

OPERATIONAL WASTE AND RESOURCES MANAGEMENT PLAN

Moorebank Intermodal Precinct – East Precinct

20 MARCH 2026

ESR AUSTRALIA

Moorebank Intermodal Precinct – East Precinct

Operational Waste and Resources Management Plan

Author	Madeleine Watson-Reeves	
Checker	Heather Tilley	
Approver	Ketan Patel	
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Author Details

Author Details	Qualifications and Experience
Madeleine Watson-Reeves	B Sc (Geography and Environmental Studies) Madeleine is a Graduate Environmental Consultant with experience in environmental assessment and approvals.
Heather Tilley	B Sc (Biological Life Sciences), B Sc Hons (Physical Geography) Heather has over 28 years' experience in environmental impact assessment, post approvals, on-site construction environmental management, including waste management, environmental auditing and compliance monitoring on large infrastructure projects.

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REVISIONS

Revision	Date	Description	Prepared by	Approved by
001	7/03/2019	Draft – for Client Review	M Watson-Reeves	H Tilley
002	25/03/2019	Draft ER comments addressed	M Watson-Reeves	H Tilley
003	8/04/2019	Draft for consultation	M Watson-Reeves	H Tilley
004	17/04/2019	Final Draft for consultation	M Watson-Reeves	H Tilley
005	29/04/2019	Revisions to final draft for consultation	M Watson-Reeves	H Tilley
006	03/05/2019	Final Draft for DPE submission	M Watson-Reeves	H Tilley
007	07/06/2019	Revisions addressing DPE comments	M Watson-Reeves	H Tilley
008	11/07/2019	Revisions addressing additional DPE comments	H Tilley	K Patel
009	05/02/2020	Updated to include Area 2 as an operational area	Z Quintal	J Crawford
010	27/03/2020	Updated to address Mod 2	R Mason	J Crawford
011	23/01/2023	Updated to include: - Warehouse layout changes - Traffic changes to access points to IMEX and PIWE - Modifications 1-4 to SSD 7628 - Changes to MLP East Precinct site management - Logo change	C Power	H Tilley
012	13/12/2024	Updated for: - Approval of Modifications 5 and 6 - MIP name change - Ownership and template change	C Power	H Tilley
013	20/03/2026	Annual review including updates to legislation and Department name changes	B Fethers	H Tilley

ACRONYMS AND DEFINITIONS

Acronym / Term	Meaning
CCS	Community Communication Strategy
CEFC	Clean Energy Finance Corporation
CoC	Conditions of Consent
DNSDC	Defence National Storage Distribution Centre
Commonwealth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water (formerly DotEE)
NSW DCCEEW	NSW DCCEEW: NSW Department of Climate Change, Energy, the Environment and Water
DoF	Department of Finance (formerly known as the Department of Finance and Deregulation)
DotEE	Commonwealth Department of the Environment and Energy (now Commonwealth DCCEEW)
DPE	Department of Planning and Environment (abolished 1 January 2024; split into DPHI and <u>NSW DCCEEW</u>)
DPHI	Department of Planning, Housing & Infrastructure (previously DPE)
EIS	Environmental Impact Statement
EMS	Environmental Management System
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
ESD	Ecologically Sustainable Development
Facility	The MIP East Precinct Project (as approved by MP10_0193, SSD 6766 (Stage 1) and SSD 7628 (Stage 2 as modified). The Facility includes the operation of the IMEX terminal, warehousing and distribution facilities. A rail link is included as part Stage 1 (SSD 6766) and connects the Facility to the Southern Sydney Freight Line.
FAK	Freight All Kind
FCL	Full Container Loads
FCMMs	Final Compilation of Mitigation Measures
FTE	Full time equivalent
GFA	Gross floor area
GHG	Greenhouse gas
GWF	Glenfield Waste Facility
IMEX	Import Export Terminal. Includes the following key components: • Truck processing, holding and loading areas with entrance and exit from Moorebank Avenue • Rail loading and adjacent container storage areas serviced by container handling equipment • Administration facility and associated car parking with light vehicle access from Moorebank Avenue
LCL	Less Than A Container Load

Acronym / Term	Meaning
m	metre
Material harm	Material harm is harm that: • Involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or • Results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
MIP	Moorebank Intermodal Precinct
MIP East Precinct Approvals	• <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) Approval (No. 2011/6229), March 2014 • Concept Approval received 29 September 2014 (MP10_0193). • Stage 1 approved 12 December 2016 (SSD 6766) • Stage 2 approved 31 January 2018 (SSD 7628) • Stage 2 Modification 1 approved 14 March 2022 (SSD 7628 MOD 1) • Stage 2 Modification 2 approved 31 January 2020 (SSD 7628 MOD 2) • Stage 2 Modification 3 approved 18 December 2020 (SSD 7628 MOD 3) • Stage 2 Modification 4 approved 19 January 2021 (SSD 7628 MOD 4) • Stage 2 Modification 5 approved 4 September 2023 (SSD 7628 MOD 5) • Stage 2 Modification 6 approved 22 February 2024 (SSD 7628 MOD 6)
MIP West Precinct Approvals	• MIP East Precinct Concept EPBC approved March 2014 (No. 2011/6229) • MIP West Precinct Concept and Stage 1 approved 3 June 2016 (SSD 5066) • MIP West Precinct Stage 2 approved 11 November 2019 (SSD 7709) • MIP West Precinct Stage 3 approved 11 May 2021 (SSD 10431)
MLP	Moorebank Logistics Park (now MIP)
Moorebank Intermodal Park	Refers to the whole Moorebank Intermodal Precinct, i.e. MIP East Precinct and the MIP West Precinct
MPE	Moorebank Precinct East
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i> (Cth)
OEH	Office of Environment and Heritage (abolished July 2019; functions now Heritage NSW within NSW DCCEEW)
OEMP	Operational Environmental Management Plan
Operational area / Operational footprint	Extent of operational activities for the operation of the MIP – East Precinct
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NWS)
POPD	Program for Operational Phase Documentation
Primary Conditions	Conditions specific to the development of the management plan
PUD	Pick-up and delivery vehicles
Operational personnel	All persons listed in Section 3.3 including sub-contractors and tenants working on the MIP East Precinct site.
OTAMP	Operational Traffic and Access Management Plan
OWRMP	Operational Waste and Resources Management Plan

Acronym / Term	Meaning
Rail link	Part of MIP East Precinct Stage 1 (SSD 6766), connecting the MIP East Precinct site to the SSFL. The Rail link is to be utilised for the operation of the Facility.
RSoC	Revised Statement of Commitments
RtS	Response to Submissions
Secondary Conditions	Conditions related to the environmental aspects associated with the plan
SHEMS	Safety Health and Environmental Management System
SHEQ	Safety, Health, Environment and Quality
SIMTA	Sydney Intermodal Terminal Alliance (the original applicant for Stage 1 (SSD 6766) and Stage 2 (SSD 7628), and Stage 2 MOD1 to MOD5)
SIOMP	Stormwater Infrastructure and Operational Management Plan
SME	School of Military Engineering
SMP	Stormwater Management Program
SSD	State significant development
SSFL	Southern Sydney Freight Line
UDLP	Urban Design and Landscape Plan
UHIMS	Urban Heat Island Mitigation Strategy
WELs	Water Efficiency Labelling Standards
WOEMP	Warehouse Operational Environmental Management Plan

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1 INTRODUCTION

The Moorebank Intermodal Precinct (MIP)¹ is an integral component of the Freight, Ports and Transport strategies of both the NSW and Commonwealth governments to help manage the challenges of an expected tripling of freight volumes at Port Botany by 2031.

The construction and operation of Stages 1 and 2 of the Moorebank Precinct East (MPE) Project (SSD 6766 and SSD 7628 (as modified by MOD 1, MOD 2, MOD 3, MOD 4, MOD 5 and MOD 6 respectively), was approved on 12 December 2016 and 31 January 2018, respectively. The project was also approved under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2011/6229) on 6 March 2014. Together, the approvals comprise the two stages of development under the MPE Concept Approval (MP10_0193) which was approved on 29 September 2014.

This Operational Waste and Resources Management Plan (OWRMP) has been developed to manage waste and resource impacts during operations of the east precinct, hereafter referred to as the “Moorebank Intermodal Precinct (MIP) East Precinct.”

This OWRMP addresses the relevant requirements of the Project Approvals, including the Environmental Impact Statement (EIS), Revised Statement of Commitments (RSoC), Response to Submissions (RtS) and Minister’s Conditions of Consent (CoC), and all applicable guidelines and standards specific to the management of waste and resources during operations of the MIP East Precinct.

1.1 Background

The MIP is an integral component of the Freight, Ports and Transport strategies of both the NSW and Commonwealth governments to help manage the challenges of an expected tripling of freight volumes at Port Botany by 2031.

The MIP aims to streamline the freight logistics supply chain from port to store, deliver savings to businesses and consumers, and help service the rapidly growing demand for imported goods in south-west Sydney. It is located approximately 27 kilometres (km) south-west of the Sydney Central Business District and approximately 26 km west of Port Botany within the Liverpool Local Government Area. The MIP is divided into an East Precinct and a West Precinct, located east and west of Moorebank Avenue respectively, (Figure 1-2). The MIP East Precinct is operational and is managed under an Operation Environmental Management Plan (OEMP), while the MIP West Precinct is still currently under construction.

