</p>	<p>As detailed in Section 3.5 of the MPE Stage 2 RtS, the MPE Stage 2 EIS does not include consideration of the project location and site suitability, which has already been determined in the MPE Concept Approval. As such, this issue is considered to be outside of the scope of the Proposal and further assessment is not considered warranted or necessary.</p>	<p>Section 3.5 of the MPE Stage 2 RtS</p>
<p>Legislation (RtS ID LCC-222)</p>	<p>Whilst it is acknowledged that a planning proposal was approved for the site to allow for the development of an IMT to occur, Council has been required to plan for this use rather than undertake a robust assessment of the site. This process would have allowed a range of alternative land uses to be considered, with more appropriate results achieved, providing better outcomes for the LGA and Greater Sydney.</p> <p>The development of the MPE site is not in keeping with the objectives of both the Vision for the Riverfront Lands and the Georges River Casula Parklands Draft Master Plan. These plans provided a strategic direction to increase the public use and amenity of the foreshore to facilitate residential and commercial development. These plans aimed to retain and enhance the</p>	<p>Planning Proposal (PP_2012_LPOOL_004_00) to rezone the MPW site from 'SP2- Defence to 'IN1- Light Industrial' and 'E3- Management', as part of an amendment to the <i>Liverpool Local Environmental Plan 2008</i> (Liverpool LEP) (as amended) was gazetted on 24 June 2016. This Planning Proposal is not relevant development of to the MPE project, as the industrial zoning of this site was already suitable to enable development of an IMT, which is a use that is consistent with the former Defence national Storage and Distribution Centre land use that preceded the proposed IMT development. As a result, Clause 7.36 of the Liverpool LEP relates only to a minor part of the MPE Stage 2 Proposal, being the construction of an OSD , which is a piece of common infrastructure that supports the stormwater and drainage of both the MPE and MPW Projects</p> <p>As detailed in Table 4-8 of the MPE Stage 2 RtS:</p> <p>The Georges River Master Plan, prepared in August 2016, refers to a 350 ha site located to the north of the Moorebank Precinct, bounded by the M5 Motorway to the south and the Georges River to the west. The Proposal would not preclude development under the Georges River Master Plan. The plan aims to preserve the</p>	<p>Table 4-8 of the MPE Stage 2 RtS</p>

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	<p>visual and ecological value of the Georges River and foreshore environment.</p> <p>The development of the MPE site will not achieve these aims. The proposed works include substantial amounts of fill to be imported to site, with associated loss of significant areas of vegetation. The development of the site will transform a low density military base environment, with its associated large areas of open space and low scale builds, to a high density industrial use with large bulky warehouses serviced by large volumes of truck movements, heavy forklift operation and rail movements.</p>	<p>environmental values connected to the Georges River and Foreshore, improve public access to these areas, and provide a framework for driving urban growth to 2050, while not changing existing planning rules. The Moorebank Intermodal Terminal is mentioned within this plan (page 6) as being a key driver for the precinct establishment, through the generation of local employment.</p> <p>The Proposal is located on land previously occupied by the Department of Defence for the Defence National Storage and Distribution Centre, which was not previously accessible to the public.</p> <p>The Georges River Casula Parklands Draft Master Plan relates to land to the west of the Proposal site, on the opposite side of the Georges River. The construction and operation of the Proposal would not impede the design objectives associated with this plan.</p>	
Legislation (RtS ID LCC-226, LCC-229)	<p>Significant omissions from the environmental assessments undertaken remain in a number of areas of the project. Key matters identified within Section 79C of the EP&A Act requires that;</p> <p><i>b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,</i></p> <p>The assessments undertaken relating to traffic have been found to be deficient in a number of areas. Firstly, the lack of back of queue data for all assessed intersections indicate that either an incomplete assessment has been undertaken or that detrimental data was found with a decision made to not include within provided documentation. Secondly, the assessments undertaken has not provided any investigation into the impacts that will result from the significant increases in heavy vehicle traffic that is proposed within the MPE Stage 2 EIS. There are significant risks imposed by increased heavy vehicle traffic to both the safety of other road users in the vicinity of the site and to the maintenance implications of heavy vehicles using the surrounding road network. Further assessment of these two aspects, as well as the other requirements detailed below, should be required</p>	<p>An assessment of compliance of the Proposal with Section 79C of the EP&A Act was undertaken in Section 23.2.3 of the MPE Stage 2 EIS.</p> <p><u>Back of queue data</u></p> <p>In the preparation of this traffic assessment and to fulfil the requirements of the SEARs, SoC and CoA, consultation was undertaken with the key stakeholders including NSW Roads and Maritime Services (Roads and Maritime), Transport for New South Wales, Liverpool City Council and Campbelltown City Council. Through-out the traffic study, key stakeholders were consulted through a series of meetings, emails and phone calls to present the scope of the study, impact assessment methodology and preliminary findings of the traffic study.</p> <p>Roads and Maritime have been consulted on a number of occasions since the last quarter of 2015 regarding the planning applications associated with the MPE and MPW Projects. Consultation undertaken specifically for the Proposal has been focussed on establishing and agreeing on a suitable approach to the operational traffic modelling to be undertaken for the Proposal, particularly in the context of the separate overall precinct modelling.</p> <p>As confirmed through the abovementioned consultation, the traffic impact assessment was determined to investigate the agreed key intersections only in the study area.</p> <p>As per Section 4.2.2 of the <i>Guide to Traffic Generating Development</i> (RTA, 2002);</p> <p><i>“The best indicator of the level of service at an intersection is the average delay experienced by vehicles at that intersection. For traffic signals, the average delay over all movements should be taken.”</i></p>	<p>Section 7 to 20, and 23.2.3 of the MPE Stage 2 EIS</p> <p>Section 4.2.2 of the <i>Guide to Traffic Generating Development</i> (RTA, 2002)</p> <p>Table 4-8, Table 5-1 and Section 8 of the MPE Stage 2 RtS</p>

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	to be undertaken prior to the approval of this application.	<p>As such only the intersection Level of Service (LoS) from the AIMSUN and SIDRA model has been reported.</p> <p>Back of queue data is normally referred as 95th percentile queue length which is not considered as a good performance indicator for intersection analysis or comparison. Queue length is sensitive to lengths of turning lanes and traffic signals which were preliminary concept at this stage. Queue length is normally measured from each intersection approach and is difficult to use for the purpose of indicating the overall intersection performance.</p> <p>Queue length is also subjective for its definition (i.e. vehicle speed, gaps, etc.) and has lack of assessment criteria to determine appropriate queue length. In addition, 95th percentile queue length is not standard output data in dynamic microsimulation / mesosimulation, Therefore, no queue data has been provided or is recommended to be used for the assessment.</p> <p><u>Heavy vehicle impacts</u></p> <p><i>Road safety</i></p> <p>As detailed in Table 4-8 and Table 5-1 of the MPE Stage 2 RtS, the road safety impacts of additional heavy vehicles was included in Section 7.3.6 (crash data) of the MPE Stage 2 EIS. Traffic increases along Moorebank Avenue and Cambridge Avenue from operation of the Proposal constitutes around 15 - 18% and 0.8% respectively of overall traffic. Increases in the crash rate are generally attributable to the forecast increase in background traffic growth and would not be directly related to the introduction of operational traffic from the Proposal.</p> <p>All carriageway and intersection upgrades proposed as part of the Proposal (i.e. MPE Stage 2 site access and the Moorebank Avenue upgrade) will undergo Road Safety Audits throughout the design development process to ensure any potential safety risk is identified and avoided or mitigated.</p> <p>Road safety for the Proposal would be managed through design of the site access points, road network improvements (undertaken by Roads and Maritime).</p> <p>Additionally, an Operational Traffic Management Plan (OTMP) would be prepared, which would include mitigation measures relating to reducing road safety risks for road users near the Proposal. The final OTMP would form part of the Operational Environmental Management Plan for the Proposal. It is intended that the OTMP would be prepared by updating the Preliminary OTMP that was provided at Appendix K of the EIS.</p> <p><i>Maintenance implications</i></p>	

Aspect	Issue	Response	Reference
		<p>The maintenance implications of heavy vehicles using the surrounding road network are not an assessment/approvals issue as payment of Council rates as a land owner/occupier represents contribution to maintenance of Council owned and maintained assets. It is intended that SIMTA would continue to maintain Moorebank Avenue to the extent that it remains in Commonwealth ownership. A letter, proposing the approach to the s94 contributions for the MPE Stage 2 Proposal is anticipated to be issued by SIMTA to Liverpool City Council in early November 2017.</p>	
	<p>The Noise and Vibration assessment has failed to adequately assess the full impact of the proposal contained within the MPE Stage 2 EIS. The implications of the MPE Stage 2 site, operating in conjunction with the MPW site, will result in a significant increase in Rail freight that will utilise the SSFL exclusively for handling and distribution within the MPE site. However, no assessment has been undertaken relating to the significant increase in freight movements that will be associated with the site, especially in relation to the various sensitive receivers that will be exposed to increased rail noise along the length of the SSFL.</p> <p>Additionally, there is a lack of detail as to the quanta of construction equipment that will be operating on site at any one time. The assessment indicates the types of equipment that will be present but does not address the cumulative impacts that multiple pieces of equipment would have on surrounding sensitive receivers. Noting the exceedances predicted at Wattle Grove, this omission of information is critical to determining the veracity and therefore extent of the impacts from noise at the site to the surrounding environment.</p>	<p><u>Impacts associated with the SSFL</u></p> <p>The Proposal seeks approval for construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 1.5 kilometres of Moorebank Avenue. The Proposal does not include rail movements, and will not increase rail freight above the MPE Stage 1 approved 250,000 TEU threshold, and therefore impacts associated with the SSFL are not relevant to the environmental assessment of the Proposal.</p> <p><u>Cumulative noise and vibration impacts – plant and equipment</u></p> <p>The noise and vibration impact assessment undertaken modelled all plant and equipment operating simultaneously at the site boundary, thereby representing a worst case construction noise assessment. The estimated quantity of each type of plant and equipment would not impact on the total sound power level (SWL) of each construction works period, as shown in Table 6-6 of the EIS Noise and Vibration Assessment, provided at Appendix L of the EIS.</p> <p>Further, a cumulative construction noise assessment was undertaken for the Proposal and included in Section 19 of the EIS. This assessment considered the cumulative construction noise impacts from the concurrent construction of the Proposal with the MPW Stage 2 Proposal and MPE Stage 1 Project. As such, it is considered that the Proposal has sufficiently assessed the cumulative impacts that multiple pieces of equipment would have on surrounding sensitive receivers.</p>	<p>MPW Stage 2 Proposal</p> <p>MPE Stage 1 Project</p>
	<p>The lack of detail in these two areas places significant concern on the completeness of the assessments undertaken to support the MPE Stage 2 application. This lack of information has significant flow on impacts to cumulative assessments undertaken for both the Modification to the Concept Plan for MPE as well as any cumulative assessments undertaken as part of</p>	<p>As detailed above, in response to issue Legislation (RtS ID LCC-226, LCC-229), the traffic and transport impact assessment undertaken to support the MPE Stage 2 EIS and MPE Stage 2 RtS for the Proposal included consideration and assessment of intersection performance, and the impacts of heavy vehicles on road safety. The maintenance implications of heavy vehicles using the surrounding road network are not an assessment/approvals issue as payment of Council rates as a land owner/occupier represents contribution to maintenance of Council owned and maintained assets. It is</p>	<p>RtS ID LCC-226, LCC-229</p>

Aspect	Issue	Response	Reference
	MPW. All applications should be placed on hold until the completeness of each individual assessment can be demonstrated, enabling a comprehensive assessment of the whole precinct to be undertaken.	<p>intended that SIMTA would continue to maintain Moorebank Avenue to the extent that it remains in Commonwealth ownership. A letter, proposing the approach to the s94 contributions for the MPE Stage 2 Proposal is anticipated to be issued by SIMTA to Liverpool City Council in early November 2017.</p> <p>Similarly, the noise and vibration impact assessment undertaken to support the MPE Stage 2 EIS and MPE Stage 2 RtS for the Proposal included assessment and consideration of the noise and vibration impacts of a number of construction equipment that will be operating on site at any one time to identify the potential noise emissions from construction of the Proposal.</p>	
	The RtS document includes amendments to the proposal detailed within the MPE Stage 2 EIS. One of these amendments has not included additional assessment of the impacts that will result. The extension of the upgrades to Moorebank Avenue will include additional impacts to existing native vegetation that has not been adequately assessed, with requirements for vegetation not met. This lack of assessment is of significant concern as the vegetation proposed for removal is mapped as having conservation value. No work regarding the upgrades to Moorebank Avenue should be commenced until a comprehensive assessment of the extra vegetation required to be removed has been undertaken.	<p>The extension of the upgrades to Moorebank Avenue would be located wholly within the existing road reserve. Additional impacts to native vegetation would not occur as a result of this amendment to the Proposal.</p> <p>Section 7.5.3 of the MPE Stage 2 RtS clearly stated:</p> <p><i>'Changes to the construction and operational footprint as a result of the amendments to the Proposal would not result in the Proposal directly impacting on threatened species identified to the east or south of the MPE site during the additional surveys carried out in May 2017 (refer to Section 7.5.2 for more information). No threatened species recorded during these additional surveys require removal as a result of the amendments to the Proposal'.</i></p> <p>The BAR submitted with the EIS (Appendix O) provided an assessment of the impacts of the MPE Stage 2 Proposal. However, as it was envisaged that the MPW Stage 2 Proposal would be determined either concurrently or prior to the MPE Stage 2 Proposal, the BAR submitted with the EIS did not fully address vegetation clearance on the Moorebank Avenue site. It was assumed in the BAR (EIS) that this clearing would be undertaken as part of the MPW Stage 2 Proposal and therefore, to avoid confusion and provide overlapping and replication of impact assessments this area was assessed to be cleared for the purposes of the BAR.</p> <p>Notwithstanding this, the BAR has been updated (and reissued to DP&E) to fully reflect the Proposal Amendments included in the MPE Stage 2 RtS and also to address the clearance of vegetation for the Moorebank Avenue site. The BAR (MPE Stage 2 RtS) addresses all biodiversity impacts associated with the clearance of the Moorebank Avenue site.</p>	<p>Section 7.5.3 of the MPE Stage 2 RtS</p> <p>MPE Stage 2 BAR (dated November 2017)</p>
	The only way to undertake a comprehensive assessment for the whole precinct is through a holistic master planning process for the entire	SIMTA has entered into an agreement with MIC to build and operate the MPW Project (under SSD 5066). The MPW and MPE Projects will retain their separate approvals and remain viable as standalone projects.	Section 19 and 22 of the MPE Stage 2 EIS.

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	site, assessing all impacts to the surrounding environment in a comprehensive manner.	<p>Notwithstanding this, a ‘whole of precinct’ approach is taken with respect to site operations, with both sites being developed in consideration with one another, including container storage locations and freight village requirements across the precinct. This is evident in the cumulative assessments provided for key issues, including traffic, noise and vibration, air quality, human health, hazard and risk, biodiversity and visual amenity (refer to Section 19 of the EIS), that the potential impacts of the Proposal being undertaken in conjunction with the adjacent MPW development have been considered. Mitigation measures have been provided in Section 22 of the MPE Stage 2 EIS, and Section 8 of the MPE Stage 2 RtS.</p> <p>Further integration of the MPE and MPW Projects would be considered as part of detailed design development, where practicable and feasible.</p>	Section 8 of the MPE Stage 2 RtS.
Legislation	The assessment of Stage 2 of the MPE site is required to be in accordance with the MPE Concept Plan. At present the Concept Plan is being modified, with those modifications required for this application. It is not possible to accurately and comprehensively assess this application against the concept plan until that the modification has been finalised. As such, this application should be placed in abeyance until that process is finished. Approval of both concurrently does not provide other government agencies and the public adequate opportunities to compare and determine the adequacy of the information provided in this application.	<p>As included in Table 4-8 of the MPE Stage 2 RtS:</p> <p><i>There is no regulatory basis prohibiting the undertaking of an assessment in advance of the Concept Plan modification being approved. There are some efficiencies in the assessment process, notably for the regulatory agency (in this case DP&E) when the two are presented concurrently.</i></p> <p>The justification for the Concept Plan modification has been assessed and provided in the Concept Plan Modification report and is outside of the scope of this MPE Stage 2 Proposal.</p>	Table 4-8 of the MPE Stage 2 RtS
Traffic			
Traffic (RtS ID LCC-94, LCC-98, LCC-106, LCC-107, LCC-108, LCC-133, LCC-136)	<p>Back of queue data is an important measure of the effect of queued traffic on upstream and downstream infrastructure and the safety of other motorists. As noted in the RtS document “upstream/downstream queuing impacts at intersections were considered in the AIMSUN and SIDRA model and considered in determining the appropriate mitigation measures”.</p> <p>Back of queue data is once again requested to fully assess the traffic impacts of the proposed development and to assess the adequacy of the proposed mitigation measures</p>	<p>Refer to issue (RtS ID LCC-226, LCC-229) for a detailed response to this issue.</p> <p>As per Section 4.2.2 of the <i>Guide to Traffic Generating Development</i> (RTA, 2002);</p> <p><i>“The best indicator of the level of service at an intersection is the average delay experienced by vehicles at that intersection. For traffic signals, the average delay over all movements should be taken.”</i></p> <p>As such only the intersection LoS from the AIMSUN and SIDRA model has been reported.</p> <p>Back of queue data is normally referred to as the 95th percentile queue length which is not considered as a good performance indicator for intersection analysis or to be used for comparison. Queue length is sensitive to lengths of turning lanes and traffic signals</p>	<p>Legislation (RtS ID LCC-226, LCC-229)</p> <p>Section 4.2.2 of the <i>Guide to Traffic Generating Development</i> (RTA, 2002)</p>

Aspect	Issue	Response	Reference
		<p>phasing which were preliminary concept at this stage. Queue length is normally measured from each approach of the intersection and is difficult to be used to indicate the overall intersection performance. Queue length is also subjective for its definition (i.e. are vehicles travelling at < 10km/h or 5km/h considered as queuing). Therefore, no queue data has been provided.</p> <p>No back-of-queue data has been provided or is recommended to be used for the assessment.</p>	
Traffic (RtS ID LCC-102, LCC-103)	<p>Due to the close proximity of the proposed MPE Stage 2 Site Access intersection with the MPE Stage 1 Site Access intersection, there is concern over the effect of vehicle queuing on the performance of the proposed MPE Stage 2 Site Access intersection.</p> <p>As outlined in Table 5-9 of Appendix Kb (OTTIA), the LoS for the MPE Stage 2 Site Access intersection is class F for the “Do-Min” scenario. Table 5-9 also specifies that the LoS for the MPE Stage 2 Site Access intersection is class A for the “With assumed network upgrades – see Table 6-1” scenario. However, there are no details in Table 6-1 for the network upgrades of this intersection that justifies this modelled improvement in LoS. Further clarification is required on the assumed network upgrades for this intersection that were used in the model to yield these results.</p>	<p>The LoS results presented in Table 5-9 of Appendix Kb (OTTIA) of the EIS were based on the AIMSUN model, which took into consideration the dynamic traffic assignment and network wide impacts of the Proposal (i.e. intersections have operational influence on each other at the network level due to vehicle queuing, delay and route choice).</p> <p>For the MPE Stage 2 Site Access intersection in the “Do-Min” scenario, this intersection operated at LoS F due to traffic congestion along Moorebank Avenue which was caused by vehicle queuing at other intersections in the wider network (i.e. M5 / Moorebank). This suggests the “Do-Min” scenario experienced extensive congestion over the wider network.</p> <p>The LoS F at the MPE Stage 2 intersection is not as a result of the distance between the MPE Stage 2 site access points and other access points to other staged of development within the MPE and MPW projects. A queuing assessment for the total development was undertaken as part of the design of the Proposal, which identified that there would be queuing in the 95th percentile of occurrences only.</p> <p>With the assumed network upgrades as provided in Table 6-1 of Appendix K (OTTIA), the ‘wider network’ congestion (along Moorebank Avenue) was relieved and the MPE Stage 2 Site Access intersection operated at LOS A. This indicates that MPE Stage 2 Site Access intersection would operate at LOS A (in isolation) when it is not impacted by traffic operation from other intersections. The previous modelling also showed there was no queuing or operational issue along the section of Moorebank Avenue between the DJLU Access and the MPE Stage 1 access when there was no impact from the wider network congestion.</p>	Table 5-9 of Appendix Kb (OTTIA) of the EIS
Traffic (RtS ID LCC-122, LCC-123, LCC-131, LCC-135)	<p>As noted by the proponent, “overall, it is concluded that the Proposal (and cumulative scenario including the Proposal) would result in only marginal traffic impacts to the surrounding road network in the presence of mitigation and management measures”. The only way in which marginal traffic impacts from the proposed development can be achieved is if the assumed network upgrades are completed as detailed in</p>	<p>The ‘assumed network upgrades’ are triggered due to the growth of existing/ background traffic, and are required due to intersections performing at worse than LoS D in the “without development” scenario, indicating that the existing network is inadequate to cater for the demands of existing traffic prior to the addition of the development’s traffic impacts. The assumed network upgrades, to account for background traffic growth should be performed by the entity responsible for the operation and maintenance of each respective intersection.</p>	Section 7.4.2 of the MPE Stage 2 EIS

Aspect	Issue	Response	Reference
	Table 6-1 of the Appendix Kb (OTTIA). As such these upgrades should be included as a condition of consent, to be executed by the relevant parties prior to the commencement of the relevant stages of operations of proposed facilities.	<p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p> <p>Section 7.4.2 of the MPE Stage 2 EIS noted that with the implementation of assumed network upgrades, intersection performance at all key intersections near the Proposal modelled as part of this assessment in 2029 during the PM peak would operate at an acceptable LoS, with the exception of the M5 Motorway / Heathcote Road intersection, which would continue to operate at a LoS F, although the average delay would be reduced. Although this intersection would operate at a LoS F, its performance is no worse than the performance expected in 2029 without the operation of the Proposal in the AM Peak, and is, therefore, considered acceptable in the context of impacts as a result of the MPE Stage 2 Proposal. No nearby intersections would require upgrading to cater for traffic as a result of the MPE Stage 2 Proposal.</p> <p>It is acknowledged that discussions between the Proponent, Transport for NSW and RMS, relating to traffic modelling of the combined traffic impacts of the MPE and MPW Projects and an agreed mitigation framework relating to broader road network impacts are ongoing. Notwithstanding this, these are separate to the MPE Stage 2 approval process and therefore not relevant to assessment of the MPE Stage 2 Proposal (SSD 7628).</p>	
Traffic (RtS ID LCC-124)	<p>It is requested that subsequent to the finalisation of the Precinct Model, an independent review be undertaken to verify the required infrastructure upgrades within the study area to facilitate the MPE and MPW developments, as compared to those required to address existing infrastructure condition and utilisation, and forecast background growth. The review should also consider the feasibility of the necessary upgrades given the heavily developed urban form within the surrounding area, which limits the potential for road widening and major intersection improvements. This will ensure a fair and impartial assessment of the impacts of the proposed development on the existing infrastructure, and the necessary upgrades required directly as a result of the proposed development.</p> <p>It is also requested that the associated developer contributions or “works in kind” for the independently verified upgrades, and the timing of</p>	<p>It is acknowledged that discussions between the Proponent, Transport for NSW and RMS, relating to traffic modelling of the combined traffic impacts of the MPE and MPW Projects and an agreed mitigation framework relating to broader road network impacts are ongoing. Notwithstanding this, these are separate to the MPE Stage 2 approval process and therefore not relevant to assessment of the MPE Stage 2 Proposal (SSD 7628).</p> <p>Although related to this precinct traffic modelling and associated discussions, the traffic and transport assessment of the MPE Stage 2 Proposal, as presented in Section 7 and Appendix K of the MPE Stage 2 EIS and Section 7 and Appendix C of the MPE Stage 2 RtS, is appropriate to support the assessment of the impacts of Stage 2 of the MPE Project, and is not dependent on the abovementioned whole-of-precinct modelling.</p> <p>Under the Concept Approval (MP 10_1093), Schedule 3, Condition 2 requires that a commitment to pay developer contributions is to be included within future development applications. This commitment has been addressed within the MPE Stage 2 EIS (Section 20.3 and Appendix A).</p> <p>No additional independent review of traffic data for the Proposal, or subsequent review of developer contributions is therefore considered to be required. Further the inclusion of a condition of consent in the MPE Stage 2 approval instrument is not necessary in that this has already been included for the MPE Concept Approval.</p>	Section 20.3 and Appendix A of the EIS

Aspect	Issue	Response	Reference
	such upgrades, be determined and agreed with relevant parties prior to the commencement of construction of the proposed development.		
Traffic (RtS ID LCC-131, LCC-139)	<p>Whilst the proposed development may not greatly increase net traffic flow from a total vehicle perspective, it will greatly increase the amount of total heavy vehicle movements as compared to background heavy vehicle traffic levels. Heavy vehicle movements have a significantly greater impact on road maintenance and safety than light vehicles. As per Table 5-3 and Table 5-4 of Appendix Kb (OTTIA), the relative increase in heavy vehicle movements on surrounding network as compared with background traffic (heavy vehicles) is as follows:</p> <ul style="list-style-type: none"> • 2019 – Moorebank Ave, north of Anzac Road = +47% • 2019 – Moorebank Ave, south of Anzac Road = +57% • 2029 – Moorebank Ave, north of Anzac Road = +39% • 2029 – Moorebank Ave, south of Anzac Road = +46% <p>Clarification is sought as to how the impact of this significant increase in heavy vehicle movements has been evaluated in terms of both road maintenance and safety. Further review of this information is requested, as any increase in traffic generation beyond that currently identified would have flow on impacts to other environmental aspects including noise, air quality, human health and amenity.</p>	<p>Refer to above RtS ID LCC-222 response, for more information relating to heavy vehicle impacts to road safety and implications for road maintenance.</p> <p>The MPE Stage 2 Proposal will not result in an increase in road container freight volume associated with movement of the 250,000 TEU cap as assessed and approved in MPE Stage 1.</p>	Traffic (RtS ID LCC-222) Response.
Noise			
Noise (RtS ID LCC-3 and LCC-11)	Whilst the proponent has noted that <i>“the cumulative Proposal would have minimal impact on noise impacts in the local area, and that the existing ambient noise is the major contributor to</i>	The Proposal seeks approval for the construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 1.5 kilometres of Moorebank Avenue. The Proposal does not include rail movements, and, therefore,	N/A

Aspect	Issue	Response	Reference
	<p><i>total noise</i>", the assessment of noise from the proposed development has focussed on the movements of rail vehicles on site only, and has not considered the effect of noise associated with rail movements along the SSFL, which are understood to be the largest contributor of ambient noise for the sensitive receivers.</p> <p>As such, the impact of noise associated with movements of rail vehicles along the SSFL that are exclusively related to the operation of the proposed facilities should also be factored into the assessment of noise that will be experienced by sensitive receivers associated with the development.</p>	noise and vibration impacts associated with the SSFL are not relevant to the environmental assessment of the Proposal.	
Noise (RtS ID LCC-4, LCC-12)	Noting the modelled exceedance of the allowable $LA_{eq,15min}$ construction noise levels for the most affected receivers in Wattle Grove, it is requested that the Construction Noise and Vibration Management Plan (CNVMP) include a requirement to monitor noise at these sensitive receivers throughout construction to ensure the efficacy of proposed control and mitigation measures.	<p>The Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017, included the following as Mitigation Measure 2A:</p> <p><i>A Construction Noise and Vibration Management Plan (CNVMP), or equivalent, would be prepared for the Amended Proposal in accordance with the Interim Construction Noise Guideline (DECC, 2009) (or equivalent), and will include the following:</i></p> <ul style="list-style-type: none"> • <i>Noise and vibration monitoring procedures</i> <p>The scale and extent of noise and vibration monitoring would be included in the CNVMP, which would be subject to review and determination by NSW DP&E prior to the commencement of construction.</p> <p>No additional mitigation measures are considered necessary.</p>	Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter
Noise (RtS ID LCC-4, LCC-12)	Further to comment above, noting that the results modelled for Casula and Wattle Grove North are approaching the allowable $LA_{eq,15min}$ limits, consideration should be given to including requirements for the monitoring of noise at these sensitive receivers throughout the construction period to ensure the efficacy of proposed control and mitigation measures, particularly if exceedances are observed at the most effected receivers at Wattle Grove.	<p>Refer to Noise (RtS ID LCC-4, LCC-12) for a response to this issue.</p> <p>No additional mitigation measures are considered necessary.</p>	Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan</i>

Aspect	Issue	Response	Reference
			MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter
Noise (RtS ID LCC-5, LCC-49, LCC-53, LCC-54)	<p>Whilst Section 6 of Appendix L (NVIA) outlines the typical sound power levels for construction plant and the types of equipment expected on site during construction, it does not list the assumed quantities of each type of equipment.</p> <p>Further detail on the assumed quantities of equipment on site during construction is required to confirm if due consideration has been given to the increased quantity of equipment required to place the significant additional amounts of fill on site that have been proposed in the MPE Stage 2 proposal.</p>	Refer to Legislation (RtS ID LCC-226, LCC-229) for a detailed response to this issue.	RtS ID LCC-226, LCC-229
Noise (RtS ID LCC-47, LCC-49)	Noting the modelled exceedance of the allowable $LA_{eq,15min}$ construction noise levels for the most affected receivers in Wattle Grove, it would seem reasonable that due consideration would be given to the additional impact of activities identified as highly annoying in the ICNG (DECC 2009), such as vibratory rollers and compactors, excavators with hammers, concrete saws and jackhammers, notwithstanding the proponents view that the modelling conducted to date is “conservative” due to “modelling all construction plant operating continuously and at the same time”.	<p>As included in Table 4-8 of the MPE Stage 2 RtS:</p> <p><i>No adjustments have been made for particularly annoying sources (as defined in the ICNG), given the large distances to receivers and the conservative assumptions built into the assessment conducted, such as modelling all construction plant operating continuously and at the same time.</i></p> <p>No additional modelling is considered necessary.</p>	Table 4-8 of the MPE Stage 2 RtS
Noise (RtS ID LCC-49, LCC-53, LCC-54)	Due to the large number of diesel powered heavy vehicles (locomotives, container forklifts and b-double prime movers) that will operate on the site, and the nature of shunting and short distance stop/start movements associated with the operations of proposed facilities, due consideration and assessment should be given to the potential for tonal, low frequency and intermittent noise sources.	<p>As included in Table 4-8 of the MPE Stage 2 RtS:</p> <p><i>Modifying factors, as defined in the NSW Industrial Noise Policy, have been considered for the Proposal and deemed unlikely to be applicable at any nearby sensitive receivers.</i></p> <p>Considering the distances to nearby residential receivers, operational noise levels at residential receivers are considered unlikely to exhibit characteristics that would warrant the application of modifying factors under the INP. Notwithstanding, it is anticipated that the consent for the Proposal would include requirements for</p>	<p>Table 4-8 of the MPE Stage 2 RtS</p> <p>Attachment D of the <i>Response to submissions and outstanding</i></p>