The main features of the MIP East Precinct include:

- An Import Export (IMEX) Terminal
- A Rail Link connecting the IMEX terminal and the Southern Sydney Freight Line (SSFL) traversing Moorebank Avenue, Anzac Creek, Georges River and Glenfield Waste Facility (GWF)
- Associated ancillary infrastructure including signage, lighting, landscaping, water management
- Warehouse and distribution facilities including warehousing up to 21 m in height, typically ranging in size from 20,000 m² to 62,000 m²
- A freight village including a mix of retail, commercial and light industrial spaces typically up to 15 m in height and varying in size and design

¹ In 2022, LOGOS Property took over the management of the warehouse and distribution facilities, as well as the overall management of the Moorebank Logistic Park (MLP), including both the East and West Precincts. Following this, the MLP is now known as the MIP (Moorebank Intermodal Precinct). The two precincts are known as MIP East Precinct and MIP West Precinct. This is reflected throughout the OEMP.

- An internal road network to enable efficient movement of vehicles, dispatch of freight from the warehouses and transport of containers between the IMEX Terminal and warehouse and distribution facilities

More detail on the main features is provided in the overarching Operational Environmental Management Plan (OEMP). The location of the MIP East Precinct is shown in Figure 1-2.

In 2022, LOGOS Property took over the management of the warehouse and distribution facilities, as well as the overall management of the MIP East Precinct. In July 2024, ESR Group acquired the remaining interest in LOGOS, and overall management of the MIP East Precinct, is now the responsibility of ESR Australia & NZ (ESR)². Qube Logistics will continue to maintain responsibility for the IMEX and the Rail Link. Section 2 of the OEMP describes the operational areas of responsibilities for ESR and Qube Logistics. This is summarised in Figure 1-1.

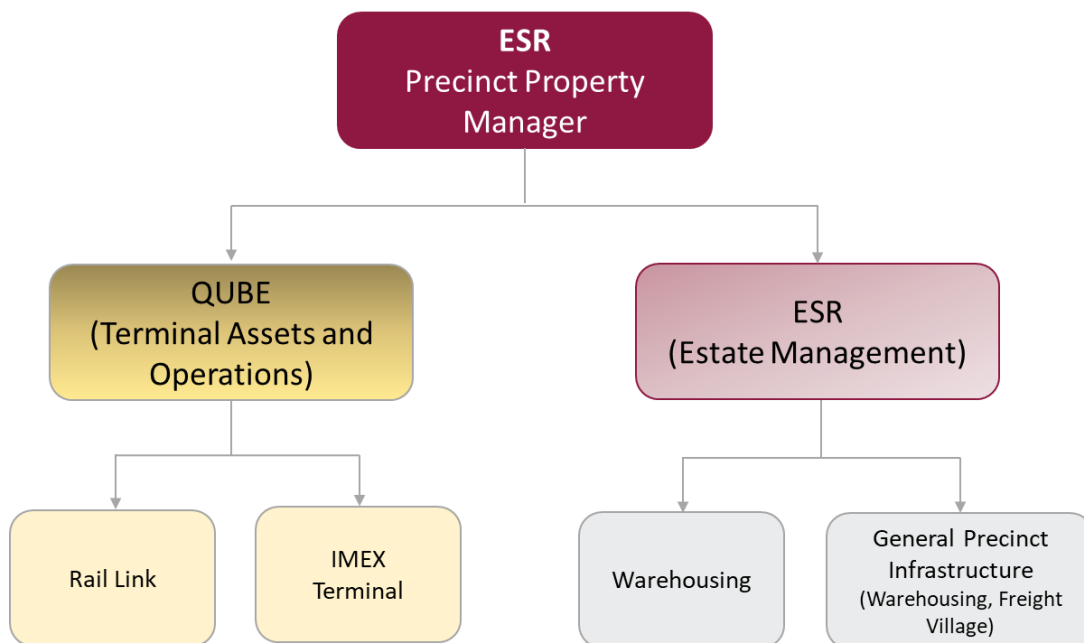


Figure 1-1: Environmental Management Structure

1.2 Purpose and Application

This OWRMP is a sub plan to the Operational Environmental Management Plan (OEMP) and has been developed to address the requirements of both MIP East Precinct Stage 1 CoC (SSD 6766) and MIP East Precinct Stage 2 CoC (SSD 7628 as modified) which require the preparation of an OWRMP, to the satisfaction of the Secretary of Department of Planning, Housing & Infrastructure (DPHI) prior to the commencement of operation. This OWRMP has been prepared in accordance with the planning instruments and guidelines listed in Section 2.1 and Section 2.2.

The OWRMP identifies the operational environmental management measures that will be applied to activities undertaken across the MIP East Precinct to manage identified waste and resources. The specific CoCs and FCMMs relevant to the development of this plan are identified in Section 2.2.

The most recent, approved version of this plan will be implemented to manage the Facility activities.

² ESR is currently in process of updating procedures and processes from LOGOS to ESR. Documentation listed in the OEMP will be updated overtime to reflect ESR naming conventions. Where existing LOGOS documents are being used (e.g. Sustainability Policy, EMS), these are still referred to in the OEMP.

1.3 Proposed staged/progressive application of the OEMP

The OEMP and sub-plans are applicable to the entire MIP East Precinct. However, as operational areas will come online incrementally as warehouses are constructed and tenanted, the OEMP and sub-plans will be progressively applied to those operational areas. The proposed staged/progressive application of the OEMP and sub-plans is described in the Program for Operational Phase Documentation (POPD), which was submitted to the Secretary for review was approved on 21 May 2019.

The proposed staged/progressive application of the OEMP, as described in the POPD, is shown on Figure 1-3, with dates of operation detailed in Table 1-1. Note that these dates are estimates and are subject to change. Area 1 and Area 2, and Area 3 are currently operational. Note that the Moorebank Avenue road realignment is currently under construction.

Table 1-1: Progression of the MIP East Precinct operation

Area	Approximate Dates	Component
Area 1	Q2 2019	IMEX, Rail Link and Warehouse 1
Area 2	Q4 2020	Warehouse 3, 4 and 5
Area 3	Q4 2023	Warehouse 6 and 7
Area 4	Q4 2028	Freight village
Area 5	Q4 2028	Warehouse 2
Area 6	Q1 2028	Moorebank Avenue upgrade

In accordance with CoC C6 (SSD 7628) each warehouse tenant will also prepare a Warehouse OEMP (WOEMP) prior to occupation of the warehouse based on the requirements of the OEMP and sub-plans. The Secretary will be notified one month prior to commencement of operation of each new warehouse in accordance with CoC A18 (SSD 7628). The WOEMP will be submitted to the Secretary for approval prior to commencement of operation of the warehouse.

1.3.1 Relationship of Stages

The OEMP and sub-plans are applicable to the entire MIP East Precinct. However, as areas become operational incrementally, construction areas will be rescinded and will continue to be managed in accordance with CEMP and sub-plans; conversely, operational areas will be managed in accordance with the OEMP and sub-plans. Operation of the site will only commence once the OEMP and sub-plans have been approved by the Secretary.

The Environmental Representative (ER), under CoC C24(d) (SSD 7628), is required to review the CEMP and OEMP to ensure they are “consistent with requirements of the consent.” The ER will continue to review and endorse any proposed changes to the CEMP and subplans until such time construction is complete and the MIP East Precinct site is fully operational. The ER will also review and endorse the updated figures for all operational documentation to ensure parity between construction and operational documentation. The operational figures will then be submitted to DPHI for information as described in Section 1.3.2.

Until the entire MIP East Precinct is operational, all construction zones will be fenced off to provide clear distinction between construction zones and the operational facility.

1.3.2 Triggers

As required by CoC A18 (SSD 7628) the Secretary will be notified one month prior to commencement of operation of each new area shown in Table 1-1 and Figure 1-3. The notification will include updated figures

detailing the new areas of operation which will fall under the remit of the OEMP as well as the reduced construction areas. As described in Section 1.3.1 the updated areas will have been endorsed by the ER prior to submission to the Secretary for approval.

Following notification, the OEMP and each sub-plan will be updated with the new operational site layout, while the CEMP and applicable sub-plans will be revised to show the reduced area of construction.

1.4 Structure of the WRMP

Combining strategies, plans and programs is permitted by CoC A16 and CoC A17, subject to the approval of the Secretary. Qube at the time of preparing the OEMP elected to combine the plans which relate to the management of waste and resources (e.g. water, electricity use) during operation of the MIP East Precinct.

The consolidation of the Resource Management Plan (RMP) (SSD 6766) and Waste Management Plan (WMP) from SSD 7628, into the OWRMP was described in the POPD which was approved by the Secretary on the 21 May 2019. The OWRMP addresses the relevant conditions and FCMMs from both SSD 6766 and SSD 7628. The OWRMP should be read in conjunction with the Stormwater Management Plan (SSD 7628 CoC B40) for the management of water resources, and the MIP East Precinct Stage 2 Urban Design and Landscape Plan (UDLP) for the management of Environmentally Sustainability Design principles (SSD 7628 CoC B142). See Table 2-2 through to Table 2-5 for more details.

1.5 Objectives and Targets

Table 1-2 below outlines the objectives and targets set out for the MIP East Precinct for the management of waste and resources during operation. These objectives and targets were developed by the Principal's Representative based on collective industry experience and best practice and have been endorsed by the project's Environmental Representative.