Aspect	Issue	Response	Reference
	Clarification is sought regarding the formal process undertaken to assess the potential noise sources of the proposed development against the requirements of the NSW Industrial Noise Policy (NSW INP) (EPA 2000), that supports the proponents statement that “ <i>no modifying factors are considered necessary to assess low frequency noise, or any other annoying characteristic, in the operational noise levels from the site</i> ”.	compliance monitoring of operational noise levels, and that the consideration and application of relevant modifying factors would be a basic requirement of such compliance monitoring.	<i>information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter</i>
Soils			
Soils (RtS ID LCC-153, LCC-162, LCC-163)	The RtS document addresses the initial comment however the author should consider rewording Section 13.2.4 to avoid confusion regarding the presence / absence of “existing sources” e.g. the use of “unidentified and/or unexpected sources” instead.	Noted. As the MPE Stage 2 RtS has been finalised and accepted by DP&E no further changes are proposed.	Section 13.2.4.
Soils (RtS ID LCC-154, LCC-155, LCC-156)	<p>The RtS document has addressed the initial comment. However the report should also provide further detail as to the method of governance of fill importation including quality assurance and quality control measures e.g. a fill management protocol.</p> <p>The report should also confirm that importation of fill will be subject to audit by a NSW EPA Accredited Site Auditor under Part 4 of the Contaminated Land Management Act 1997 (CLM Act) or alternatively an independent specialist consultant.</p>	<p>A stockpile management protocol was provided as Appendix G of the MPE Stage 2 RtS, which outlines the procedures for the management of stockpiles on the MPE Stage 2 Proposal site during construction, relating to:</p> <ol style="list-style-type: none"> 1. Materials characterisation 2. Material handling (stockpiling and recovery from stockpile) 3. Stockpile profile 4. Stockpile water management 5. Stockpile stabilisation. <p>Specifically, the Stockpile Management Protocol includes the following, with regards to materials characterisation of imported material:</p> <p>Material characterisation would occur prior to being exported to the Proposal site, i.e. by the producer of the material at source, in accordance with the <i>NSW Waste Classification Guidelines</i>. Environmental Assurance of imported fill material will be conducted to confirm that the materials comply with the NSW EPA Waste Classification Guidelines and the Earthworks Specification for the MPE site.</p> <p>The frequency of assurance testing will be as nominated by the Environmental assessor/auditor.</p>	<p>Appendix G of the MPE Stage 2 RtS</p> <p>Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628) letter</i></p>

Aspect	Issue	Response	Reference
		As such the need for an audit of clean general fill to be imported to the Proposal site would not be required. As the imported fill will comprise clean general fill it is outside the scope of the <i>Contaminated Land Management Act 1997</i> and therefore not a matter for audit by an Accredited Site Auditor under that Act.	
Soils (RtS ID LCC-164, LCC-165)	<p>The RtS document has addressed the initial comment. However the report should also provide further detail as to the method of governance of fill importation including quality assurance and quality control measures e.g. a fill management protocol.</p> <p>The report should also confirm that importation of fill will be subject to audit by a NSW EPA Accredited Site Auditor under Part 4 of the <i>Contaminated Land Management Act 1997</i> (CLM Act) or alternatively an independent specialist consultant.</p>	This comment by Liverpool City Council is a replication of the above item. Refer to above response (Soils (RtS ID LCC-154, LCC-155, LCC-156)).	Appendix G of the MPE Stage 2 RtS
Human Health			
Human Health (RtS ID LCC-1)	<p>We acknowledge that the forecast daily traffic volumes of 1,936 cars (3,872 movements) and 282 trucks (564 movements) entering the Proposal site each day was adopted after consultation with RMS and Transport for NSW for the Noise and Vibration Impact Assessment (Wilkinson Murray, 2016) and emissions estimation in the Air Quality Impact Assessment (Ramboll Environ). However, there are still concerns about the completeness of the traffic impact assessment as it has been noted that heavy vehicle movements in particular have a significantly greater impact on road maintenance and safety than light vehicles. As per the request above in relation to LCC-131 and LCC-139, clarification is sought as to how the impact of this significant increase in heavy vehicle movements has been evaluated in terms of both road maintenance and safety. Further review of this information is requested, as any increase in traffic generation beyond that currently identified would have flow on impacts to other environmental</p>	<p>Refer to above response in relation to LCCs comment in traffic on this matter (RtS ID LCC-222).</p> <p>As road safety and implications for road maintenance associated with heavy vehicles has been considered in the environmental assessment of the Proposal, additional environmental impacts above that already documented in the MPE Stage 2 EIS and MPE Stage 2 RtS are not expected.</p>	<p>MPE Stage 2 EIS</p> <p>MPE Stage 2 RtS</p>

Aspect	Issue	Response	Reference
	aspects including noise, air quality and amenity, which are all factors that can affect human health.		
Human Health (RtS ID LCC-2)	<p>The assessment concluded that the Proposal (and cumulative scenario including the Proposal) would result in only marginal traffic impacts to the surrounding road network, with the implementation of the proposed mitigation and management measures.</p> <p>As per the comments above in relation to LCC-122, LCC-123, LCC-131 and LCC-135, any proposed road upgrades should be included as a condition of consent and incorporated into a voluntary planning agreement (VPA), to be executed by the relevant parties prior to the commencement of the relevant stages of operations of proposed facilities. This will ensure that road infrastructure upgrades are staged and undertaken progressively in accordance with the project development, thus reducing the risk of congestion and safety issues that can have a detrimental impact on human health.</p> <p>Similarly the installation of any visual amenity mitigation measures such as vegetation plantings should also be included as consent conditions and within the VPA, which specify that mature plant specimens be used and established during the early construction phases to ensure effective establishment of visual screening and street scape enhancements to minimise impacts to the surrounding community.</p>	<p><u>Road upgrades</u></p> <p>The ‘assumed network upgrades’ are triggered due to the growth of existing/ background traffic, and are required due to intersections performing at worse than LoS D in the “without development” scenario, indicating that the existing network is inadequate to cater for the demands of existing traffic prior to the addition of the development’s traffic impacts. The assumed network upgrades, to account for background traffic growth should be performed by the entity responsible for the operation and maintenance of each respective intersection.</p> <p>Under the Concept Approval (MP 10_1093), Schedule 3, Condition 2 requires that a commitment to pay developer contributions is to be included within future development applications. This commitment has been addressed within the MPE Stage 2 EIS (Section 20.3 and Appendix A). SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument. Further the inclusion of a condition of consent in the MPE Stage 2 approval instrument is not necessary in that this has already been included for the MPE Concept Approval</p> <p>Section 7.4.2 of the MPE Stage 2 EIS noted that with the implementation of assumed network upgrades, intersection performance at all key intersections near the Proposal modelled as part of this assessment in 2029 during the PM peak would operate at an acceptable LoS, with the exception of the M5 Motorway / Heathcote Road intersection, which would continue to operate at a LoS F, although the average delay would be reduced. Although this intersection would operate at a LoS F, its performance is no worse than the performance expected in 2029 without the operation of the Proposal in the AM Peak, and is, therefore, considered acceptable in the context of impacts as a result of the MPE Stage 2 Proposal. No nearby intersections would require upgrading to cater for traffic as a result of the MPE Stage 2 Proposal.</p> <p>As part of the Proposal It is acknowledged that discussions between the Proponent, Transport for NSW and Roads and Maritime, relating to traffic modelling of the combined traffic impacts of the MPE and MPW Projects and an agreed mitigation framework relating to broader road network impacts are ongoing. Notwithstanding this, these are separate to the MPE Stage 2 approval process and therefore not relevant to assessment of the MPE Stage 2 Proposal (SSD 7628).</p> <p><u>Visual amenity mitigation measures</u></p>	<p>Sections 7.4.2, 20.3 and Appendix A of the MPE Stage 2 EIS</p> <p>Table 4-8 of the MPE Stage 2 RtS</p>

Aspect	Issue	Response	Reference
		<p>As detailed in Table 4-8 of the MPE Stage 2 RtS,</p> <p>It is acknowledged that the maturation of vegetation takes time. In consideration of this, and as detailed in the revised landscape design statement at Appendix B of the MPE Stage 2 RtS, where possible, plantings have used fast-growing species. This would provide landscaping representative of that which is shown in the visual impact assessment in Appendix R of the EIS, and the VIA memo at Appendix F of the MPE Stage 2 RtS.</p> <p>The use of mature plantings is not common practice, and is not proposed as part of the Proposal. The implementation of a VPA for landscaping which is not publicly accessible and not used for or applied directly towards a public purpose is also not common practice. The above response is considered to be appropriate to mitigate the potential impacts of the Proposal.</p>	
Human Health (RtS ID LCC-3, LCC-4)	<p>Concerns still exist about the community's exposure to unacceptable noise levels, especially those above World Health Organisation community noise guideline criteria. Although the MPE Stage 2 proposal does not specifically seek approval for the construction or operation of rail infrastructure on the site the rail movements along the SSFL are influenced by the proposed MPE Stage 2 proposal and therefore any forecast impacts arising from the development will need to be identified and mitigated during either the construction and/or operational phases.</p> <p>Therefore it is recommended that the conditions of consent require that the Construction Noise and Vibration Management Plan (CNVMP) include a requirement to monitor noise at sensitive receivers throughout construction to ensure the efficacy of proposed control and mitigation measures.</p> <p>Additionally, a consent condition should require noise and vibration monitoring of project impacts to sensitive receptors surrounding the site and along the SSFL during the operational phase of the project to validate and verify any predictions in the EIS studies.</p>	<p>The Proposal seeks approval for the construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 1.5 kilometres of Moorebank Avenue. The Proposal does not include rail movements, nor does it seek to increase the 250,000 TEU threshold of freight throughput approved under MPE Stage 1, and therefore noise and vibration impacts associated with the SSFL are not relevant to the environmental assessment of the Proposal.</p> <p>The Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017, included the following as Mitigation Measure 2A:</p> <p><i>A Construction Noise and Vibration Management Plan (CNVMP), or equivalent, would be prepared for the Amended Proposal in accordance with the Interim Construction Noise Guideline (DECC, 2009) (or equivalent), and will include the following:</i></p> <ul style="list-style-type: none"> • <i>Noise and vibration monitoring procedures</i> <p>The scale and extent of noise and vibration monitoring would be included in the CNVMP, which would be subject to review and determination by NSW DP&E prior to the commencement of construction.</p> <p>As such, the replication of this mitigation measures as a condition of consent is not considered necessary or warranted.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter

Aspect	Issue	Response	Reference
Human Health (RtS ID LCC-5, LCC-6)	<p>It is acknowledged that an error in wording has been noted in the Noise and Vibration Impact Assessment. Although mitigation is deemed to not be required at Wattle Grove North, Casula and Glenfield as impacts are not predicted during Out of Hours (OOH) periods, as per above it is recommended that if the project is approved, then any conditions of consent shall include a requirement to monitor noise at sensitive receivers throughout both the construction and operational stages to ensure the accuracy of predicted impacts and to confirm that no further mitigation measures are required.</p> <p>This will ensure that real time monitoring data is available to inform the community and Council of any potential impacts (if any) to their health and wellbeing.</p>	<p>Noted as discussed in Table 4-8 of the MPE Stage 2 RtS, there is an error in the wording in the Noise and Vibration Impact Assessment, included as Appendix L and Section 8 of the EIS. It should have stated that:</p> <p>‘Construction noise levels in Wattle Grove North, Casula and Glenfield are not predicted to exceed applicable NML at sensitive receivers during out of hour’s periods 2, 3 or 4. Predicted construction noise levels during out of hours periods 2, 3 & 4 are predicted to exceed the NML in Wattle Grove by up to 1 dBA’.</p> <p>As detailed in Section 8.4.1 of the EIS, this exceedance is considered imperceptible, and does not warrant mitigation given the conservative nature of the assessment assuming that all plant would be operating simultaneously.</p> <p>The Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017, included the following as Mitigation Measure 2A:</p> <p><i>A Construction Noise and Vibration Management Plan (CNVMP), or equivalent, would be prepared for the Amended Proposal in accordance with the Interim Construction Noise Guideline (DECC, 2009) (or equivalent), and will include the following:</i></p> <ul style="list-style-type: none"> • <i>Noise and vibration monitoring procedures</i> <p>The scale and extent of noise and vibration monitoring would be included in the CNVMP, which would be subject to review and determination by NSW DP&E prior to the commencement of construction.</p> <p>As detailed in Table 4-8 of the MPE Stage 2 RtS, an Operational Noise Management Plan (ONMP) would be prepared which includes a framework for regular monitoring of operational noise. Monitoring would begin at the commencement of the operation of the Proposal and would be conducted on an annual basis for up to 2 years (after commencement of operations of the Proposal). The ONMP for the Proposal would not include monitoring associated with the SSFL, as rail noise is outside of the scope of this Proposal.</p> <p>Similarly, to construction noise monitoring, the scale and extent of operational noise monitoring would be included in the ONMP, which would be subject to review and determination by DP&E prior to the commencement of operation of the Proposal.</p> <p>As such, the replication of these mitigation measures as a condition of consent is not considered necessary or warranted.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	<p>Section 8.4.1 of the EIS</p> <p>Table 4-8 of the MPE Stage 2 RtS</p>

Aspect	Issue	Response	Reference
Human Health (RtS ID LCC-7, LCC-8, LCC-11, LCC12, LCC-14, LCC-15, LCC-16, LCC-17, LCC-18)	<p>The revised noise and air quality impact assessments (including other human health related environmental aspects. such as flooding, visual amenity, land contamination) were deemed to not change. Consequently, any human health risks associated with these aspects would only be identified through physical monitoring activities, at which point the opportunity for design efficiencies is lost.</p> <p>Precinct-wide monitoring of air quality and noise and vibration is expected to be undertaken during construction and operation of the MPE and MPW Project's to facilitate adherence with the relevant Conditions of Approval, Environment Protection Licences and encourage environmental best practice, where reasonable and feasible.</p> <p>It is therefore recommended that should the proposal be approved any conditions of consent include a requirement to monitor noise and air quality at sensitive receivers, as well as project aspects that may impact on human health, throughout both the construction and operational stages to ensure the accuracy of predicted impacts and efficacy of the proposed control and mitigation measures.</p> <p>The outcomes of this monitoring would be documented in regular reporting, as specified by the projects Conditions of Approval.</p>	<p>Refer to issues Human Health (RtS ID LCC-3, LCC-4) and Human Health (RtS ID LCC-5, LCC-6) for responses relating to construction and operational noise monitoring.</p> <p><u>Air Quality</u></p> <p>The Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017, included the following as Mitigation Measure 3A:</p> <p><i>The Air Quality Management Plan (Ramboll, 2016), included within Appendix M of the EIS, would be further progressed and incorporated into the CEMP for the Amended Proposal. Specifically, the following key aspects would be addressed in the CEMP.</i></p> <p><i>Construction dust monitoring:</i></p> <ul style="list-style-type: none"> • <i>Visual checks would be made daily and reported on an environmental inspection report. The visual checks would:</i> <ul style="list-style-type: none"> – <i>Inspect and report on excessive dust being generated at source (wheel generated dust, scrapers/graders, dozers, excavators, wind erosion).</i> – <i>Inspect and report on water cart activity and effectiveness.</i> – <i>Inspect and report on dust leaving the site.</i> – <i>Non-conformance (dust leaving the site) would be reported immediately to the CM or management.</i> <p>The scale and extent of air quality monitoring would be included in the construction AQMP, which would be subject to review and determination by DP&E prior to the commencement of operation of the Proposal.</p> <p>For the operational phase of the Proposal the maximum increase in PM₁₀ and PM_{2.5} is minor when compared to existing background conditions. When background is added, there are no additional exceedances of the short term impact assessment criteria. The annual average background concentrations of PM_{2.5} already exceed the NEPM reporting standard, therefore cumulative predictions are also above the standard at all receptors.</p> <p>Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017, included the following as Mitigation Measure 3B:</p>	Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter

Aspect	Issue	Response	Reference
		<p><i>The Air Quality Management Plan (Ramboll, 2016), included within Appendix M of the EIS would be further progressed and integrated into the OEMP for the Amended Proposal. In accordance with the Air Quality Management Plan the following key aspects would be addressed in the OEMP:</i></p> <ul style="list-style-type: none"> • <i>Implementation and communication of anti-idling policy for trucks</i> • <i>Complaints line for the community to report on excessive idling and smoky vehicles</i> • <i>Procedures to reject excessively smoky trucks visiting the site based on visual inspection.</i> <p>Given the imperceptible impact the Proposal is expected to have on sensitive receivers with regards to air quality, operational air quality monitoring for the Proposal is not proposed, or considered necessary. Further, the MPW Stage 2 Proposal is subject to a separate approval and, therefore, a requirement for 'Precinct-wide monitoring of air quality and noise and vibration' cannot be imposed through the MPE Stage 2 Proposal.</p> <p><u>Human Health</u></p> <p>With regard to air quality, the results from the assessment found that increases in health risk due to air emissions caused by the Proposal are low and in many cases negligible, and are in accordance with relevant guidelines. The excess lifetime cancer risks were below or within the acceptable risk range. Therefore, there are no significant adverse health effects expected in relation to acute and chronic exposure to key air pollutants associated with the operation of the Proposal in the surrounding communities.</p> <p>With regard to noise, the assessment found that WHO community noise guidelines would be met at all receivers. Further, as existing noise levels are higher than those predicted for the operation of the Proposal, a difference between Proposal related operational noise and the existing ambient noise level would not be detectable.</p> <p>The EIS noted that mitigation measures prescribed within Section 8 (for Noise) and 9 (for Air Quality) of the EIS, respectively, are to be implemented to further reduce the air and noise impacts generated as a result of the operation of the Proposal. These mitigation measures have since been replaced with the Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017.</p>	

Aspect	Issue	Response	Reference
		<p>As detailed above, and in response to this issue and Human Health (RtS ID LCC-5, LCC-6), the replication of the abovementioned mitigation measures as a condition of consent is not considered necessary or warranted.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	
Human Health (RtS ID LCC-9, LCC-13, LCC-19)	<p>It is acknowledged that measures to manage project wide environmental impacts from the operation of the Proposal would be included in an Operational Environmental Management Plan (OEMP) to be developed and implemented for the Proposal. The process of ensuring future tenant compliance with any project wide environmental management requirements will need to be enforced by preparation and submission of OEMP audit reports, including any required monitoring results, to relevant DP&E for review.</p> <p>Should the project be approved then a condition of consent should be included to ensure tenant lease agreements include commitments by the proponent to have tenants involved in broad scale environmental management plans and monitoring requirements.</p>	<p>As detailed in Table 4-8 of the MPE Stage 2 RtS, as part of tenant lease agreements, adherence to the OEMP would be required, including management of environmental impacts.</p> <p>The warehousing forms one component of the MPE Stage 2 Proposal, and their operation would need to comply with the Conditions Of Approval in the same way as every other part of the development.</p> <p>The inclusion of this proposed condition of consent is not considered necessary or warranted.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Table 4-8 of the RtS
Human Health (RtS ID LCC-10, LCC-21)	<p>Should the project be approved then a condition of consent should be included that outlines all required standards and inspection requirements for the proposed operation of food premises within the freight village. This should state the facilities will be constructed and operated to meet legislative requirements and Australian Standards (as relevant), including:</p> <ul style="list-style-type: none"> AS 4674-2004: Design, construction and fit out of food premises AS 4322-1995: Quality and performance of commercial electrical appliances - Hot food storage and display equipment AS ISO 22000—2005: Food safety management systems—Requirements for any organisation in the food chain. 	<p>As detailed in Section 4 of the EIS and Table 4-8 of the MPE Stage 2 RtS, any food premises located within the freight village would be constructed and operated to meet legislative requirements and Australian Standards (as relevant), including:</p> <ul style="list-style-type: none"> <i>Australian Standard AS 4674-2004: Design, construction and fit out of food premises</i> <i>Australian Standard AS 4322-1995: Quality and performance of commercial electrical appliances - Hot food storage and display equipment</i> <i>Australian Standard AS ISO 22000—2005: Food safety management systems—Requirements for any organisation in the food chain.</i> <p>In addition, operations for food premises within the freight village would comply with the Australia New Zealand Food Standards Code.</p> <p>As such, SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 (SSD 7628) approval instrument.</p>	<p>Section 4 of the EIS and Table 4-8 of the MPE Stage 2 RtS</p> <p>Attachment D of the Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank</p>

Aspect	Issue	Response	Reference
	In addition, operations for food premises within the freight village would need to comply with the Australia New Zealand Food Standards Code.		<i>Precinct East Stage 2 (SSD 7628)</i> letter
Human Health (RtS ID LCC-20)	<p>It is acknowledged that NSW Health were provided with an opportunity to review the EIS during the public display period.</p> <p>Considering the broad scale impact potential of this project it is recommended that continued liaison with NSW Health occur, especially to disseminate any monitoring results from the project's construction and/or operational phases so that the community can be made aware of any emerging issues which may be identified.</p>	<p>As part of the consultation process throughout the development of the Proposal, NSW Health have been provided many opportunities for comment, including during the display period. At the request of NSW Health, we have responded to the issues raised previously by NSW Health provided in the MPW Concept application as their submission. NSW Health requested that the matters raised in their original submission be taken into account for each stage of development for the entire Moorebank Intermodal Precinct, which we continue to consider as part of each application for the MPE and MPW Projects.</p> <p>Consultation with NSW Health would be undertaken as necessary throughout construction and operation of the Proposal.</p>	N/A
Property and Infrastructure			
Property and infrastructure (RtS ID LCC-83)	<p>Notwithstanding the strong and consistent support at State and Commonwealth Government levels for the development of an IMT in Moorebank, no serious attempt has been made throughout the approval process in evaluating other alternative locations, nor has any consideration been given to alternate development opportunities of the site, other than to “do nothing”.</p> <p>In light of the recent approval of the Western Sydney Airport (WSA) and the associated infrastructure that will be constructed to facilitate its development, due consideration should be given to alternate locations for this IMT in close proximity to the WSA, particularly given the environmental impacts associated with developing this proposed IMT at Moorebank.</p> <p>Furthermore, options for alternate development of the Moorebank site should also be considered, that may yield greater employment benefits for the Liverpool area, reduced environmental impacts, and be more consistent with strategic development goals for the region.</p>	<p>As detailed in Section 3.5 of the MPE Stage 2 RtS, the MPE Stage 2 EIS does not include consideration of the project location and site suitability, which has already been determined in the MPE Concept Approval.</p> <p>The Our Greater Sydney 2056 Draft Western City District Plan –Connecting Communities (p. 63, Greater Sydney Commission 2017) identifies the strategic requirement for co-existing intermodals at Moorebank and in Western Sydney, with the latter to be investigated by 2036. The Collaboration Area considerations for Liverpool encompass the CBD, health and education precincts and the Moorebank Intermodal Terminal (p.74). Specifically, the Plan states:</p> <p>“The District must also connect port and airport activities, linking the Western Sydney Airport, the Moorebank Intermodal Terminal and a potentially expanded container port at Port Kembla via the Outer Sydney Orbital.” (p. 86).</p> <p>As such, this issue is considered to be outside of the scope of the Proposal and further assessment is not considered warranted or necessary.</p>	Section 3.5 of the MPE Stage 2 RtS

Aspect	Issue	Response	Reference
Property and infrastructure (RtS ID LCC-84, LCC-85, LCC-87, LCC-88, LCC-89, LCC-90, LCC-212, LCC-213, LCC-214)	<p>It is requested that subsequent to the finalisation of the Precinct Model, an independent review be undertaken to verify the required infrastructure upgrades within the study area to facilitate the MPE and MPW developments, as compared to those required to address existing infrastructure condition and utilisation, and forecast background growth. This will ensure a fair and impartial assessment of the impacts of the proposed development on the existing infrastructure, and the necessary upgrades required directly as a result of the proposed development.</p> <p>It is also requested that the associated developer contributions or “works in kind” for the independently verified upgrades, and the timing of such upgrades, be determined and agreed with relevant parties including Council and RMS prior to the commencement of construction of the proposed development.</p>	<p>Refer to Traffic (RtS ID LCC-124) response for a response relating to an independent review to verify required infrastructure upgrades.</p> <p>Under the Concept Approval (MP 10_1093), Schedule 3, Condition 2 requires that a commitment to pay developer contributions is to be included within future development applications. This commitment has been addressed within the MPE Stage 2 EIS (Section 20.3 and Appendix A).</p> <p>No additional independent review of traffic data for the Proposal, or subsequent review of developer contributions is therefore considered to be required. Further the inclusion of a condition of consent in the MPE Stage 2 approval instrument is not necessary in that this has already been included for the MPE Concept Approval.</p>	Traffic (RtS ID LCC-124)
Amendments to the Proposal			
7.1.2 Amended Proposal Assessment Methodology, Operation, Amendments to the Proposal	There appears to be a typo in the statement “As identified in Table 6-4 of this RtS, amendments to the Proposal would result in changes to operational traffic movements”. Please confirm if it should read “As identified in Table 6-4 of this RtS, amendments to the Proposal would not result in changes to operational traffic movements	<p>It is confirmed that the sentence in Section 7.1.2 of the MPE Stage 2 RtS should state:</p> <p><i>As identified in Table 6-4 of this RtS, amendments to the Proposal would not result in changes to operational traffic movements.</i></p>	Section 7.1.2 of the RtS
Table 7.3, Item I-2	<p>The updated cumulative development results highlight the significant negative impact on LoS at the M5 Motorway / Existing Moorebank Avenue interchange if the assumed network upgrades are not implemented.</p> <p>As such the specified upgrades should be included as a condition of consent, to be executed by the relevant parties prior to the commencement of the relevant stages of operations of the proposed facilities.</p>	Refer to response Traffic (RtS ID LCC-122, LCC-123, LCC-131, LCC-135) for more information regarding road upgrades.	Traffic (RtS ID LCC-122, LCC-123, LCC-131, LCC-135)

Aspect	Issue	Response	Reference
Table 7.5, Distance to Proposal, Amended Construction Area / Wattle Grove	It is noted that the distance to the most sensitive receiver at Wattle Grove has been reduced by a further 15 m. Noting the modelled exceedance of the allowable $LA_{eq,15min}$ construction noise levels for the most affected receivers in Wattle Grove, it is requested that the Construction Noise and Vibration Management Plan (CNVMP) include a requirement to monitor noise at these sensitive receivers throughout construction to ensure the efficacy of proposed control and mitigation measures.	<p>The MPE Stage 2 Amended Proposal includes a reduction of 15 m from Wattle Grove as a result of the amended construction area to accommodate a spillway. A detailed noise impact assessment has been undertaken for this change in Section 7 of the MPE Stage 2 RtS.</p> <p>Refer to issue Noise (RtS ID LCC-4, LCC-12) for response to this issue.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	<p>Section 7 of the MPE Stage 2 RtS</p> <p>Noise (RtS ID LCC-4, LCC-12)</p>
Biodiversity	<p>Responses provided to issues previously raised on the project in regards to biodiversity appear to be adequate, however, the biological assessment of the proposed amended construction area is lacking in on the consideration of the impact of the additional development areas. The proposed amendments to the proposal, based on the maps provided in the RtS document, include the expansion of the area along Moorebank Avenue to the south. The development footprint is also expanding to the east and west of Moorebank Avenue into vegetated areas which are described in the project Biodiversity Assessment Report (BAR) as coastal freshwater lagoons of the Sydney Basin Bioregion and South East Corner Bioregion. This Plant Community Type (PCT) is an endangered ecological community under the <i>Threatened Species Act 1995</i> (recently repealed and replaced by the Biodiversity Conservation Act 2016).</p> <p>The RtS document describes the impact of the expanded construction area into the above PCT as:</p> <ul style="list-style-type: none"> • mostly occurring in areas that support planted and disturbed vegetation and no PCTs, TECs or potential for threatened flora or fauna species; and 	<p>The BAR submitted with the EIS (Appendix O) provided an assessment of the impacts of the MPE Stage 2 Proposal. However, as it was envisaged that the MPW Stage 2 Proposal would be determined either concurrently or prior to the MPE Stage 2 Proposal the BAR submitted with the EIS did not address vegetation clearance on the Moorebank Avenue site. It was assumed in the BAR (EIS) that this clearing would be undertaken as part of the MPW Stage 2 Proposal and therefore, to avoid confusion and provide overlapping or replication of impact assessments this area was assessed as having been cleared for the purposes of the assessment.</p> <p>Notwithstanding this, the BAR has been updated (and recently reissued to DP&E) to consider the Proposal Amendments included in the MPE Stage 2 RtS, and also to include the clearance of vegetation for the Moorebank Avenue site. This further assessment of impact has been undertaken as there is the potential for the MPW Stage 2 Proposal to be determined subsequent to the MPE Stage 2 Proposal. The BAR (MPE Stage 2 RtS) now suitably addresses all biodiversity impacts associated with the clearance of the Moorebank Avenue site and, therefore, these works could be undertaken, subject to approval, under the MPE Stage 2 Proposal.</p> <p>Further, as identified in the BAR (MPE Stage 2 RtS), the Amended Proposal (included within the MPE Stage 2 RtS) results in there being no direct (or indirect) impacts on the Coastal freshwater lagoons of the Sydney Basin Bioregion and South East Corner Bioregion (refer to Section 8 of the BAR).</p>	<p>MPE Stage 2 BAR (November 2017).</p>

Aspect	Issue	Response	Reference
	<ul style="list-style-type: none"> resulting in a reduction of 0.01 ha of clearing of Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East bioregions. <p>No additional biodiversity specialist report has been undertaken to assess the impacts of the proposed amendment.</p> <p>These conclusions provided do not correlate with the mapping provided within the reports suggesting that the proposed amendments to the project have not considered the ecological impacts of the proposed amendments. A lack of reporting also indicates that any required amendments to the BAR have not considered.</p>		
Biodiversity recommendations	<p>Recommendations</p> <p>Based on this review it is recommended that prior to approval:</p> <ul style="list-style-type: none"> A specialist biodiversity assessment be undertaken of the additional areas of vegetation which are proposed to be removed as part of the additional construction areas The Biodiversity Assessment Report be amended to reflect the proposed additional impacts Necessary changes are made to the Biodiversity Offset Strategy to ensure suitable mitigation is undertaken. 	<p>Refer to Biodiversity response above for more information relating to additional assessment and the preparation of the updated BAR.</p> <p>Section 10 of the BAR provides revised offsetting requirements for the Proposal, in light of the revised impacts identified.</p>	MPE Stage 2 BAR (November 2017).
Recommendations	<p>In addition to these significant shortcomings in the environmental assessment undertaken for the MPE Stage 2 proposal, there are a number of additional mitigation measures that should be required of the proposal as conditions of consent. These requirements will provide additional certainty that the impacts from the proposal will at least be continued to be monitored to ensure no undue impacts of the surrounding community and</p>	<p>The assessment provided in the MPE Stage 2 RtS identifies that the Amended Proposal would, subject to the implementation of updated mitigation measures (refer to Section 8 of the MPE Stage 2 RtS), result in environmental impacts consistent with those identified within the EIS.</p>	<p>Sections 7-20 of the MPE Stage 2 EIS</p> <p>Section 8 of the MPE Stage 2 RtS</p>

Aspect	Issue	Response	Reference
	environment around the site. Of particular note are the measures detailed below;		
Recommendations	Preparation of a Voluntary Planning Agreement (VPA) that details the requirements and timings for upgrades to the road network surrounding that site that will be impacted by extra traffic generation and the affect that increased heavy vehicles would have on the safety and maintenance of the surrounding area.	<p><u>Requirements and timings for upgrades to the road network surrounding that site</u></p> <p>Refer to Traffic (RtS ID LCC-122, LCC-123, LCC-131, LCC-135) for response.</p> <p><u>affect that increased heavy vehicles would have on the safety and maintenance</u></p> <p>Refer to Legislation (RtS ID LCC-226, LCC-229) for response.</p> <p>The 'assumed network upgrades' are triggered due to the growth of existing/ background traffic, and are required due to intersections performing at worse than LoS D in the "without development" scenario, indicating that the existing network is inadequate to cater for the demands of existing traffic prior to the addition of the development's traffic impacts. The assumed network upgrades, to account for background traffic growth should be performed by the entity responsible for the operation and maintenance of each respective intersection.</p> <p>SIMTA are currently in the process of finalising an agreement with Roads and Maritime, which includes the Moorebank Avenue upgrade proposed within the MPE Stage 2 Proposal. The upgrade of Moorebank Avenue (as described in the consolidated proposal description in Appendix I of the MPE Stage 2 RtS) would be undertaken as part of the Proposal as committed to in mitigation measure 1C of the MPE Stage 2 Final Compilation of Mitigation Measures, issued to DP&E as Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter on 11 September 2017 .</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	<p>Traffic (RtS ID LCC-122, LCC-123, LCC-131, LCC-135)</p> <p>Legislation (RtS ID LCC-226, LCC-229)</p> <p>Table 4-8 of the RtS</p> <p>Attachment D of the <i>Response to submissions and outstanding information – Moorebank Precinct East Concept Plan MOD 2 (MP 10_0193 MOD 2) / Moorebank Precinct East Stage 2 (SSD 7628)</i> letter</p>
Recommendations	The VPA should include requirements for vegetation plantings, detailing timing and requirements for screening plantings around the site.	<p>Refer to Human Health (RtS ID LCC-2) response.</p> <p>Appendix B of the RtS included a revised landscape design plan for the Proposal. A VPA is not the appropriate mechanism to effect and achieve already proposed mitigation outcomes, particularly where the requisite public purpose of a VPA is not the proposed subject of the intended VPA.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	<p>Appendix B of the RtS</p> <p>Human Health (RtS ID LCC-2)</p> <p>s 93F EP&A Act 1979</p>

Aspect	Issue	Response	Reference
Recommendations	The requirement for noise and vibration monitoring of project impacts to sensitive receptors surrounding the site and along the SSFL during the operational phase of the project to validate and verify any predictions in the EIS studies.	<p>The Proposal seeks approval for the construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 1.5 kilometres of Moorebank Avenue.</p> <p>The Proposal does not include rail movements, or increases to the approved 250,000 TEU throughput threshold and therefore noise and vibration impacts associated with the SSFL are not relevant to the environmental assessment of the Proposal.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	N/A
Recommendations	The requirement to monitor noise at sensitive receivers throughout both the construction and operational stages to ensure the accuracy of predicted impacts and to confirm that no further mitigation measures are required.	<p>Refer to responses to issues Human Health (RtS ID LCC-5, LCC-6) and Noise (RtS ID LCC-4, LCC-12).</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Human Health (RtS ID LCC-5, LCC-6) and Noise (RtS ID LCC-4, LCC-12).
Recommendations	The requirement to monitor noise and air quality at sensitive receivers, as well as project aspects that may impact on human health, throughout both the construction and operational stages to ensure the accuracy of predicted impacts and efficacy of the proposed control and mitigation measures.	<p>Refer to Human Health (RtS ID LCC-7, LCC-8, LCC-11, LCC12, LCC-14, LCC-15, LCC-16, LCC-17, LCC-18) response.</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Human Health (RtS ID LCC-7, LCC-8, LCC-11, LCC12, LCC-14, LCC-15, LCC-16, LCC-17, LCC-18)
Recommendations	The requirement to ensure tenant lease agreements include commitments by the proponent to have tenants involved in broad scale environmental management plans and monitoring requirements.	<p>Refer to Human Health (RtS ID LCC-9, LCC-13, LCC-19) response</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Human Health (RtS ID LCC-9, LCC-13, LCC-19)
Recommendations	The inclusion of a condition of consent that outlines all required standards and inspection requirements for the proposed operation of food premises within the freight village. This should state the facilities will be constructed and operated to meet legislative requirements and Australian Standards (as relevant), including:	<p>Refer to Human Health (RtS ID LCC-10, LCC-21) response</p> <p>SIMTA has no objection to the inclusion of this recommended condition of approval within the MPE Stage 2 (SSD 7628) approval instrument, subject to the proposed amendment below (in bold strikethrough text), on the basis that meeting legislative requirements is already a compulsory requirement:</p> <p>Facilities will be constructed and operated to meet legislative requirements and Australian Standards (as relevant), including:</p>	Human Health (RtS ID LCC-10, LCC-21)

Aspect	Issue	Response	Reference
	<ul style="list-style-type: none"> AS 4674-2004: Design, construction and fit out of food premises AS 4322-1995: Quality and performance of commercial electrical appliances - Hot food storage and display equipment AS ISO 22000—2005: Food safety management systems—Requirements for any organisation in the food chain. 	<ul style="list-style-type: none"> AS 4674-2004: Design, construction and fit out of food premises AS 4322-1995: Quality and performance of commercial electrical appliances - Hot food storage and display equipment AS ISO 22000—2005: Food safety management systems—Requirements for any organisation in the food chain. 	
Recommendations	The requirement for an independent review be undertaken to verify the required infrastructure upgrades within the study area to facilitate the MPE and MPW developments, as compared to those required to address existing infrastructure condition and utilisation, and forecast background growth	<p>Refer to Traffic (RtS ID LCC-124) response</p> <p>SIMTA, therefore, does not agree with the inclusion of this recommended condition of consent within the MPE Stage 2 Approval (SSD 7628) instrument.</p>	Traffic (RtS ID LCC-124)

Attachment O

SSD2 Application

Introduction & Notes

This application form is required to apply for the consent of the Minister to carry out State Significant Development under Part 4 of the *Environmental Planning & Assessment Act 1979*.

You should not lodge this form unless you have previously submitted a request for Director General's Requirements and been provided with Director General's Requirements.

This form must contain all relevant information required under Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*, otherwise it may be rejected.

If your application is rejected, you will be advised within 14 days of lodgement. If the application and EIS are accepted, you will be contacted regarding the exhibition arrangements. You may also be asked to submit further information on the application or EIS prior to exhibition.

Persons lodging applications are required to declare reportable political donations (including donations of \$1,000 or more) made in the previous two years. For more details, go to www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Systems/Donations-and-Gift-Disclosure.

Applicant Details

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First name:	Michael
Surname:	Yiend
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Company:	SIMTA, as Qube Holdings Limited
ABN:	141 497 230 53
Physical Address:	Level 27, 45 Clarence Street, Sydney, NSW 2000
Postal Address:	Level 27, 45 Clarence Street, Sydney, NSW 2000

Site details

Site Title:	Moorebank Precinct East
Site Location:	Moorebank Avenue, Moorebank 2170
Site Government Area:	Liverpool LGA
Lot/DP:	<p>The proposal site includes:</p> <ul style="list-style-type: none">• Lot 1, DP 1048263• The MPW site - Lot 1, DP 1197707, for stormwater infrastructure• Moorebank Avenue, owned by the Commonwealth Government, south of Anzac Road - Lot 2, DP 1197707 (formerly Lot 3001, 1125930)• A portion of the Boot Land - Lot 4, DP 1197707, for connection to stormwater infrastructure
Is new land involved?	No (note that additional land is to be impacted above that identified in MPE Concept Plan Approval (MP 10_0193) which is addressed through the MPE Concept Plan Approval Mod 2 (submitted separately to this SSD Application).
Changes:	Refer to above

Staged Development

Staged DA:	Yes
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Project Details

State & Regional Development SEPP - Schedule 1 - State Significant Development

- Clause 12: Warehouses or distribution centres

State & Regional Development SEPP - Schedule 2 - State Significant Development

- N/A

Ministerial Call In

- The development was not called in by the Minister for Planning & Environment

Online information provided by the applicant

Title	Moorebank Precinct East – Stage 2 Proposal (SSD 7628)
State Significance	Clause 12: Warehouses or distribution centres
Description	<p>The Proposal represents the Stage 2 of the MPE Project, which received Concept Plan Approval (MP10_0193) on 29 September 2014.</p> <p>The key components of the Proposal comprise:</p> <ul style="list-style-type: none"> • Warehousing comprising approximately 300,000m² GFA and additional ancillary offices • A freight village, comprising 8,000m² GFA of retail, commercial and light industrial land uses • Establishment of an internal road network, and connection of the Proposal to the surrounding public road network • Ancillary supporting infrastructure within the Proposal site, including: <ul style="list-style-type: none"> – Stormwater, drainage and flooding infrastructure – Utilities relocation and installation – Vegetation clearing, remediation, earthworks, signage and landscaping • Subdivision of the MPE Stage 2 site • The Moorebank Avenue upgrade, which comprises the following key components: <ul style="list-style-type: none"> – Modifications to the existing lane configuration, including some widening – Earthworks, including construction of embankments and tie-ins to existing Moorebank Avenue road level at the Proposal's southern and northern extents – Raking of the existing pavement and installation of new road pavement – Establishment of temporary drainage infrastructure, including temporary basins and / or swales – Adjusting the vertical alignment by about two metres from the existing levels, including kerbs, gutters and a sealed shoulder – Signalling and intersection works • Upgrading existing intersections along Moorebank Avenue, including: <ul style="list-style-type: none"> – Moorebank Avenue / MPE Stage 2 access – Moorebank Avenue / MPE Stage 1 northern access – Moorebank Avenue / MPE Stage 2 central access – MPW Northern Access / MPE Stage 2 southern emergency access. <p>The Proposal would interact with the MPE Stage 1 Proposal (SSD_6766) via the transfer of containers between the MPE Stage 1 IMT and the Proposal's warehousing and distribution facilities.</p>
Capital Investment Value	\$382,810,000 (ex. GST)

Construction "jobs"	550 construction jobs per year during construction
Operational "jobs"	1,100 construction jobs per year during operations
Landowner's Consent Provided?	Yes, refer attached.

Critical habitat and threatened species

Critical Habitat	No
Development threatens habitats	The development will result in clearing of threatened species and ecological communities and their habitat.
Biodiversity compliant	A Biodiversity Assessment Report (BAR) (Arcadis, 2017) has been prepared in accordance with the NSW Framework for Biodiversity Assessment.

Approvals

Would the development otherwise, but for section 89J of the EP&A Act, require any of the following (select all that apply)?

Bold indicates where legislation, if not SSD, would apply for the MPE Stage 2 Proposal.

- the concurrence under Part 3 of the Coastal Protection Act 1979 of the Minister administering that Part of that Act
- a permit under section 201, 205 or 219 of the Fisheries Management Act 1994
- an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977
- an Aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974
- an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act repealed by that Act) to clear native vegetation or State protected land
- a bush fire safety authority under section 100B of the Rural Fires Act 1997
- **a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000**

Do you require any of the following approvals in order to carry out the development (select all that apply)?

- an aquaculture permit under section 144 of the Fisheries Management Act 1994
- an approval under section 15 of the Mine Subsidence Compensation Act 1961
- a mining lease under the Mining Act 1992
- a petroleum production lease under the Petroleum (Onshore) Act 1991
- **an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997 (for any of the purposes referred to in section 43 of that Act)**
- a consent under section 138 of the Roads Act 1993
- a licence under the Pipelines Act 1967
- an aquifer interference approval under section 91 of the Water Management Act 2000

Online information provided by the applicant

- Refer to: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7628

Consultation and concurrence

Would the development, but for Section 79B (2A) of the EP&A Act have required a concurrence under Section 79B of the Act, including a concurrence under the Threatened Species Conservation Act 1995?

Online information provided by the applicant

- No

Supporting Documents

Submitted files:

- MPE Stage 2 EIS (Arcadis, 2016)
- MPE Stage 2 RtS (Arcadis, 2017)
- Refer to: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7628

Political Donation

Persons lodging applications are required to declare reportable political donations (including donations of \$1,000 or more) made in the previous two years. For more details, go to www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Systems/Donations-and-Gift-Disclosure.

Do you need to make a political donations disclosure statement?

Online information provided by the applicant

- No

Submitter details

Name	Steve Ryan
Capacity	Managing Director – Tactical Group
Submitted	2406/11/17 – Originally submitted 02/12/2016

Attachment P



Department of Defence
Former DNSDC, Moorebank, NSW
Environmental Management Plan

September 2016

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Appendices

Appendix A - Environmental Management Plans



1. Introduction

1.1 Introduction

GHD Pty Ltd (GHD) was engaged by Department of Defence (Defence) to prepare an Environmental Management Plan (EMP) for the former Defence National Storage and Distribution Centre (DNSDC) at Moorebank Avenue, Moorebank NSW (the site). **Figure 1** provides details of the site location.

The site forms most of Lot 1 in DP 1048263 but excludes the licenced area also known as the former DNSDC Refuelling Area. **Figure 2** provides a site plan and details of the site boundary.

1.2 Background

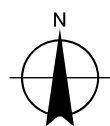
The former DNSDC has been subject to a number of stages of investigation and remediation works. Although investigation and remediation work had reportedly been completed as early as the 1990s, GHD has only been provided with documentation of work dating back to 2000. GHD completed a review of available pertinent documentation relating to the site. The aim of the information review was to identify what, if any, remaining areas of potential concern were present within the site, in order to close out or manage contamination issues and meet Defence's obligations under the conditions of sale and lease agreement. Details of these document reviews are provided in GHD (2015) Intrusive Site Investigation Report – Moorebank DNSDC, GHD, September, 2015 (GHD, 2015), which provided the basis for GHD's intrusive investigation which investigated and assessed the presence or absence of contamination in various areas of the site.

Following completion of the most recent intrusive investigation in 2015, GHD concluded that soil and groundwater analytical data were generally consistent with that reported by others during previous investigations. Detections of some contaminants of potential concern (CoPC), including total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), volatile organic compounds (VOC's) and aqueous film forming foam (AFFF) compounds were identified in soils and groundwater at some locations; however, the concentrations were typically low and below the nominated investigation levels with the following exceptions:

- Elevated concentrations of lead were reported in shallow soils from a depth of approximately 0.7 to -0.8 metres in one location adjacent to the Rail Spur, corresponding with field observations of a white, waxy material. The extent of the impact appeared to be limited both vertically and horizontally and the material was not encountered at any other test pit locations across the site.
- Fragments of asbestos containing material (ACM) were noted on the ground surface and shallow soils at several locations across the site (most notably in the southern portion of the site associated the Southern Burial pits which extend off site to the south and adjacent to the Rail Spur. The potential for widespread presence of ACM on the surface across this portion of the site cannot be discounted.
- GHD considers there is a potential risk of unexploded ordnance (UXO) or explosive ordnance waste (EOW) in the southern burial pits to the southern portion of the site.