Table 1-2: Objectives and Targets

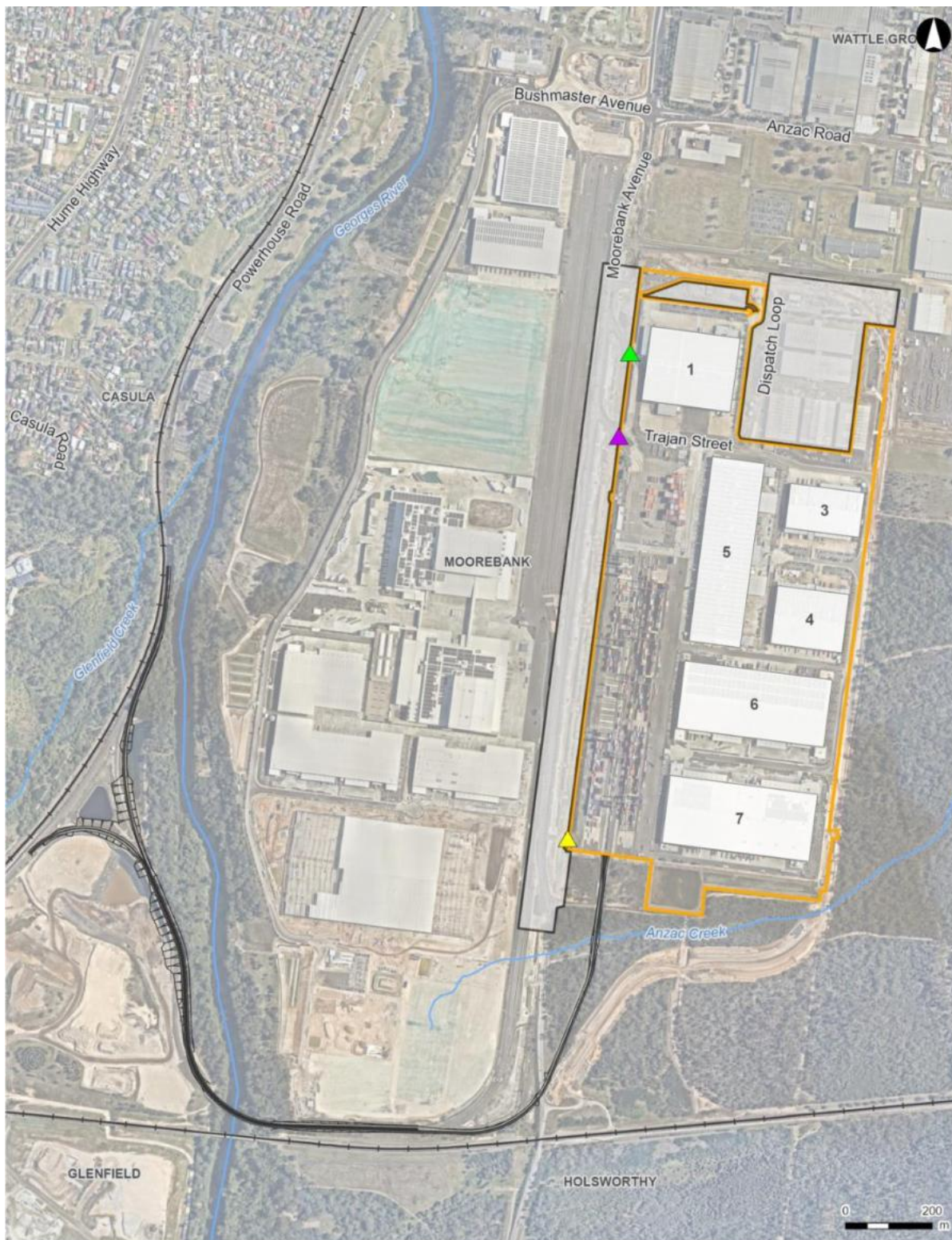
Objective	Target	Timeframe	Accountability
Diversion of waste from landfill	>60% of office waste by volume recycled	Monthly During operations	Site Safety, Health, Environment and Quality (SHEQ) Manager/Advisor for MIP East Precinct
Reducing water usage	100% of rainwater captured will be reused onsite	Annually During operations	Site SHEQ Manager / Advisor for MIP East Precinct
Waste and resource management training	100% of staff and visitors inducted on waste and resource management	During operations	Site SHEQ Manager / Advisor for MIP East Precinct

1.6 Consultation

This OWRMP will be prepared in consultation with relevant stakeholders. The table below will be updated as consultation with the applicable agencies progresses.

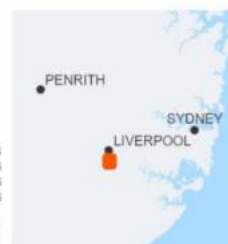
Table 1-3: Consultation Summary

Agency	Date	Person contacted	Comment	Status
EPA	29/04/2019	Craig Flemming (Unit Head, Sydney Industry Section)	Declined to comment on management plans and post approval documentation	Closed



Legend

- | | | |
|---|---|---|
|  MIP East Precinct construction area |  Warehouse access |  Operational rail link |
|  MIP East Precinct operational area |  IMEX truck access |  Watercourse |
|  Warehouse layout |  Emergency access |  Railway |



1:13,000 at A4
GDA2020 MGA Zone 56
Date issued: March 10, 2026
Imagery: Newmap 2026

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Figure 1-2: MIP East Precinct Site Location



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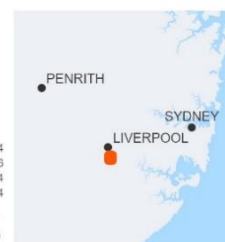
-  MIP East Precinct construction area
-  MIP East Precinct operational area
-  Warehouse layout

Operational staging:

-  Area 1
-  Area 2
-  Area 3
-  Area 4: Freight Village
-  Area 5
-  Area 6

-  Warehouse access
-  IMEX truck access
-  Emergency access
-  Operational rail link
-  Watercourse

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GDA2020 MGA Zone 56
Date issued: July 18, 2024
Imagery: Nearmap 2024





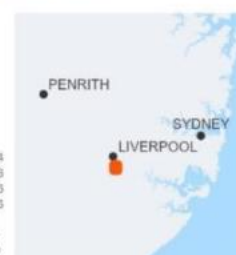
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-  MIP East Precinct construction area
-  MIP East Precinct operational area
-  Warehouse layout

Operational staging:

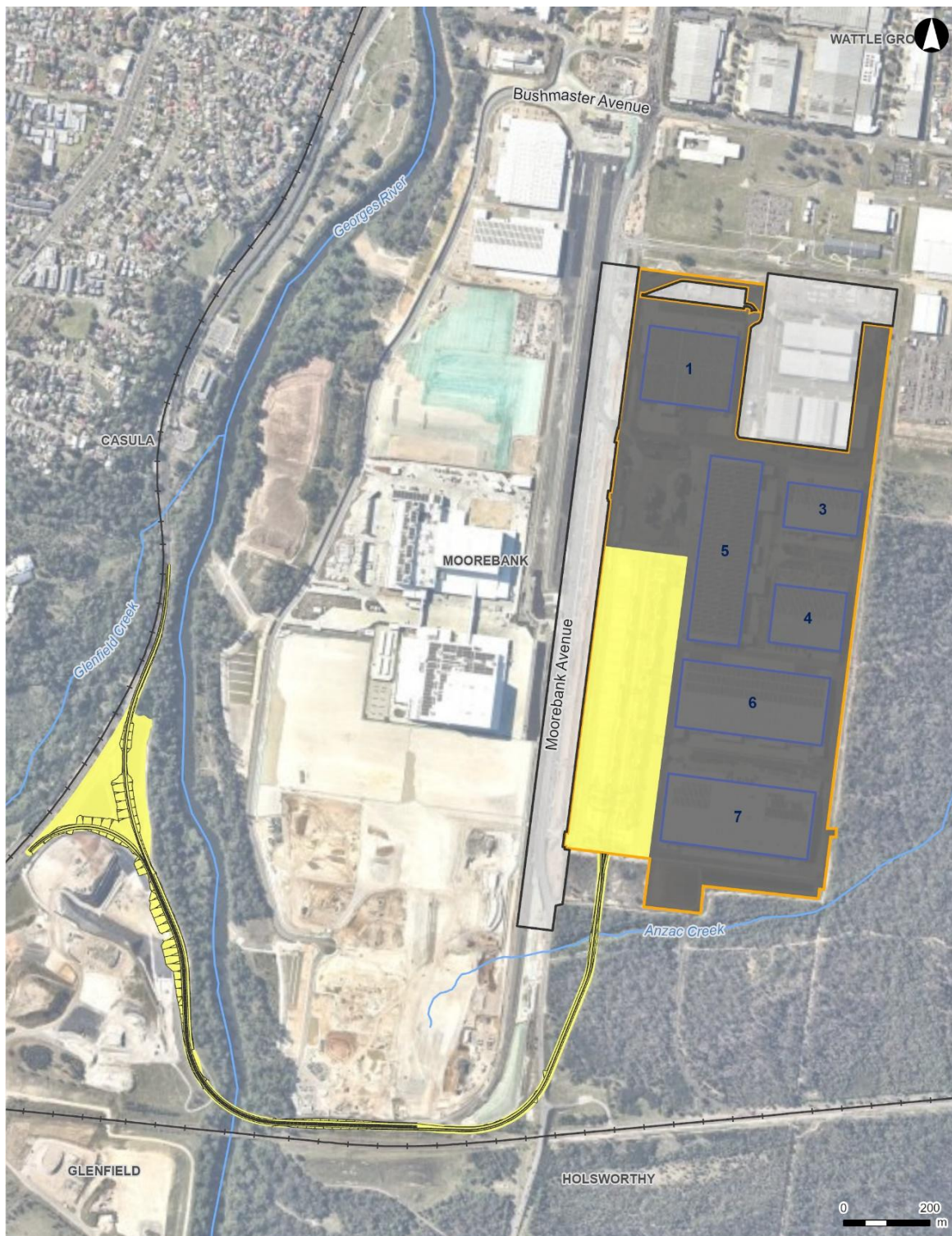
-  Area 1
-  Area 2
-  Area 3
-  Area 4: Freight Village
-  Area 5
-  Area 6

-  Warehouse access
-  IMEX truck access
-  Emergency access
-  Operational rail link
-  Watercourse



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Date issued: March 10, 2026
Imagery: Nearmap 2026

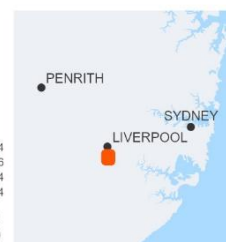
Figure 1-3: Proposed staged/application of area



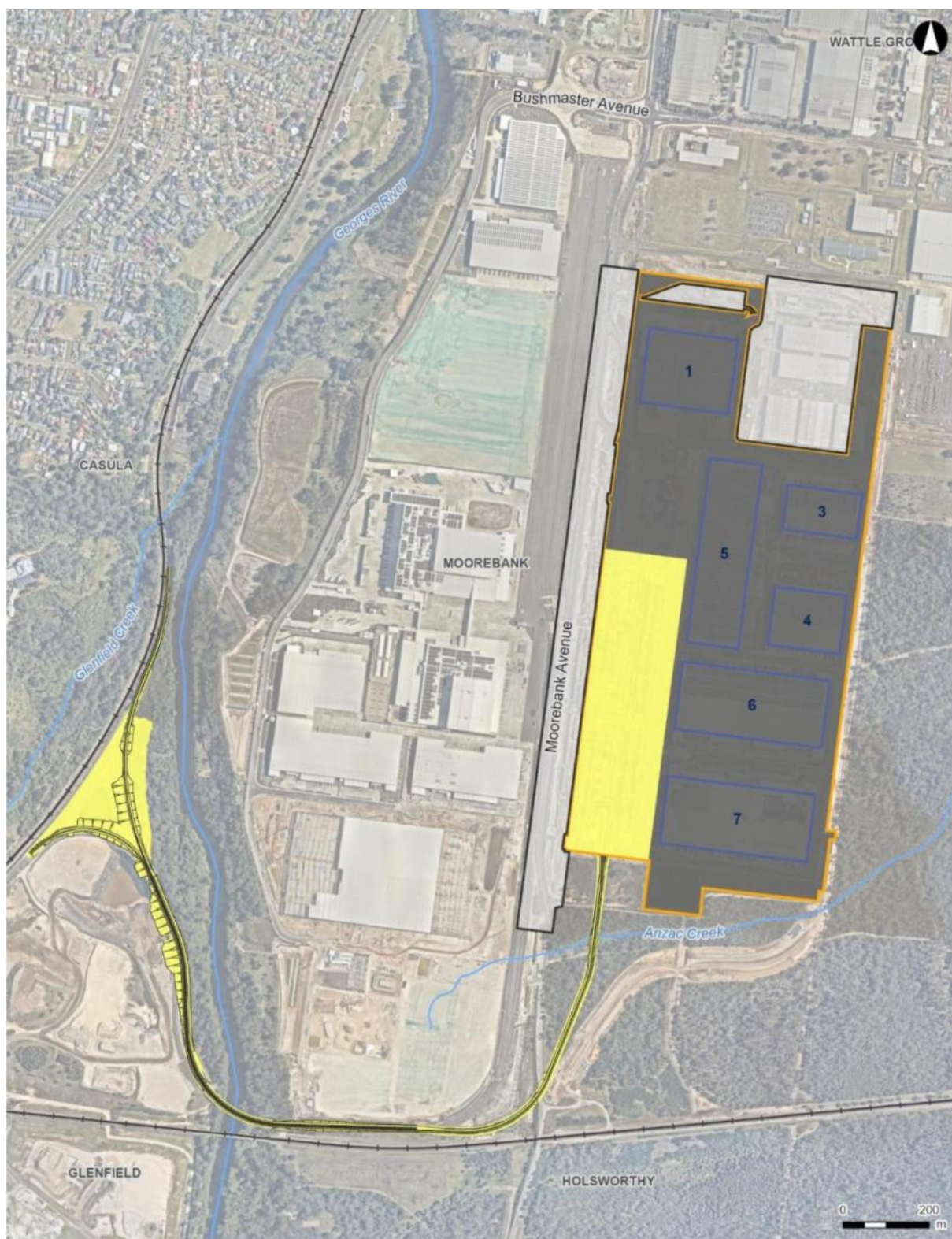
Legend

- | | |
|---|---|
|  MIP East Precinct construction area |  ESR |
|  MIP East Precinct operational area |  Qube |
|  Warehouse layout |  Operational rail link |
| |  Watercourse |
| |  Railway |

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GDA2020 MGA Zone 56
Date issued: July 18, 2024
Imagery: Nearmap 2024



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Legend

- | | |
|---|---|
|  MIP East Precinct construction area |  ESR |
|  MIP East Precinct operational area |  Qube |
|  Warehouse layout |  Operational rail link |
| |  Watercourse |
| |  Railway |

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Date issued: March 10, 2026
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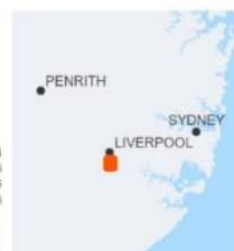


Figure 1-4: Areas of responsibilities maintained by ESR and Qube Logistics

2 STATUTORY REQUIREMENTS

2.1 Legal and Other Obligations

Details about the legislation, planning instruments and guidelines considered during development of this plan are listed below, with specific details provided in the Legislation Register within Appendix B of the OEMP.

- *Contaminated Land Management (CLM) Act 1997*
- *Environment Protection and Biodiversity (EPBC) Act 1999 (Commonwealth)*
- *Environmental Planning and Assessment Act 1979*

Environmental Planning and Assessment Regulation 2021

- *National Greenhouse and Energy (NGER) Act 2007(Commonwealth)*

Protection of the Environment Operations (Clean Air) Regulation 2022

- *Protection of the Environment Operations (POEO) Act 1997*
- *Protection of the Environment Operations (Waste) Regulation 2014.*

Additional legislation, standards, requirements and guidelines relating to the management of waste, energy and/or water include:

- AS 6400 – *Water Efficient Products - Rating and Labelling*
- Australian and International Standard AS ISO 14064.1
- City of Melbourne’s Guidelines for Preparing a Waste Management Plan (2015)
- Post Approval Guideline – Environmental Management Plan, 2018, NSW Department of Planning and Environment.
- Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014)
- Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities, NSW EPA (December 2012)
- Clean Energy Finance Corporation (CEFC) Bilateral Facility Agreement, 2017

2.2 Development Consent

The development of the MIP East Precinct was approved under both the *Environmental Planning and Assessment Act 1979* (EP&A) Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Both these approvals have environmental conditions relevant to the operational works for the MIP East Precinct, which are discussed below.

The operational requirements for the Facility, including consultation, impact mitigation and management, is documented in the following suite of documents:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (No. 2011/6229), March 2014
- MIP East Precinct Concept Approval (MP 10_0193), approved 29 September 2014
- Moorebank Precinct East – Concept Plan – Response to Submissions (Urbis, December 2013)
- State Significant Development (SSD) Consent SSD 6766, approved 13 March 2018 (superseding initial approval 12 December 2016)

- Moorebank Precinct East – Stage 1 – Environmental Impact Statement (Arcadis Australia Pacific Pty Limited, May 2015)
- Moorebank Precinct East – Stage 1 – Response to Submissions (Arcadis Australia Pacific Pty Limited, September 2015), including Final Compilation of Mitigation Measures (FCMMs)
- State Significant Development (SSD) Consent SSD 7628, approved 31 January 2018
- SSD 7628 MOD 1, approved 14 March 2022
- SSD 7628 MOD 2, approved 31 January 2020
- SSD 7628 MOD 3, approved 18 December 2020
- SSD 7628 MOD 4, approved 19 January 2021
- SSD 7628 MOD 5, approved 4 September 2023
- SSD 7628 MOD 6, approved 22 February 2024
- Moorebank Precinct East – Stage 2 – Environmental Impact Statement (Arcadis Australia Pacific Pty Limited, December 2016)
- Moorebank Precinct East – Stage 2 – Response to Submissions (Arcadis Australia Pacific Pty Limited, July 2017), including FCMMs.

2.2.1 EPBC Act Approval

The EPBC Act approval for the MIP East Precinct Concept was granted by the Federal Minister for the Environment in March 2014 (No. 2011/6229). Approval was required due to impacts on listed threatened species and communities (Sections 18 and 18A of the EPBC Act) and Commonwealth land (Sections 26 and 27A of the EPBC Act). SIMTA was the original applicant for the EPBC approval. The approval is now jointly held between The Trust Company Limited and Qube.

The operation of the MIP East Precinct has been designed to be consistent with the EPBC Act Approval conditions, where relevant. EPBC Act Approval conditions include specific conditions and commitments that are required to be addressed in this plan. These conditions are identified within Table 2-1.