0 100 200 300
Metres



LEGEND

- Site Boundary
- Lot / DP Boundaries (Approximate)
- Roads (Approximate)

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56



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Lot Boundaries

Figure 2

The groundwater at several locations across the site contains concentrations of metals that are greater than the nominated groundwater investigation levels (GILs). GHD discounted metals as a CoPC as they are similar to natural background levels. The above-described impacts are the subject of this EMP. This EMP was subject to auditor approval to satisfy Section 4.3 of the Deed of Surrender of Lease.

1.3 Objective

This EMP has been developed to outline the procedures to control potential exposure to receptors (human health and the environment) from residual contaminated soil, ACM, and potential UXO at the site. The EMP has been prepared based on the findings of GHD's 2015 intrusive investigation (refer to **Section 1.2**).

The objectives of this EMP are to:

- Document the known contamination on site;
- Identify contaminants and waste material that may present adverse impacts to human health or the environment;
- Detail the controls to mitigate potential exposure to contamination or possible contaminants, ACM, and UXO;
- Provide a system to ensure the maintenance of the controls and prevent future exposure to contamination, ACM, and UXO; and
- Provide necessary procedures to be followed in the event latent contaminants are identified.

This EMP is not intended to replace or supersede health and safety plans or emergency procedures for the site. This EMP should be considered as a supplement to these documents, and is intended to mitigate risks associated with contaminated media, ACM, possible UXO, and should form part of any site inductions completed prior to persons entering the site. Previous investigation reports should also be reviewed such that the Site Owner is aware of the nature and extent of soil contamination at the site.

1.4 Responsibilities

The implementation of the procedures provided in this EMP will be the responsibility of the Site Owner and/or Site Occupier and Site Supervisors, as detailed in **Table 1**. The responsibilities may include informing other parties of their obligations to comply with the EMP. All individuals accessing the site are responsible for complying with the requirements under this EMP, as applicable.

Table 1 Responsibilities for EMP implementation

Position and Company/Entity	Responsibilities
Site Owner/Occupier	<ul style="list-style-type: none"> • Approve the EMP. • Advise persons occupying and working at the site of the requirements of the EMP. • Ensure appropriate consents and licences (as required) are obtained for any monitoring/survey works.

Position and Company/Entity	Responsibilities
	<ul style="list-style-type: none"> • Provide training and induction of employees and contractors before and during any monitoring/survey works, as appropriate. • Provide a copy of the EMP to the supervisor or person-in-charge of occupier/tenant employees and/or contractor/s who are undertaking any monitoring/survey works. • Ensure project/occupier/tenant staff and contractors comply with the requirements of the EMP. • Ensure project/occupier/tenant staff and contractors clearly understand the requirements of the EMP and ensure that compliance with the EMP is a condition of any agreement with these parties. • Update the EMP if the condition of the site is changed, and, if necessary, inform other parties, including tenants, of the changes. • Ensure that the site is maintained in accordance with the EMP. • Provide the EMP for inclusion on the relevant records maintained by site supervisor/owner/tenant. • Ensure all non-conformance and/or complaints are recorded in accordance with the procedures identified in Appendix A.
Supervisor or person-in-charge of works (occupier/tenant/contractors/ sub-contractors)	<ul style="list-style-type: none"> • Implement the EMP to ensure compliance. • Complete the registers, databases and records required by the EMP. • Ensure that applicable environmental measures are in-place and are functioning correctly during the works and after completion of the works, if required. • Notify Site Occupier and Site Owner if evidence of contaminated materials, such as ACM is observed during works on the site. <p>Complete non-conformance and corrective action reports as required and undertake follow-up corrective actions, as required.</p> <ul style="list-style-type: none"> • Undertake audits of activities in accordance with the requirements of the EMP. • Ensure non-conformance and/or complaints are reported to the Site Occupier and Site Owner. • Undertake corrective actions in response to requests made by the Site Occupier or Site Owner regarding specific environmental or safety issues. • Ensure all works comply with relevant regulatory requirements. • Inform Site Occupier and Site Owner if conditions are significantly different from those documented in the EMP.



1.5 Notifications

GHD understands that an EMP is required as a condition of the non-statutory Site Audit Statement (SAS) to be prepared by the NSW EPA Accredited Site Auditor. The Site Owner will comply with *Section 52(A) of the Conveyancing Act*, by disclosing all available information regarding contamination at the site.

There must be appropriate notification of the restrictions applying to the site to ensure that current and future site owners and occupiers are aware of the details of this EMP.

The Site Owner is required to maintain a membership with Dial-Before-You-Dig, such that any future occupant will be notified of the site contamination (including asbestos and UXO) in certain areas of the site prior to completing intrusive work.

1.6 Timeframes

This EMP is applied to the site for the time of issue (July 2016), and so long as it continues to be used for the designated use and layout as an industrial and commercial property (surrounded by a security fence).

The EMP has been prepared to reflect current site activities and may be amended from time to time as detailed in **Procedures 01 to 07**.

This EMP will expire and will require amendment should the site use change at any time, including increased frequency of surveys, redevelopment, changes in land use or additional site assessments.

1.7 Limitations

GHD limitations in relation to the validation programme are provided in **Section 6**.

2. Site setting

2.1 Site identification

The site is located approximately 30 km south-west of the Sydney CBD, approximately 500 metres east of the Georges River. A summary of site details is provided in **Table 2**. The site location is shown on **Figure 1**.

Table 2 Site details summary

Information	Details
Street Address	Former DNSDC site, Moorebank Ave, Moorebank NSW 2170
Lot and DP	Part of Lot 1 in DP 1048263
Site Area	Approximately 80,210 square metres
Local Government Area (LGA)	Liverpool City Council
Current Land Use Zoning	IN1 General Industrial (Liverpool Local Environmental Plan (LEP) 2008)
Former Land Use Zoning	Defence 5(a) (Liverpool Local Environmental Plan (LEP) 1997)

2.2 Site description summary

A summary of each of the buildings / areas is provided below, along with supplemental details of observations pertinent to the condition of the site. Building numbers and locations are shown on **Figures 3A to 3D**.

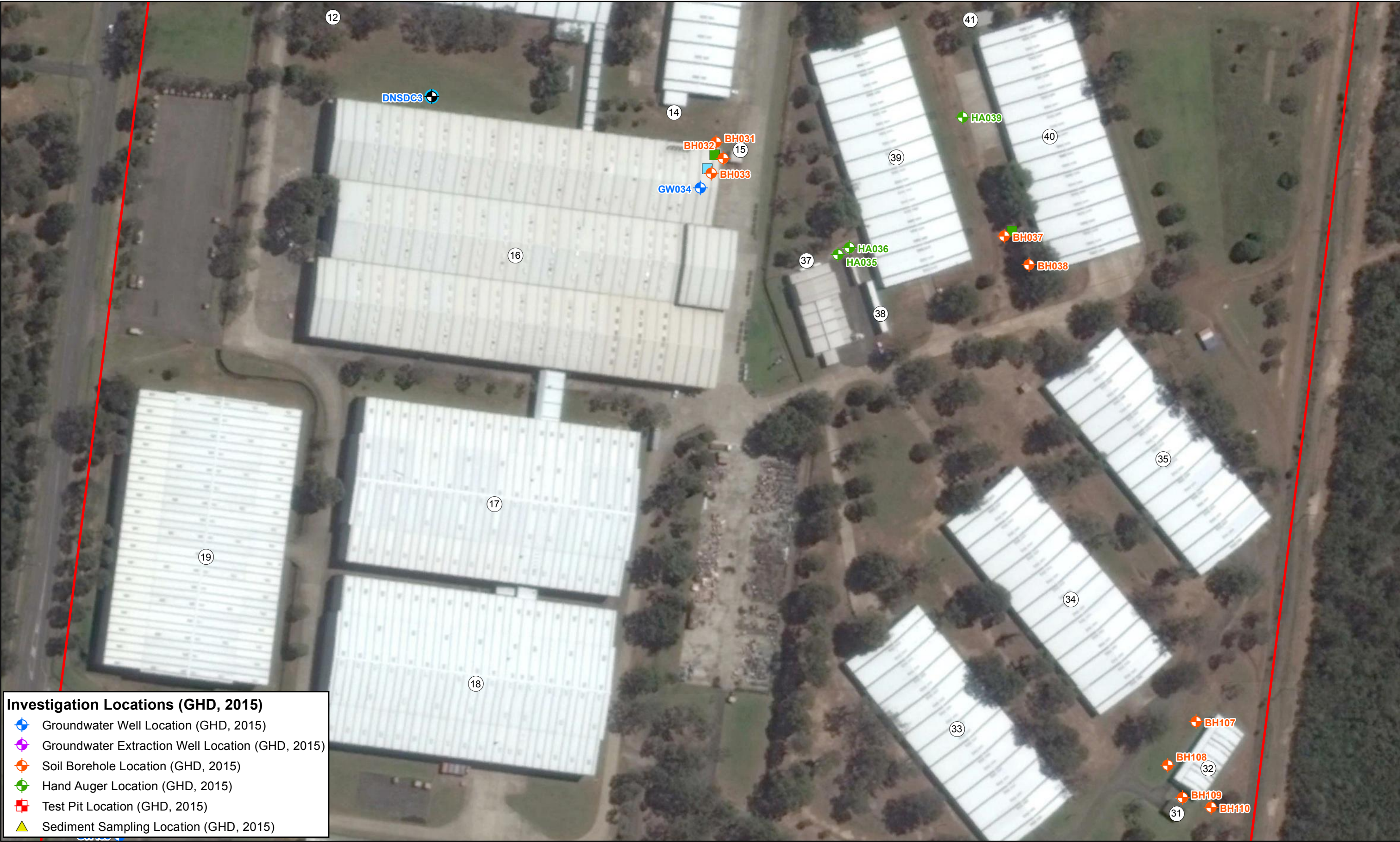
- Building 006: Storehouse Camp Earmark
 - Wastewater underground storage tank (UST) located on the northern side of the building.
- Buildings 015 and 016: Flammable Storage and Treatment and Preservation
 - Aboveground storage tanks (ASTs) located in a basement identified as area of concern
- Building 023: Dangerous Goods POL #2 Store
 - Potential spills from chemical storage to unsealed area around the perimeter of the building
- Building 024: Dangerous Goods Storehouse
 - Potential spill around a path of dead grass around a drain on the southwest corner of the building
- Building 026: Dangerous Goods Gas Storehouse No 2
 - AFFF cylinders present in the adjacent building (photograph 6)
- Building 032: Former explosives store
 - Potential chemical spills
- Building 037: Artisans Workshop Carpenter Facility
 - Potential chemical spills
- Building 040: Storehouse Returns



- Building 049: Battery Shop Mechanical Coy
 - Waste water UST located on the western side of the building.
- Building 053: Storehouse Bulk
 - Minor acid staining. Septic UST located on the southern side of the building.
- Building 067: WSRF (Weapons)
 - Waste UST from weapon degreasing pits and firing range sand pits (Photograph 8).
- Building 073: Storehouse (Mechanical)
 - Potential spills
- Building 079: Testing Shed (Generators) GE
- Building 080: Repair Facility (General Engineering)
 - Waste oil UST and trade waste UST (Photograph 9).
- Building 082: Storehouse
 - Waste water UST located on the eastern side of building.
- Building 083: Paint Shop
 - Potential maintenance spills
- Building 088: Wash Point
 - Vehicle parking area and loading platform
- Southern burial pits (predominantly off site to the south)
- Rail Spur in south of site
- Sediments in stormwater drain
- Former storage of radioactive materials – Building 27







Investigation Locations (GHD, 2015)

- Groundwater Well Location (GHD, 2015)
- Groundwater Extraction Well Location (GHD, 2015)
- Soil Borehole Location (GHD, 2015)
- Hand Auger Location (GHD, 2015)
- Test Pit Location (GHD, 2015)
- Sediment Sampling Location (GHD, 2015)

0 20 40 60 80
Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

LEGEND

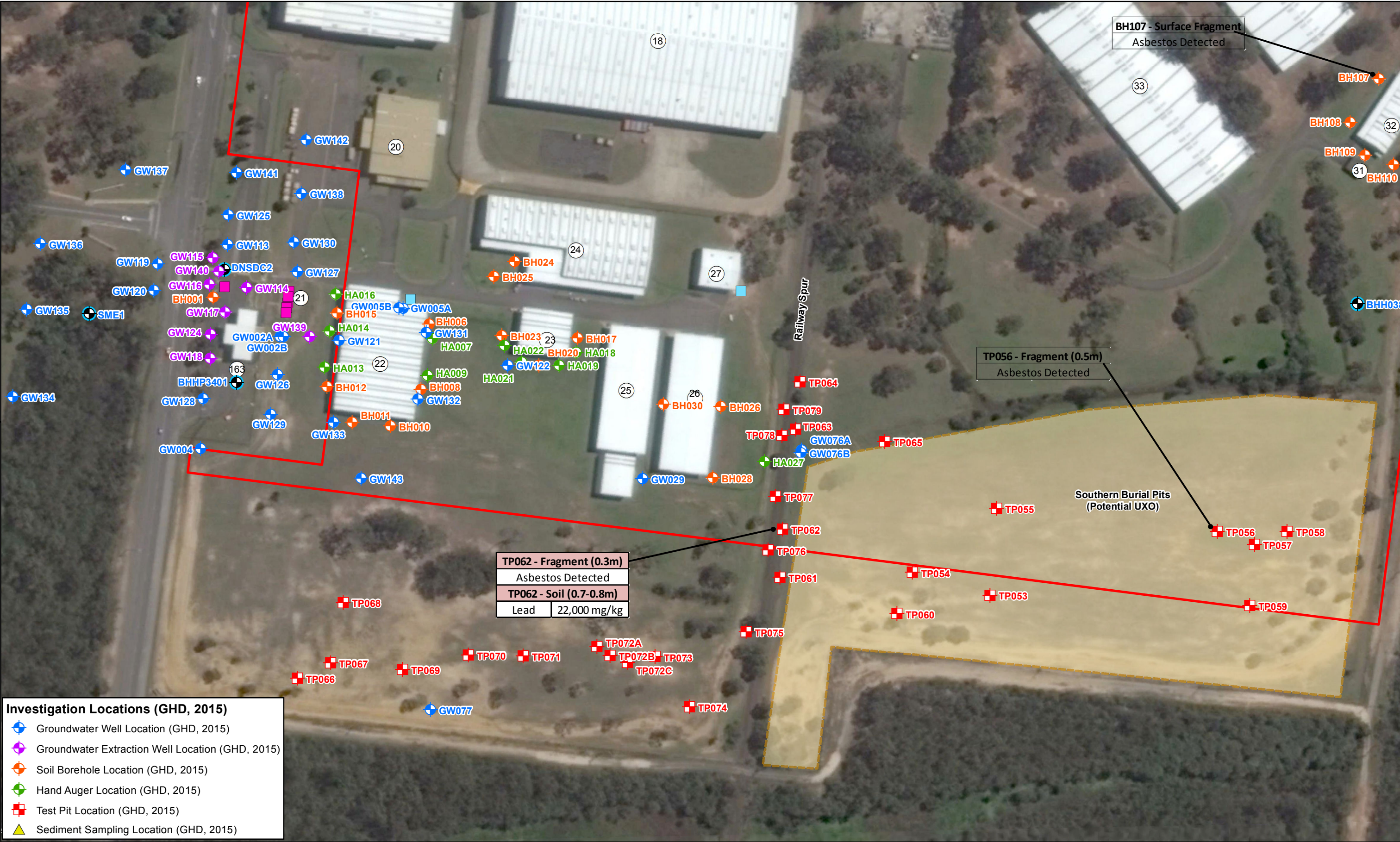
- Site Boundary (Approximate)
- Petroleum / Waste Oil UST
- Waste Water / Septic UST
- Chemical / Fuel AST
- Observed Existing Groundwater Wells
- Building number

Department of Defence
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Revision A
Date 29 Jun 2016

GHD Investigation Locations

Figure 3C



2.3 Surrounding land use

The following land uses surround the entirety of the site:

- North: Defence land comprising hardstand used for storage and maintenance of vehicles, with Anzac Road beyond.
- South: Former defence land which is vegetated and undeveloped. The southern portion of Lot 1 in DP 1048263 which is referred as the Butcher's Knife, with an area referred to as the Boot Land farther to the south, and the East Hills railway line beyond.
- East: Defence land which were formerly used for ammunition storage. Part of the land is vegetated and undeveloped. Residential housing is beyond.
- West: Moorebank Avenue is immediately west of the site, with former Defence land part of which is occupied by the former School of Military Engineering (SME). The Georges River is beyond and forms the western perimeter of SME.