Table 2-1: EPBC Act CoA

CoA	Requirement	Document Reference
8	For the better protection of Commonwealth land, the person taking the action must engage a suitably qualified expert(s) to prepare an Operation Environment Management Plan (OEMP) for the approval of the Minister. The OEMP must include in relation to operation of the proposed facility:	
	a) identification and quantification of all potential impacts associated with noise, vibration, air quality, traffic and light spill (including cumulative impacts associated with the DoFs proposed intermodal) upon Commonwealth land. Consideration must be given to people and communities at SME, DNSDC, Defence housing, and the environment more generally in neighbouring bushland areas. Of note, the air quality assessment must quantify all emissions arising from air pollutant sources for which there are established national air quality standards	See Appendix E of the Operational Environmental Management Plan (OEMP) [PREC-QPMS-EN-PLN-0001]
	b) refined details (including implementation timeframes) for the mitigation measures outlined in the EIS (sections 7.4.2, 7.4.6, 7.4.7, 7.4.8 and 7.4.9) and summarised at Annexure A	Section 3.3; Table 3-5

CoA	Requirement	Document Reference
	c) refined details of how heavy vehicles entering and exiting the site will be processed, including information on access and circulation both into, and within, the intermodal facility grounds	See Section 3.2 of the Operational Traffic and Access Management Plan (OTAMP) [PREC-QPMS-EN-PLN-0009]
	d) measures to ensure no heavy vehicles entering or exiting the intermodal facility park, or wait, on Moorebank Avenue	See Section 3.2 of the OTAMP [PREC-QPMS-EN-PLN-0009]
	e) identification of the trigger values and criteria for all matters mentioned in condition 8(b) (excluding light spill) that will be adopted for monitoring and managing potential impacts to those Commonwealth land	Section 4.1.1
	f) details of a comprehensive monitoring program (including locations, frequency and duration) for:	Section 4
	i. validating the anticipated impacts associated with condition 8(b)	Section 3.2.2
	ii. determining the effectiveness of mitigation/ management measures (including the success of public transport incentives)	Section 3.3; Table 3-5
Annexure A – Summary of Mitigation Measures		
Hydrology	The following mitigation measures will be adopted for the proposal to mitigate potential impacts on hydrology, water quality and flooding resulting from construction and operation of the proposal. Rainwater tanks will be installed to collect roof water from the warehouses on the SMTA site, and will be used for non-potable water demands such as toilet flushing and outdoor use	See Stormwater Infrastructure Operation and Maintenance Plan (SIOMP) [PREC-QPMS-EN-PLN-0006] Section 3.3; Table 3-5; WR36

2.2.2 EP&A Act Approval

The MIP East Precinct was approved under Part 4, Division 4.7 (previously Division 4.1 prior to 1 March 2018) of the EP&A Act. Approval for MIP East Precinct Stage 1 was originally received on 12 December 2016 (SSD 6766) and subject to appeal, with revised CoC issued from the Land and Environment Court on 13 March 2018; approval for MIP East Precinct Stage 2 was received on 31 January 2018 (SSD 7628).

The CoC include requirements to be addressed in this plan and delivered during operation of the Facility. These requirements, and how they are addressed are provided within Table 2-2 for CoC relating to SSD 6766 and Table 2-3 for CoC relating to SSD 7628.

In the compliance tables, Primary Conditions are specific to the development of the management plan, while Secondary Conditions are conditions which are related to the waste and resource aspects associated with the plan.

Table 2-2: CoC of SSD 6676 (MIP East Precinct Stage 1)

CoC	Requirement	Document Reference
Secondary Conditions		
E16	The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site	Section 3.3; Table 3-5; WR9, WR16-WR20
E17	All liquid and/or non-liquid waste generated on the site shall be assessed and classified in accordance with Waste Classification Guidelines (Department of Environment, Climate Change and Water 2009)	Section 3.3; Table 3-5; WR5
E18	All waste materials removed from the subject site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials	Section 3.3; Table 3-5; WR4

Table 2-3: CoC of SSD 7628 (MIP East Precinct Stage 2)

CoC	Requirement	Document Reference
Primary Conditions		
B120	Prior to the commencement of operation, the Applicant must prepare a Waste Management Plan for the development to the satisfaction of the Secretary. The Waste Management Plan must form part of the OEMP required by condition C3 and be prepared in accordance with condition C7. The Plan must:	This OWRMP
	a) detail the type and quantity of waste to be generated during operation of the development	Section 3.2.1; Table 3-1
	b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014 and the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) (as may be updated or replaced from time to time)	Section 3.2.2; Table 3-2 Section 3.3; Table 3-5
	c) detail the materials to be reused or recycled, either on or off site	Section 3.2.2; Table 3-2:
	d) include the Management and Mitigation Measures included in APPENDIX B	Section 3.3; Table 3-5
C3	Before the commencement of operations, a Precinct Operational Environmental Management Plan (OEMP) must be prepared to the satisfaction of the Secretary. The OEMP must: a) include the management plans required under this approval, including: ix) Waste Management Plan	The OEMP [PREC-QPMS-EN-PLN-0001] and relevant sub-plans, including this OWRMP
C7	The Applicant must ensure that the environmental management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
	a) detailed baseline data;	Section 3.1
	b) a description of: i. the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2.2; Table 2-1, Table 2-2, Table 2-3, Table 2-4, Table 2-5

CoC	Requirement	Document Reference
	ii. any relevant limits or performance measures/criteria; and	Section 4.1; Table 4-1
	iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 4.1; Table 4-1
	c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria;	Section 3.3; Table 3-5
	d) a program to monitor and report on the:	Section 4.1
	i. impacts and environmental performance of the development; and	
	ii. effectiveness of any management measures (see (c) above);	Section 4.1
	e) contingency plan to manage any unpredicted impacts and their consequences;	Section 4.5 Section 4.7
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 4.4
	g) a protocol for managing and reporting any:	
	i. incidents and non-compliances;	Section 4.5
	ii. complaints;	Section 4.6
	iii. non-compliances with statutory requirements; and	Section 4.7
	h) a protocol for periodic review of the plan.	Section 4.4
Secondary Conditions		
Staged and Combined Submission of Strategies, Plans or Programs		
A14	With the approval of the Secretary, the Applicant may submit any strategy, plan or program required by this consent on a staged basis.	Section 1.3 The POPD [PREC-ARC-EN-PRG-0001]
A15	If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program.	Section 1.3 The POPD [PREC-ARC-EN-PRG-0001]
A16	With the approval of the Secretary, any strategy, plan or program required by this consent may be combined	Section 1.4 The POPD [PREC-ARC-EN-PRG-0001]
A17	In seeking the Secretary's approval, a clear relationship must be demonstrated between the strategies, plans or programs that are proposed to be combined.	Section 1.3 The POPD [PREC-ARC-EN-PRG-0001]
Waste Management		
B121	Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site or be deposited on or otherwise enter neighbouring public or private properties	Section 3.3; Table 3-5; WR3

CoC	Requirement	Document Reference
B122	All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials	Section 3.3; Table 3-5; WR4
B123	The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014)	Section 3.3; Table 3-5; WR5
B124	Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal unless it satisfies these conditions	Section 3.3; Table 3-5; WR6
B125	The Applicant must retain all sampling and waste classification data for the life of the development in accordance with the requirements of EPA	Section 3.3; Table 3-5; WR7
B126	The collection of waste generated during operation of the development must be undertaken between 7 am to 10 pm Monday to Friday	Section 3.3; Table 3-5; WR14
Water Management		
B40	Prior to commencement of early works and fill importation, an amended Stormwater Management Plan must be submitted and approved by the Secretary. The plans must be prepared by a suitably qualified person, and independently reviewed, to ensure it meets the following criteria for: a) Water Sensitive Urban Design	See the Stormwater Management Plan (SMP); Warehouse 1 Precinct (W1P) ³ and Remainder of Site ⁴
	(iv) ensure rainwater harvesting is provided for each warehouse	Section 3.3; Table 3-5; WR36
	(vii) develop concept options for how 20% of the average annual volume of stormwater from the site can be reused via rainwater capture and reuse for activities including but not limited to: • irrigation, • all internal non-potable uses, • washdown, • cooling towers, • heating, ventilation, and air conditioning, and • ground source heat exchange.	Section 3.1 Section 3.3; Table 3-5; WR36
ESD principles		
B142	Warehouses and the freight village must be designed and operated to meet ESD principles including:	
	a) passive solar design	Section 3.1
	b) use of energy efficient plant material	Section 3.3; Table 3-5; WR27, WR28, WR32

³ Stormwater Management Plan (SMP); Warehouse 1 Precinct (W1P), Arcadis Report number AA009017-MPE_Stg2_SMP_W1. Approved by DPE on 7 August 2018

⁴ Moorebank Logistic Park Precinct East - Stage 2 Balance Of Site Stormwater Management Plan (Costin Roe, 2018)

CoC	Requirement	Document Reference
	c) use of renewable energy sources	Section 3.1 Section 3.2.1 Section 3.3; Table 3-5; WR34 Also see: MIP East Precinct Stage 2 UDLP [SSS2-QPMS-EN-APP-00034] Urban Heat Island Mitigation Strategy [SSS2-QPMS-EN-APP-00040]
	d) cross-ventilation	Section 3.1
	e) selection of materials with lower energy manufacturing requirements	Section 3.3; Table 3-5; WR37
	f) use of locally sourced materials to reduce impacts associated with transport	Section 3.3; Table 3-5; WR37
	g) rainwater capture and reuse	Section 3.1
	h) water efficient fixtures and fittings; and	Section 3.1
	i) waste minimisation and recycling	Section 3.3; Table 3-5; WR1, WR8, WR9, WR16-20

The Final Compilation of Mitigation Measures (FCMM) are presented within the MIP East Precinct Stage 1 RtS (Arcadis, September 2015), and the MIP East Precinct Stage 2 RtS (Arcadis, July 2017) documents. A list of FCMMs as relevant to the Facility and how they have been complied within this plan are provided in Table 2-4 and Table 2-5.

Table 2-4: Final Compilation of Mitigation Measures (MIP East Precinct Stage 1)

FCMM	Requirement	Document Reference
Waste		
13D	Measures to mitigate the effect of waste arising during operation of the Proposal will be incorporated into the OEMP and will include measures to encourage recycling behaviour and increase the diversion of waste into recycling streams. These will include:	
	Addressing waste management requirements and goals in staff inductions	Section 3.3; Table 3-5; WR8
	Providing staff access to documentation outlining the facility's waste management requirements	Section 3.3; Table 3-5; WR11
	Locating recycling bins in kitchen areas beside general waste bins to prevent contamination of recycling	Section 3.3; Table 3-5; WR16
	Positioning paper recycling bins close to printer/photocopying equipment	Section 3.3; Table 3-5; WR17
	Minimising general waste bins at desks but providing adequate container and paper recycling to encourage sorting of recyclables	Section 3.3; Table 3-5; WR18

FCMM	Requirement	Document Reference
	Providing adequate bin storage for the expected quantity of waste	Section 3.3; Table 3-5; WR12
	Providing appropriate disposal containers for the disposal of used spill kits and engagement of a suitably licensed contractor for their disposal	Section 3.3; Table 3-5; WR25, WR26
	Adoption of the operational waste management principles and procedures adopted within the Statement of Commitments for the Concept Plan	Section 3.3; Table 3-5; WR2
13E	Waste arising from maintenance will be dealt in part by an asset management strategy and OEMP. Where feasible from a safety and cost perspective, assets will be refurbished, if a replacement is required the maintenance contractor will be responsible for ensuring any waste is recycled; if this is not possible arrangements for disposal at an appropriately licenced facility will be made	Section 3.3; Table 3-5; WR22
Greenhouse Gas		
16B	The mitigation measures, management strategies and abatement opportunities presented in the Greenhouse Gas (GHG) and Climate Change Impact Assessment (Appendix X of this EIS) will be reviewed and considered where appropriate for incorporation into the Operational Environmental Management Plan (OEMP). The following measures will be incorporated in to the OEMP for the Proposal:	
	Energy efficiency design aspects will be incorporated wherever possible to reduce energy demand	MIP East Precinct Stage 1 UDLP; Appendix D Lighting Plan and Lighting Layouts [SSS1-QPMS-EN-PLN-00002] MIP East Precinct Stage 2 UDLP; Appendix A Lighting Plan [SSS2-QPMS-EN-APP-00034] Section 3.3; Table 3-5; WR27-35
	The procurement of energy efficient equipment will be investigated for the Proposal	Section 3.3; Table 3-5; WR27
	Regular maintenance of equipment with be undertaken to maintain good operations and fuel efficiency	Section 3.3; Table 3-5; WR28
	Consideration will be given to undertake further investigation and implementation of cost negative abatement opportunities	Section 3.3; Table 3-5; WR33
	Further investigation of abatement opportunities will be considered once the facility transitions from the use of container handling equipment such as reach stackers and large forklifts to the operation of gantry cranes	Section 3.3; Table 3-5; WR33

Table 2-5: Final Compilation of Mitigation Measures (MIP East Precinct Stage 2)

FCMM	Requirement	Document Reference
Hazard and Risk		
7L	No hazardous or regulated wastes would be disposed of on site.	Section 3.3; Table 3-5; WR24
Greenhouse Gas		
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	Section 3.3; Table 3-5; WR27
11H	Implement adaptation measures to address medium and high rated risks detailed in the climate change risk assessment presented in the GHG and Climate Change Risk Assessment (Appendix V of the EIS)	Section 3.3; Table 3-5; WR27-35 Adaptation measures also addressed during detailed design.
Waste		
12B	Measures to mitigate the effect of the operational waste streams would be incorporated into the Amended Proposal's OEMP, including the following information:	
	Addressing waste management requirements and goals in staff inductions	Section 3.3; Table 3-5; WR8
	Providing staff access to documentation outlining the facility's waste management requirements	Section 3.3; Table 3-5; WR11
	Appropriate areas shall be provided for the storage of waste and recyclable material including:	Section 3.3; Table 3-5; WR12
	- Locating recycling bins in kitchen areas beside general waste bins to prevent contamination of recycling	Section 3.3; Table 3-5; WR16
	- Positioning paper recycling bins close to printer / photocopying equipment	Section 3.3; Table 3-5; WR17
	- Establishing bays or containers for recyclable waste generated through de-stuffing	Section 3.3; Table 3-5; WR20
	- Minimising general waste bins at desks but providing adequate container and paper recycling to encourage sorting of recyclables	Section 3.3; Table 3-5; WR18
	- Ensuring warehouse tenants are providing adequate bin storage for the expected quantity of waste	Section 3.3; Table 3-5; WR13
	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	Section 3.3; Table 3-5; WR10
	Waste management planning incorporating principles of the waste hierarchy	Section 3.3; Table 3-5; WR1
	All domestic waste shall be collected regularly and disposed of at licensed facilities	Section 3.3; Table 3-5; WR4

FCMM	Requirement	Document Reference
	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	Section 3.3; Table 3-5; WR15
	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	Section 3.3; Table 3-5; WR9
	Sewage waste will be discharged to Sydney Water sewerage infrastructure in accordance with Sydney Water requirements	Section 3.3; Table 3-5; WR21
	Trade waste will be discharged to the sewer through a trade waste⁵ agreement with Sydney Water	Section 3.3; Table 3-5; WR22
	Inclusion of the waste management strategies included in the Concept Plan Statement of Commitments for operational waste management	Section 3.3; Table 3-5; WR2

2.3 Roles and Responsibilities

Key roles and responsibilities applicable to this OWRMP are presented in Table 2-6.

Table 2-6: Roles and Responsibilities

Roles	Responsibilities
Operations Manager	- Provides sufficient resources to implement, develop and maintain the OWRMP throughout the operating life of the MIP East Precinct - Sets, defines and communicates the environmental goals and targets for the MIP East Precinct, including waste, water and energy - Reports relevant environmental matters including waste, water and energy and has them included in the agenda of management meetings - Reviews and approves changes to the OWRMP.
Rail Link Area Manager Estate Manager IMEX Terminal Manager	- Communicates the requirements of the OWRMP and environmental obligations to operational team - Monitors operations against the requirements of the OWRMP and CoC and takes action to resolve issues where required - Where required, implements changes to activities to manage ongoing compliance - Reports incidents to General Manager Operation in accordance with the OEMP.
Site Safety, Health, Environment and Quality (SHEQ) Manager/Advisor for MIP East Precinct	- Reviews and implements this OWRMP - Monitors operations against this OWRMP through regular site inspections to evaluate compliance with the CoC - Has the authority to implement reasonable steps to avoid or minimise unintended or adverse waste, water and energy impacts, including to direct that relevant actions be ceased immediately should an adverse impact be likely to occur - Reports environmental incidents to Area Manager and General Manager where required, in accordance with the Incident reporting system outlined in the OEMP - Acts as the 24-hour EPA contact

⁵ It is not currently anticipated that a trade waste agreement will be required for operations. If in future a trade waste agreement is required, the agreement will be obtained from Sydney Water prior to the discharge of trade waste in sewers.

Roles	Responsibilities
	• Facilitates the inductions and training program for relevant persons involved with IMEX, Rail Link and Estate operations • Maintain a register for waste tracking and energy and water usage to enable reporting as required against this plan, legislation and requirements • Maintain the register of waste, water and energy management incidents, potential; incidents and complaints and implement subsequent remedial actions.
Individual Tenants	• Prepare WOEMP and undertake operations in accordance with the WOEMP • Responsible for their own environmental performance for operational activities on leased areas, including waste, water and energy management • Record usage of water and electricity in accordance with this plan and report to the SHEQ Manager/Advisor for MIP East Precinct where water and electricity are sub-metered for individual tenants • Record waste generation and recycle rates in accordance with this plan and report to the SHEQ Manager/Advisor for MIP East Precinct • Must comply with the conditions of their lease or licence.

3 IMPLEMENTATION

This section addresses the key waste and resource management risks associated with operation of the MIP East Precinct and the environmental controls established to manage key risks. The key reference document is Section 20.2 and Appendix X of the MIP East Precinct Stage 1 EIS and Section 20.1 and Appendix V of the MIP East Precinct Stage 2 EIS.

3.1 Existing Environment

Warehouse and distribution facilities will typically range from 20,000m² to 62,000m² and will be serviced by a workforce of approximately 1,408 full time staff when fully operational. Individual warehouses have been designed to meet a minimum 4 star – Green Star accreditation, meaning that warehouses will typically include:

- Passive solar design
- LED lightbulbs
- Solar Photovoltaic cells
- Cool building materials
- Large awnings over receiving docks
- Rainwater harvesting via rainwater tanks
- Water efficient toilet fixtures

Measures implemented into the design of the wider MIP East Precinct Facility in order to reduce energy and water consumption during operations, include bioretention structures and landscaping.