2.4 Environmental setting

A summary of key information relating to the environmental setting of the site (as recorded in the Data Gap Analysis Report) is presented in **Table 3**.

Table 3 Environmental setting summary

Topography	The site lies at approximately 10 to 20 m Australian Height Datum (AHD) and is generally flat to gently undulating. The high point lies in the central-eastern portion of the site and with gentle slope down to the east, west and south.
Soils	<p>General Profile</p> <p>Based on previous investigations undertaken on the site, soils were generally expected to comprise a thin layer of fill material overlying residual silty stiff clays. Fill materials comprised of silty sand with gravels. Ash and slag were observed during previous investigations at two locations in the northern portion of the site along with other waste materials noted sporadically. The average depth of fill was approximately one metre depth, with the deepest encountered in the southern portion of the site (up to 2.2 metres depth).</p> <p>In the western portion of the site (closest to the Georges River), alluvium was encountered beneath the fill materials.</p> <p>Acid Sulfate Soils</p> <p>The <i>Acid Sulfate Soils Map</i> (sheet ASS-013) published in the Liverpool City Council LEP (2008) indicates the site is not expected to contain Acid Sulfate Soils (ASS). Further, owing to the elevation of the site, the presence of ASS would not be expected.</p> <p>Land within approximately 500 metres of the Georges River (i.e. land located to the west of the site) could comprise of soils that may be ASS.</p>
Hydrology	The site is located approximately 500 to 600 metres east of the Georges River. Surface water from the site is expected to be directed into an open drain that flows west from the site, discharging into the Georges River. An ephemeral tributary of the Georges River (Anzac Creek) flows through the east of the site following significant rainfall, along with other surface water bodies located approximately 800 metres east of the site.
Geology	The regional geology consists of Tertiary aged fluvial deposits of clayey quartzose sand clay overlying a thin band of Middle Triassic ages Ashfield Shale of the Wianamatta Group overlying Hawkesbury Sandstone.

	<p>Previous investigations identified shale bedrock in the western portion of the site whilst weathered sandstone bedrock was encountered on the southern portion of the site.</p>
Hydrogeology	<p>Groundwater risk map</p> <p>The 1:2,000,000 <i>Groundwater in New South Wales, Assessment of Pollution Risk Map</i> (1987) indicates that the site is likely to be underlain by sandstone and alluvial materials, classified as having moderate to high potential for groundwater movement. Groundwater salinity is likely to be less than 1,000 mg/L, rendering it suitable for stock, domestic and some irrigation purposes.</p> <p>Existing groundwater bore search</p> <p>Previous investigations at the site intercepted groundwater at varying depths, though generally between 8 to 10 metres bgl. Groundwater was noted within a number of geological units including the fill material, shale and sandy clays. Groundwater flows in a westerly or north-westerly direction towards the Georges River.</p> <p>GHD conducted a review of existing groundwater borehole records using the NSW Water Information Database on 3 November 2014. No registered bores were identified within an approximate one kilometre radius of the site.</p>
Council mapped information	<p>The Liverpool City Council publishes a range of information under it's LEP (2008). A review of pertinent maps was undertaken by GHD on 7 April 2015 and is summarised below:</p> <ul style="list-style-type: none"> - Heritage map (sheet HER-013) indicates the site is not listed as a heritage or conservation item. However, land in the immediate vicinity of the site in all directions is classified as a general heritage item. - Environmentally significant land map (sheet ESL-013) indicates the site is not classified as environmentally significant land. Some portions of land to the immediate east, south and west of the site are however classified as being environmentally significant. - Flood planning area map (sheet FLD-013) indicates the southern portion of the site (approximately 15% of the site area) is classed as flood prone land. The land isn't however covered under the flood planning area.

3. Basis of assessment

3.1 Relevant guidelines

The primary guidance document that is used to the assessment and management of contaminated sites is the *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM) 1999, as amended by the *National Environment Protection (Assessment of Site Contamination) Amendment Measure* 2013 (No. 1) (NEPC 2013).

Previous works including the detailed site investigation (DSI) have been developed in a manner consistent with guidelines “made or approved” by the NSW EPA under Section 105 of the *Contaminated Land Management Act, 1997*. These guidelines include the following:

- NSW EPA, *Contaminated Sites: Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*, 2015.
- National Environmental Protection council (NEPC), *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*, 2013.
- NSW EPA, *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*, 2011.
- NSW EPA, *Contaminated Sites: Guidelines for NSW Site Auditor Scheme*; 2006.
- Australian and New Zealand Environment and conservation Council (ANZECC), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, 2000.
- NSW EPA, *Contaminated Sites: Sampling Design Guidelines*, 1995.

3.2 Assessment criteria

The NEPM 1999 (Amendment 2013) includes a range of ecological investigation and screening levels, health investigation levels (HILs) and health screening levels (HSLs) for a range of contaminants and for a range of land use and exposure scenarios. The HILs are generic to all soil types. Site-specific conditions determine the depth to which HILs apply for land uses other than residential (generally to depth of three metres). The HSLs however are both soil type and depth specific.

The amended NEPM (Schedule B1, Section 2.1.2) states that investigation and screening levels are not clean-up or response levels nor are they desirable soil quality criteria. Investigation and screening levels are intended for assessing existing contamination and to trigger consideration of an appropriate site-specific risk-based approach or appropriate risk management options when they are exceeded.

The assessment criteria (investigation levels) against which the project analytical data have been compared have been taken from those guidelines made or approved by the National Environment Protection Council (NEPC). In addition, the United States Environmental Protection Agency (US EPA) Region 4 (2009) screening criteria have been adopted as soil investigation levels for the AFFF constituents Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA).

For this site, the initial approach to assess the significance of site contamination was through comparison of sampling data to NEPM 1999 (Amendment 2013) investigation levels. However, a site-specific risk assessment to derive site specific screening criteria based on the proposed land use (and the levels of exposure) may be appropriate, depending on the intended future site use.

3.2.1 Health based criteria

Given that the end use for the site is to be commercial land use with primarily hard stand and limited potential for exposure to unsealed soils, the following assessment criteria, which are sourced from Schedule B1 of the NEPM 1999 (Amendment 2013), have been considered:

- HIL/HSL D – Commercial / industrial.

For the assessment of constituents of AFFF, including PFOS and PFOA, reference is made to US EPA guidelines. In the absence of any Australian based guidance, these investigation levels have been used as a guideline for PFOS and PFOA.

3.2.2 Aesthetics

An assessment of aesthetic issues has been undertaken as outlined in Section 3.6 of Schedule B(1) of the NEPM (2013), which states that 'there are no specific numeric aesthetic guidelines, however site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity'.

General assessment considerations that were considered in relation to aesthetic issues include:

- That chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, may cause ongoing concern to site users.
- The depth of the materials, including chemical residues, in relation to the final surface of the site.
- The need for, and practicality of, any long-term management of foreign material.

The NEPM notes that in some cases, documentation of the nature and distribution of the foreign material may be sufficient to address concerns relating to potential land use restrictions.

3.2.3 Summary of nominated criteria for soil

The ANZECC/ARMCANZ 2000 *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC 2000) are approved as guidelines under Section 105 of the Contaminated Land Management Act 1997 as of 6 December 2001.

ANZECC 2000 outlines the principles, objectives and philosophical basis underpinning the development and application of the guidelines. It also outlines the management framework recommended for applying the water quality guidelines to the natural and semi-natural marine and freshwater resources in Australia and New Zealand. The guidelines provide a risk-based decision framework where possible, to help refine trigger values for application at local and/or regional scales.

The NSW EPA recommends that when assessing contamination of surface water, consideration needs to be given to the impact of any contaminants to the beneficial uses or resources of the groundwater. The beneficial uses of groundwater may include providing recharge to rivers, lakes, bays, being a source of water for drinking, irrigation and industrial uses.

For the site, the receiving surface water ecosystem is likely to be the Georges River, which is considered fresh water. Given that there are no local biological effects data and the river would be subject to uncontrolled stormwater discharge, a protection of level of 95% was used for the assessment of water contamination and preparation of groundwater investigation levels (GILs).

4. Contamination status

4.1 Contamination status

The following section provides a summary of the contamination status of the site pre-remediation, as detailed in previous reports for the site (referenced in **Section 1.2**).

Investigation locations for soil and groundwater monitoring locations sampled during GHD's investigation (2015) are detailed on **Figures 3A to 3D**.

During the GHD investigation (2015) there were exceedances of the site criteria reported during the analysis of the soil and groundwater in samples analysed. These locations are shown on **Figures 3A to 3D**.

Table 4 provides an overview of the areas where soil contamination was confirmed during the GHD intrusive investigation (2015).

Table 4 Summary of soil contamination

Building	Key Infrastructure or Observations	Sources requiring remedial or risk management measures	
Southern burial pits	Hand grenades, filling plugs and fuse wells were identified.	Soils	Fragments of ACM were noted on the ground surface in some areas including TP068, TP072A, TP072B, TP073C, TP073, TP074, TP075 and TP076.
Rail Spur in south of site	HCB in soil was detected within TP013.	Soils	A waxy substance was identified in TP062 to depth of approximately 0.8 metres. Analytical results reported a concentration s of lead (22,000 mg/kg) and total PAH concentration of 150 mg/kg in corresponding sampling TP062_0.7-0.8. The concentration in the underlying soils collected from a depth of 1.9-2 metres reported a lead concentration of 12 mg/kg. Concentrations of all other COPC in this sample were less than the nominated investigation levels or below the laboratory PQL. Concentrations of COPC in all other samples were low or below the laboratory PQL in all other samples collected from the rail spur. A fragment of ACM was identified on the surface at TP076. ACM was encountered in shallow fill material (0.2-0.3 metres) in TP062.

The report identified that the identified metal, asbestos, UXO/EOW soil contamination could be managed under an EMP.

No further assessment of metal in groundwater was considered necessary as the concentrations were considered to be at background concentrations.

4.2 Asbestos contamination

The following table (**Table 5**) provides a summary of fill soils that has suspected asbestos containing materials (ACM) observed during the field works, and a summary of the asbestos sampling and analysis. The locations of the referenced sample locations are shown on **Figure 3**.



GHD completed targeted investigations in March/April 2015 which included 79 boreholes, 15 hand augers and 29 test pits. Asbestos analysis in the form of identification was completed on ten soil samples.

Subsurface conditions encountered across the site were generally consistent with those reported during previous investigations, typically comprising a mixture of sand, silty clay and gravel fill underlain by clay. Fill material generally was present as a thin veneer across the surface of the site, however extended to 1.4 metres in the southern portion of the site and greater than 2.5 metres around the railway spur (TP063 and TP064). The summary indicates very limited presence of building material present in the fill soils; which is considered to present a primary indicator for the potential presence of asbestos in soils.

GHD notes that all sample locations are within the southern burial pits (predominately outside of the site boundary).

Table 5 Summary of confirmed asbestos contamination

Borehole Location	Visual potential for asbestos	Analysed (Y/N)	Laboratory findings
BH107	Black/dark brown, topsoil	Yes	BH107_surface fragment – beige compressed fibre cement material – chrysotile asbestos detected. BH107 (0.1-0.2m, soil) – no asbestos detected
TP056 (0-1.2 mbgl)	Electrical conduit	Yes	TP056 (0.5m_fragment) - beige compressed fibre cement material – chrysotile asbestos detected TP056 (0.8-0.9m, soil) – no asbestos detected
TP062 (0-0.5 m bgl)	ACM fragment in fill soil	Yes	TP062 (0.3m_fragment) – grey compressed fibre cement material – chrysotile and amosite detected. TP062 (0.3-0.4m, soil) – no asbestos detected

GHD concluded that: *Fragments of asbestos containing material (ACM) were noted on the ground surface and shallow soils at several locations within the southern burial pits and adjacent to the rail spur within the southern area of the site. The potential for widespread presence of ACM on the surface across this portion of the site cannot be discounted.*

GHD have additionally reviewed historical aerial photographs presented in a GHD Phase I report (Ref. 21/22359, April 2013) for the boot land site adjacent to the east and south of the DSND. GHD note that the aerial photographs indicated limited demolition of buildings once they were constructed by the 1950s. The area in the south of the site was however notably disturbed and ties in with the location of the 'southern burial pits'; and therefore as the potential for fill materials.

GHD note that there has been limited sampling for asbestos in soils at the site; however, based on our investigation GHD concludes the following"

- GHD reported limited asbestos fragments across the site which were localised in the southern portion of the site; in the area of the 'southern burial pits'

- Fill soils recorded across the site have indicated limited potential for asbestos containing materials, with the exception of those in the southern portion of the site in the area of the 'southern burial pits'.
- GHD consider based on our findings that the majority of the site has been assessed in accordance with the guidelines detailed in the NEPM such as review of the potential sources such as demolition of pre-existing structures (pre 1990) or burials indicating limited potential source areas (other than in the area of the southern burial pits).

4.3 Environmental Management Strategy

The EMP has been developed to outline the procedures to mitigate potential risks that have been identified based on the evaluation of the contamination status of the site, potential pathways of exposure and linkages to receptors are present. The following sections outline the potential sources, pathways and receptors for contamination, which may be applicable to the site. Implementation of this EMP should disconnect any remaining potential linkages so to allow for continued use of the site.

The locations of areas where contaminants are present at concentrations greater than the nominated criteria and thus require management measures are presented on **Figures 3A to 3D**.

4.4 Sources

There are several potential sources of contamination were identified on the site which required further assessment in order to address Defence's obligations under the lease agreement and contract of sale. These included:

- Lead impacts in the soil.
- Asbestos fragments in the soil.
- Potential for buried materials and UXO and EOW within the southern burial pits.

4.5 Pathways

Potential pathways by which contamination could migrate towards an identified off site receptor (refer to **Section 4.4**) or present a potential exposure pathway to commercial/industrial site workers include:

- Direct contact.
- Inhalation of particulates.

4.6 Receptors

Defence is currently in the final stages of vacating the site and intends to terminate its current lease on the site in 2015. GHD understands the site will be developed in the future for use as an intermodal terminal (commercial / industrial land use). The potential receptors for contamination are considered to include:

- Current and future commercial workers on the site.
- Future construction and maintenance workers.