The annual average rainfall on site is estimated to be 610 ML and of this approximately 256 ML/yr will fall on warehouse roof areas. Automated rainwater reuse systems will be installed within warehouse areas for the purposes of rainwater harvesting. These systems will be fitted with meters which will monitor tank levels and quantities of rainwater reused within the warehouse. Rainwater reuse is discussed in more detail in Section 3.2.2.

3.2 Aspects, Impacts and Risks

3.2.1 Operational Activities

As outlined in Section 20.2.2 of the MIP East Precinct Stage 1 EIS and Section 20.1.3 and of the MIP East Precinct Stage 2 EIS, waste generated through offices, lunchrooms and asset management activities will be key sources of waste associated with MIP Precinct East.

Appendix X of the MIP East Precinct Stage 1 EIS and Appendix V of the MIP East Precinct Stage 2 EIS indicate that electricity consumption is the key source of energy use within the Facility. The main operational activities associated with waste generation and resource use for the entire MIP East Precinct are listed in Table 3-1.

Table 3-1: Waste generating activities during operation

Waste Generating Activity	Waste/Resource Type
Administration, amenities and lunchrooms	- Residual waste (i.e. non-recyclable waste) - Recyclable waste (containers and paper/cardboard) - Sewage - Trade wastes⁶ (all liquid wastes discharged to the sewerage system, other than water from hand wash basin, shower, bath or toilet) - Water consumption - Electricity consumption (GHG)
De-stuffing and packing containers	- Recyclable materials (paper, plastic containers, glass containers and aluminium cans) - Cardboard and plastic packaging - Pallets
Maintenance of equipment, vehicles and locomotives	- Spill kit consumables - Maintenance items consumables
Transportation of freight	GHG (fuel consumption)
Operation of warehouses and freight village	GHG (electricity and fuel consumption)

3.2.2 Potential Operational Impacts

Waste

The operation of the Facility would generate waste from a variety of sources and activities. Waste will be managed where feasible, on the hierarchy of priorities for the efficient use of resources; which underpins the objectives of the Waste Avoidance and Resource Recovery Act 2001. The waste hierarchy is as follows:

- **Avoidance:** including action to reduce the amount of waste generated by households, industry and all levels of government
- **Resource recovery:** including re-use, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources
- **Disposal:** including management of all disposal options in the most environmentally responsible manner⁷.

Estimated quantities of waste generated by the activities for the entire MIP East Precinct identified in Section 3.2.1 and potential methods of disposal are presented in Table 3-2.

⁶ <https://www.industry.nsw.gov.au/water/water-utilities/regulatory-assessments/liquid-trade-waste>. It is not currently anticipated that a trade waste agreement will be required for operations. If in future a trade waste agreement is required, the agreement will be obtained from Sydney Water prior to the discharge of trade waste in sewers.

⁷ <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/warr-strategy/the-waste-hierarchy>

Table 3-2: Estimates of waste streams generated during operation⁸

Waste Type	Estimated Quantity of Waste Generated	Estimated Quantity Suitable For		
		Onsite Reuse	Offsite Recycling or Reprocessing	Offsite Disposal
Residual waste ⁹ (Office)	3,388 L/day	N/A	N/A	3,388 L/day
Recyclables ¹⁰ (Office)	3,360 L/day	N/A	3,360 L/day	N/A
Residual waste ¹¹ (Precinct Amenities)	1,830 L/day	N/A	N/A	1,830 L/day
Recyclable waste ¹² (Precinct Amenities)	1,830 L/day	N/A	1,830 L/day	N/A
Sewerage ¹³	105.6 kL/day	N/A	N/A	105.6 kL/day
Trade waste ¹⁴ (Precinct waste)	35 L/customer/day	N/A	N/A	35 L/customer/day
Spill kit consumables	As needs basis	N/A	N/A	As needs basis
Organics (Food) ¹⁵	20 L/day	N/A	N/A	20 L/day
Paper/Cardboard (including secure paper) ¹⁵	45 L/day	N/A	45 L/day	N/A
Commingled ¹⁵	5 L/day	N/A	5 L/day	N/A
E-Waste ¹⁵	2 L/day	N/A	2 L/day	N/A

⁸ Waste quantity estimates sourced from Table 20-25 of Section 20.2.2 of the MIP East Precinct Stage 1 EIS and Table 20-6 of Section 20.1.3 of the MIP East Precinct stage 2 EIS.

⁹ The estimated volume of waste generated was based on the commercial waste generation rate for an Office, published in City of Melbourne's Guidelines for Preparing a Waste Management Plan – 2015. According to this guideline, 10L of residual waste and 10L of recycling is generated per 100m² of office floor area (for standard daily operating hours). These generation rates were applied to a floor area of 8,000m² a 168 (24/7) hour work week

¹⁰ As above

¹¹ The precinct amenities include a takeaway/café area. The estimated volume of waste generated was based on the commercial waste generation rate for a takeaway/café, published in City of Melbourne's Guidelines for Preparing a Waste Management Plan – 2015. According to this report, 150L of residual waste and 150L of recycling waste is generated per 100m² of floor area (for standard daily operating hours). These generation rates were applied to a floor area of 1,220 m² and a 40 hour work week

¹² As above

¹³ Typical wastewater flow rate for an industrial building assumed to be 75L per person per day (Metcalf and Eddy (2003) Wastewater Engineering, Treatment and Reuse. Proposal consists of 1,408 FTE during operation.

¹⁴ Typical wastewater flow rate for retail premises preparing and serving food is assumed to be 35L per customer per day (Metcalf and Eddy (2003) Wastewater Engineering, Treatment and Reuse. It is not currently anticipated that a trade waste agreement will be required for operations. If in future a trade waste agreement is required, the agreement will be obtained from Sydney Water prior to the discharge of trade waste in sewers.

¹⁵ Based on a floor space of 500 m² and a waste generation rate of 10 L per 100 m² of floor space per day, it is estimated that 100 L of waste per day will be produced (Section 20.2.2 in the MIP East Precinct Stage 1 EIS).

Waste Type	Estimated Quantity of Waste Generated	Estimated Quantity Suitable For		
		Onsite Reuse	Offsite Recycling or Reprocessing	Offsite Disposal
De-stuffing waste	Approximately 95% of expected containers will be Full Container Loads (FCL) and contents will be transferred directly to the consumer (generating the de-stuffing waste outside the boundary of the Facility). The remaining 5% will be classified as Freight All Kind (FAK) and Less Than A Container Load (LCL) - these containers will be de-stuffed in the warehouse. Goods will come in the form of loose cartons or disposable pallets, with a proportion of these wrapping materials transported to the consumer. Assuming 50% of the waste to be de-stuffed in the warehouses are disposable pallets, it is estimated 500,000 disposable pallets will be generated per annum¹⁶. Other waste likely to be generated include flexible plastics and cardboard. However, the quantity of these streams is variable subject to the contents of the containers.			

Energy Consumption

The operation of the entire MIP East Precinct Facility would generate approximately 127,955 tCO₂-e per annum. Table 3-3: shows a summary of the GHG emissions generated by the Facility on an annual basis. The consumption of electricity would be the single largest contributor to GHG emissions, accounting for 70 per cent of total operational emissions.

Table 3-3: Annual GHG emissions from the Facility¹⁷

Activity	Scope 1 emissions (tCO ₂ -e)	Scope 2 emissions (tCO ₂ -e)	Scope 3 emissions (tCO ₂ -e)	Total
Transportation	1,128	-	12,656	13,784
Electricity consumption	-	79,499	10,400	89,899
Refrigerant leakage	167	-	-	167
Onsite machinery	16,415	-	1,313	17,728
Operational waste	-	-	6,377	6,377
Total	17,710	79,499	30,746	127,955

Solar Panels

Solar panels will be installed for the warehouses, where practicable. The solar panels will be installed on the available roof space of the warehouses and allows the site to generate its own electricity. The solar panels integrate the Ecological Sustainable Development (ESD) principles listed under CoC B142 (SSD 7628) and will provide a means of energy efficiency for the MIP East Precinct site.

¹⁶ Assuming 2 rows of 10 standard sized disposable pallets per container.

¹⁷ Based on a 'worst case scenario' as outlined in Appendix X of the MIP East Precinct Stage 1 EIS and Appendix V of the MIP East Precinct Stage 2 EIS.

Water Consumption

The Facility is committed to meeting a minimum 4 Star Green Star Rating. To achieve this a minimum of a four-star Water Efficiency Labelling and Standards (WELS) rating for toilets is required as described in AS 6400¹⁸.

A summary of the yearly demand for toilet flushing (per toilet) based on toilet WELS rating is shown in Table 3-4. This demand was calculated by allowing for 4 flushes per day, 260 days per year for 1,430 people.

Table 3-4: Toilet Water Usage WELS Rating¹⁹

Toilet WELS Rating	Yearly Demand (ML/yr)
1 Star (Not allowed for installation)	8.2
3 Star	5.9
4 Star (Minimum Site Requirement)	5.2
5 Star (Proposed Site Implementation)	4.5

Wash-down facilities would be generally water efficient. For the purposes of rainwater reuse, a total demand of 0.5 ML/yr has been identified for the Facility²⁰.

Landscaping for the operational facility has been conceptually designed by GroundInk with various areas of turf and gardens. After the initial establishment phase of three to six months the average landscaping demand is estimated to be 10 mm/week, resulting in a required water depth of 520 mm annually. The average annual rainfall for Moorebank is 865 mm, and on average 5 mm/week is estimated. Therefore, based on the proposed landscaping area and irrigation requirements, the average annual demand for water is estimated to be 14 ML/yr. Unlike the other reuse demands this volume is strongly weather dependent.