Given the identified potential for exposure of certain site users to the identified contamination at the site, a number of control measures are necessary to control this exposure. These are discussed in **Section 5**, in conjunction with the procedures outlined in **Appendix A**.



5. Environmental management procedures

A number of procedures have been provided to guide the implementation of this EMP. The key procedures are listed in **Table 6** and are detailed in **Appendix A**.

Table 6 EMP Procedure and responsibilities

Procedure Title	Procedure Number
Signage	01
Asbestos Containing Materials in southern portion of site	02
Unexploded Ordnance in southern portion of the site	03
Unexpected Finds	04
Record Keeping	05
Review of EMP Implementation	06
Review of EMP – Site and/or Land Ownership Changes	07



6. Limitations

This Environmental Management Plan is for the DNSDC, Moorebank, NSW ("Plan") and:

- *has been prepared by GHD Pty Ltd ("GHD") for the Department of Defence and Commonwealth of Australia for the purposes of the objectives stated in Section 1.3.*
- *may only be used and relied on in its entirety by the Department of Defence and Commonwealth of Australia;*
- *may be used, by other entities as required for the purpose as stated in Section 1 of the plan (and must not be used for any other purpose);*
- *other than the Department of Defence and Commonwealth of Australia, must only be relied on by any person with the prior written notification to GHD and subject always to the next paragraph;*
- *may only be used for the purpose as stated in Section 1 of the plan (and must not be used for any other purpose).*
- *must not be used to form or comprise of any study, business case, and/or feasibility, decision, dealing or otherwise arising out of or in connection with any commercial, financial, economic, business or other purpose or use of or for the site. This report has not been prepared for nor is it to be used (or relied upon), including Section 4 – Contamination Status, by any person for any such purpose(s) whatsoever.*

GHD and its servants, employees and officers otherwise expressly disclaim responsibility to any person other than the Department of Defence and Commonwealth of Australia arising from or in connection with this plan.

To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by GHD and the Report are excluded unless they are expressly stated to apply in this plan.

The services undertaken by GHD in connection with preparing this plan:

- *were limited to those specifically detailed in section 1 of this plan.*
- *were undertaken in accordance with current professional practice and by reference to relevant environmental regulatory authority and industry standards, guidelines and assessment criteria in existence as at the date of this plan and any previous site investigation and assessment plan referred to in the plan.*

The opinions, conclusions and any recommendations in this plan are based on assumptions made by GHD when undertaking services and preparing the plan ("Assumptions"), as specified throughout this plan.

GHD expressly disclaims responsibility for any error in, or omission from, this plan arising from or in connection with any of the Assumptions being incorrect.

Subject to the paragraphs in this section of the plan, the opinions, conclusions and any recommendations in this plan are based on conditions encountered and information reviewed at the time of preparation of this plan and are relevant until such times as the site conditions or relevant legislations changes, at which time, GHD expressly disclaims responsibility for any error in, or omission from, this plan arising from or in connection with those opinions, conclusions and any recommendations."



This plan is based solely on the investigations and findings contained in the reports referred to in the plan and on the conditions encountered and information reviewed at the time of each report. This plan should be read in conjunction with the each report referred to.

The opinions, conclusions and any recommendations in this plan are based on information obtained from, and testing undertaken at or in connection with, specific sampling points and may not fully represent the conditions that may be encountered across the site at other than these locations. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this plan are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this plan.

GHD has considered and/or tested for only those chemicals specifically referred to in this plan and makes no statement or representation as to the existence (or otherwise) of any other chemicals.

Site conditions (including any the presence of hazardous substances and/or site contamination) may change after the date of this plan. GHD expressly disclaims responsibility:

- arising from, or in connection with, any change to the site conditions; and*
- to update this plan if the site conditions change.*

Except as otherwise expressly stated in this plan GHD makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill material has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or material from such buildings disposed of on the site, the site may contain asbestos or ACM.

Subsurface conditions can vary across a particular site and cannot be exhaustively defined by the investigations carried out prior to this plan. As a result, it is unlikely that the results and estimations expressed or used to compile this plan will represent conditions at any location other than the specific points of sampling. A site that appears to be unaffected by contamination at the time of the reports attached to this plan may later, due to natural causes or human intervention, become contaminated.

These Disclaimers should be read in conjunction with the entire plan. This plan must be read in full and no excerpts are taken to be representative of the findings of this plan.

Appendices

Appendix A – Environmental Management Plans



Procedure 01. Signage

Area Effected:	Southern burial area and rail spur (see Figure 3D), and areas of unexpected finds
Responsibility:	Site Occupier or its nominee (including any nominated site manager) and Site Owner (including any future land owner).
Objective:	Appropriate signage, sufficient to control access to the areas of the identified contamination including possible UXO, asbestos containing materials, and lead and prevent access by unauthorised persons must be maintained.
Procedure:	<p>The area shall be designated as per Figure 3D. The signage must be maintained in key areas where persons are likely to enter the area, i.e.: walking tracks (if present), as well as at height of no higher than 1.5 metres above ground level, and away from vegetation (as far as reasonably practicable).</p> <p>Access gates to the general site should remain locked with a key; the keys should be held with the Site Occupier or their nominee (including any nominated site managers), and authorisation for access should be obtained from this source.</p> <p>The sites should continue only to be accessed by authorised personnel and a record of those with access keys should be maintained by the site occupier.</p> <p>Authorised personnel may include representatives of Site Owner or Occupier, environmental monitoring or surveys workers and maintenance works of service infrastructure easements.</p>
Inspection Frequency:	Annually
Inspection / Reporting:	The signage should be inspected annually and reported in accordance with Procedure 05 .
Actions:	If the signage has been damaged or degraded it should be reinstated to meet the requirements of this procedure, as soon as reasonably practicable.



Procedure 02. Asbestos Containing Material in southern portion of site

Area Affected:

Fragments of ACM were noted on the ground surface in some areas see **Figure 3D** (fragment of ACM was identified on the surface and in shallow fill material), in the southern portion of the site near the southern burial pits and railway line. ACM encountered in other areas of the site should be treated as an unexpected find and treated in accordance with **Procedure 04** in conjunction with this procedure.

Responsibility:

Site occupier or its nominee (including any nominated site manager) and site owner (including any future land owner).

Objective:

To ensure that a protocol has been provided should ACM be found at the site.

Procedure:

Due to the potential for asbestos, the risks in this portion of the site should be managed through the implementation of a 'dial before you dig' policy so to ensure workers in this area are aware of the potential risks. This area requires long-term management to verify that the area is not disturbed.

Where ACM has been identified, the Safe Work Australia How to Manage and Control Asbestos in the Workplace: Code of Practice 2011 provides for the establishment of an asbestos register to record information regarding identification of asbestos-containing materials, risk assessments and control measures.

The development of a contractor site induction is required to aid in the management of in-situ asbestos containing materials within the sites. The Site Owner or its nominee should incorporate the asbestos containing material issues identified at the site into any associated works contracts, designed to ensure any asbestos containing materials on, or in, the site are dealt with in an appropriate manner.

The inductions should be site specific and should include the asbestos risk present specific to each of the sites, access to the asbestos register, survey report should be provided to persons where interaction with known or possible ACM is likely.

The induction would be the responsibility of the Site Owner or the contractor in charge of works and include at least the following:

- Making all workers aware of the potential for contaminated soil to be encountered and the preparation of an asbestos management plan.
- Assignment of responsibilities.
- Discussion of current site conditions.
- Details of the work to be completed.
- Assessment of potential risks associated with identified hazards.

- Establishment of personnel protection standards and mandatory safety practices and procedures.
- Establishment of appropriate environmental management protocols.
- Evacuation procedures and emergency information.
- Incident reporting.

If ACM is identified, all works should be ceased and the Site Occupier or the future land owner should be contacted immediately. The component should not be touched, the location recorded and photographed if practicable and safe to do so.

The location, form, volume, and type will need to be assessed by an appropriately qualified person. Whilst this is being undertaken, the impacted area should not be disturbed. Access should be limited to authorised persons only.

The proposed strategy to address ACM should be implemented by an appropriately qualified person such as an Environmental Consultant. If latent ACM is identified, it should be assessed and dealt with in accordance with the legislation and guidance detailed in Section 3, and in accordance with NSW Health and Safety Regulations (2011).

Frequency:

Upon identification

Inspection / Reporting:

The ground surface in the southern portion of the site should be inspected by an appropriately qualified person such as an Environmental Consultant on an annual basis. Should asbestos be identified on the ground surface, then the appropriate procedures described above for asbestos should be implemented.

Should areas where asbestos is present or suspected to be present is to be disturbed, inspections of asbestos containing materials are to be conducted by a Competent Person (such as an occupational hygienist or licensed asbestos assessor). This will normally constitute a visual assessment and review of the condition and exposure rankings of the material, to ensure that the management strategy remains valid. Re-inspections will be performed on an annual basis (or as required with the WHS legislation) and where changes occur, the asbestos register shall be updated accordingly. Copies of previous reports documenting the presence of asbestos as well as any future investigation reports should be provided to the Site Occupier. In the event of a find, this EMP will need updating. Refer to **Procedure 05**.



Procedure 03. Unexploded Ordnance in southern portion of the site

Area Affected: Southern burial area as shown on **Figure 3D**.

Responsibility: Site Occupier or its nominee (including any nominated site manager) and Site Owner (including any future land owner).

Objective: To protect the health and safety of workers if excavating in the southern burial area or if UXO are identified. This includes the discovery of unexploded ordnance anywhere on-site. All works are to comply with the NSW Work Health and Safety Act (2011).

Procedure: Prior to entry completing subsurface activities in the southern burial area, the engagement of a professional unexploded ordnance contractor is required to provide guidance and safeguarding prior to personnel entry. This may include but not limited to the using of metal detectors and clearance by the contractor.

Prior to subsurface activities, appropriate personal protective equipment (PPE) must be worn include long sleeve shirts and pants, enclosed footwear and gloves. Removal of any soil in the area is only allowed with authorisation from the site owner. No excavation or transporting of soil to other areas on the site is permitted.

If any suspected item are discovered during subsurface activities, including potential unexploded ordnance parts or complete grenades, the component should not be touched, the location recorded and photographed if practicable and safe to do so.

The discovery must then be reported to the site owner, and disposed of by the Department of Defence; contact details: Joint Logistics Command Explosive Ordnance Disposal, Directorate of Explosive Ordnance NSW Region; Tel: 02 472 80019 Email: ORHATOEODWatchkeeper@defence.gov.au

Defence should provide a disposal record.

Frequency: During environmental monitoring or survey works

Inspection / Reporting: At the completion of any environmental works, inspection of the work area and reporting should be undertaken in accordance with the requirements of **Procedures 05** and **06**.



Procedure 04. Unexpected Finds

Area Affected:	Entire site as shown in Figure 2 .
Responsibility:	Site Occupier or its nominee (including any nominated site manager) and Site Owner (including any future land owner).
Objective:	To ensure that a protocol has been provided should unexpected materials be found at the site.
Procedure:	<p>Unexpected situations may entail:</p> <ul style="list-style-type: none">• The uncovering of contamination than presently unknown; and• The discovery of surface contamination, including asbestos fragments, unexploded ordnance items, small arms ammunition items and soil contamination. <p>Details of the procedures that will be adopted in the event of these occurrences are defined below:</p> <p>If unexpected materials are identified, all works should be ceased and the Site Occupier or the future land owner should be contacted immediately.</p> <p>The location, form, volume, type and chemical characteristics of the material will need to be assessed by an appropriately qualified person.</p> <p>The proposed strategy to deal with the characterised material should be undertaken by an appropriate qualified person such as a professional unexploded ordnance contractor or Environmental Consultant. If latent contamination including asbestos or any other contaminant is identified it should be assessed and dealt with in accordance with the legislation and guidance detailed in Section 3, and in accordance with NSW Health and Safety Regulations (2011). If latent UXO or EOW are identified or suspected the engagement of a professional unexploded ordnance contractor is required to provide guidance on mitigation. If any suspected item is discovered the component should not be touched, the location recorded and photographed if practicable and safe to do so. The discovery must then be reported to the site owner, and disposed of by the Department of Defence. Defence should provide a disposal record.</p>
Frequency:	Upon identification
Inspection / Reporting:	Copies of all unexpected finds, assessment of finds and actions to deal with the finds should be reported and copies held by the Site Occupier, Site Owner or any future land owners. In the event of a find, this EMP will need updating.



Procedure 05. Record Keeping

Area Affected:	Entire site as shown on Figure 2 .
Responsibility:	Site Occupier or their nominee (including any nominated site manager) and the Site Owner (including any future land owner).
Objective:	Records of the implementation of the EMP are to be retained.
Procedure:	The Site Occupier shall be responsible for the maintenance of all documents relating to the implementation of the EMP. This shall include monitoring reports, additional assessments and any relevant correspondence between the Site Occupier and / or other parties (e.g. contractors, environmental consultant etc.).
Frequency:	Annually as a minimum, or as required.
Inspection / Reporting:	All records shall be retained by the Site Occupier and Site Owner, including any future land owners for a period of seven (7) years.



Procedure 06. Review of EMP Implementation

Area Affected:	Entire site as shown on Figure 2 .
Responsibility:	Site Occupier or their nominee (including any nominated site manager) and the Site Owner (including any future land owner).
Objective:	The implementation of the EMP requires revision by an appropriately qualified third party or a suitably qualified employee.
Procedure:	<p>The Site Occupier shall undertake a review of the implementation of the EMP. The review shall be undertaken by either a suitably qualified employee of the Site Occupier or a suitably qualified consultant who is recognised as being appropriately competent in the field of contaminated sites as per the criteria provided to <i>NEPC, National Environment Protection (Assessment of Site Contamination) Amendment Measure No 1, 2013</i>. Specific tasks that will be undertaken by the reviewer include:</p> <ul style="list-style-type: none">• Review of inspection reports generated by the Site Occupier and Site Owner to ensure these meet the intended scope of the EMP; and• Liaison with the Site Occupier and Site Owner as required in interpreting the requirements of the EMP. <p>The review / updates to the EMP should also include changes to the areas of known contamination.</p>
Frequency of Review:	<p>Annually.</p> <p>In addition, it should be reviewed and updated accordingly upon the completion of any of the following:</p> <ul style="list-style-type: none">• Change of land use• Additional investigations• Unexpected Finds (Procedure 04)• Vacation of site• Change in Site Occupier representative• As required to reflect changes in relevant legislation
Inspection / Reporting:	All EMP reviews shall be retained by the Site Occupier and Site Owner (including any other future land owner) for a period of seven years.



Procedure 07. Review of EMP – Site and/or Land Ownership Changes

Area Affected:	Entire site as shown in Figure 1 .
Responsibility:	Site Occupier (including any nominated site manager) and Site Owner (or any future land owner).
Objective:	The EMP requires review to ensure its continued appropriateness to be used on the site.
Procedure:	<p>The Site Occupier and Site Owner shall undertake a review of the EMP if a review is warranted (e.g. change in site ownership or site configuration). The review shall consider:</p> <ul style="list-style-type: none">• The frequency of inspections required;• Any non-compliance with the EMP that have been unable to be resolved;• Any changes in state or national environmental protection or occupational legislation or guidelines that impact any part of the EMP; or• Proposed changes in land use of the site or adjoining sites. <p>Where a review identifies items which require modification or addition to the EMP, then a revision of the EMP shall be published and made available.</p>
Frequency of Review:	If land use or land ownership changes.
Inspection / Reporting:	All EMP reviews or revisions shall be retained by Site Occupier and Site Owner (including any future land owners).



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