3.3 Management Measures

This section describes the overall approach to managing and mitigating waste and resource use risks during Operation of the Facility.

All waste generated on site will be managed in accordance with the requirements of the Protection of the Environment Operations (Waste) Regulation (2014). This includes appropriate handling, storage and disposal measures described in Table 3-5.

Management measures are summarised in Table 3-5. These measures are based on best practice and compliance matrices detailed in Section 2.2, as well as ESR (as MIP East Precinct Property Manager) and Qube's (as IMEX and Rail Link Operations Manager) requirements and standards.

¹⁸ AS 6400 – Water Efficient Products - Rating and Labelling

¹⁹ WELS ratings sourced from Table 7-1 of the MIP East Precinct Stage 2 Stormwater Management Plan (SMP) – Warehouse 1 Precinct (W1P)

²⁰ Total washdown demand sourced from Section 7.5.1.3 of the MIP East Precinct Stage 2 SMP – W1MP

Table 3-5: Management Measures

ID	Management Measure	Timing	Responsibility	Reference
GENERAL				
WR1	Waste management planning will incorporate principles of the waste hierarchy (See Section 3.2.2)	Prior to the commencement of operations	General Operations Manager	SSD 7628 CoC 142 i) SSD 7628 FCMM 12B
WR2	Operational waste management principles and procedures will be adopted as per the Statement of Commitments for the Concept Plan	During operations	General Operations Manager	SSD 6766 FCMM 13D SSD 7628 FCMM 12B
WR3	Waste will be secured and maintained within designated waste storage areas at all times and must not leave the site or be deposited on or otherwise enter neighbouring public or private properties	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC B121
WR4	All waste materials removed from the site will only be directed to a waste management facility or premises lawfully permitted to accept the materials	During operations	Site SHEQ Manager / Advisor for MIP Precinct East Individual Tenants	SSD 6766 CoC E18 SSD 7628 CoC B122 RSoC - Waste SSD 7628 FCMM 12B
WR5	All liquid and non-liquid wastes taken offsite will be assessed and classified in accordance with the latest version of the EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014)	During operations	Site SHEQ Manager / Advisor for MIP Precinct East Individual Tenants	SSD 6766 CoC E17 SSD 7628 CoC B123
WR6	Waste generated outside the site will not be received at the site for storage, treatment, processing, reprocessing, or disposal unless it satisfies these conditions	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC B124
WR7	All sampling and waste classification data will be retained for the life of the development in accordance with the requirements of EPA	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC B125
WR8	Waste management requirements and goals will be addressed and communicated in staff inductions.	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC 142 i) SSD 6766 FCMM 13D SSD 6766 FCMM 12B

ID	Management Measure	Timing	Responsibility	Reference
WR9	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	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 CoC E16 SSD 7628 CoC 142 i) RSoC - Waste SSD 7628 FCMM 12B
WR10	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 and bins will be clearly labelled to indicate acceptable waste streams to be placed in each bin. This will also include encouragement of reuse of materials, where possible, in order to minimise waste generation.	Prior to the commencement of operations	Site SHEQ Manager / Advisor for MIP Precinct East Individual Tenants	RSoC - Waste SSD 7628 FCMM 12B
WR11	Documentation outlining the Facility's waste management requirements will be provided to staff	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 13D
WR12	Adequate bin storage and bin storage areas will be provided for the expected quantity of waste generated by the Facility	During operations	Site SHEQ Manager / Advisor for MIP Precinct East Individual Tenants	RSoC - Waste SSD 6766 FCMM 13D
WR13	Warehouse tenants will be monitored to ensure they are providing adequate bin storage for the waste generated by individual warehouse precincts	During operations	Site SHEQ Manager / Advisor for MIP Precinct East Individual Tenants	SSD 7628 FCMM 12B
WASTE COLLECTION				
WR14	The collection of waste generated during operation of the development will be undertaken between 7 am to 10 pm Monday to Friday	During operations	Individual tenants	SSD 7628 CoC B126 RSoC - Waste SSD 7628 FCMM 12B
WR15	Waste collection locations shall be cleared for access for waste collection vehicles to service the development and to ensure that bins are placed in correct locations	During operations	Individual tenants	SSD 7628 CoC B126 RCM – Waste SSD 7628 FCMM 12B

ID	Management Measure	Timing	Responsibility	Reference
RECYCLING AND WASTE MINIMISATION				
WR16	Recycling bins in kitchen areas will be located beside general waste bins to prevent contamination of recycling	During operations	Individual tenants	SSD 6766 CoC E16 SSD 7628 CoC 142 i) SSD 6766 FCMM 13D SSD 7628 FCMM 12B
WR17	Paper recycling bins will be positioned close to printer/photocopying equipment	During operations	Individual tenants	SSD 6766 CoC E16 SSD 7628 CoC 142 i) SSD 6766 FCMM 13D SSD 7628 FCMM 12B
WR18	Container and paper recycling bins will be provided to encourage the sorting of recyclables and minimise general waste	During operations	Individual tenants	SSD 6766 CoC E16 SSD 7628 CoC 142 i) SSD 6766 FCMM 13D SSD 7628 FCMM 12B
WR19	Bays or containers will be established for waste generated for de-stuffing activities	During operations	Individual tenants	SSD 6766 CoC E16 SSD 7628 CoC 142 i) SSD 7628 FCMM 12B
WR20	Where feasible, tenants will re-use materials (including packaging), avoid disposable or single-use materials and select packaging that requires the fewest resources to produce in order to minimise waste generation	During operations	Individual tenants	SSD 7628 CoC 142 i)
SEWAGE				
WR21	Sewage waste will be disposed of by a licensed waste contractor in accordance with Sydney Water and NSW Heritage NSW within NSW DCCEEW requirements	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	RSoC - Waste SSD 7628 FCMM 12B
WR22	If required, trade waste will be discharged to the sewer through a trade waste agreement with Sydney Water ²¹	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	RSoC - Waste SSD 7628 FCMM 12B

²¹ "It is not currently anticipated that a trade waste agreement will be required for operations. If in future a trade waste agreement is required, the agreement will be obtained from Sydney Water prior to the discharge of trade waste in sewers.

ID	Management Measure	Timing	Responsibility	Reference
MAINTENANCE WASTE				
WR23	Where feasible from a safety and cost perspective, assets will be refurbished, if a replacement is required the maintenance contractor will be responsible for ensuring any waste is recycled; if this is not possible arrangements for disposal at an appropriately licenced facility will be made	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 13E
HAZARDOUS WASTE				
WR24	Hazardous or regulated wastes generated will be disposed at a facility appropriately licensed to receive these wastes	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 FCMM 7L
SPILL KITS				
WR25	Appropriate containers will be provided for the disposal of used spill kits	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 13D
WR26	A suitably licensed contractor will be engaged to dispose of used spill kits	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 13D
ENERGY EFFICIENCY				
WR27	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	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC B142 b) SSD 6766 FCMM 16B SSD 7628 FCMM 11G
WR28	Energy-efficient guidelines for operational work will be considered and implemented where appropriate and regular maintenance of equipment will be undertaken to maintain fuel efficiency	Prior to the commencement of operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC B142 b) SSD 6766 FCMM 16B SSD 7628 FCMM 11H
WR29	On-site vehicles will be fitted with exhaust controls in accordance with the <i>Protection of the Environment Operations (Clean Air) Regulation 2022</i> as required	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 16B SSD 7628 FCMM 11H
WR30	Regular maintenance of equipment will be undertaken to maintain good optimum operations and fuel efficiency	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 16B SSD 7628 FCMM 11H

ID	Management Measure	Timing	Responsibility	Reference
WR31	Where practicable, trucks removing waste from the site or bringing materials to the site will be filled to the maximum amount allowable, depending on the truck size and load weight, to reduce the number of traffic movements required	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 16B SSD 7628 FCMM 11H
WR32	Electric gantry cranes to reduce use of diesel-powered equipment	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC B142 b) SSD 6766 FCMM 16B SSD 7628 FCMM 11H
WR33	Consideration will be given to undertake further investigation and implementation of cost negative abatement opportunities once the facility transitions from the use of container handling equipment such as reach stackers and large forklifts to the operation of gantry cranes	During operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 16B SSD 7628 FCMM 11H
WR34	Photovoltaic cells will be installed on individual warehouse roofs to provide renewable energy generation and increase energy efficiency	Prior to the commencement of operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 7628 CoC B142 c) SSD 6766 FCMM 16B SSD 7628 FCMM 11H
WR35	LED lighting and translucent sheeting (for natural lighting) will be installed in warehouses to increase energy efficiency	Prior to the commencement of operations	Site SHEQ Manager / Advisor for MIP Precinct East	SSD 6766 FCMM 16B
WATER CONSUMPTION				
WR36	Rainwater tanks will be installed to collect roof water from the warehouses on the Facility, and will be used for non-potable water demands such as toilet flushing and outdoor use (irrigation and washdown)	Prior to the commencement of operations	Site SHEQ Manager / Advisor for MIP Precinct East	EPBC Annexure A SSD 7628 CoC B40 a) iv) and vii) SMP and SIOMP RSoC - Biodiversity
PROCUREMENT				
WR37	When procuring services and materials, consider low energy manufacturing and sourcing materials from local suppliers to minimise impacts associated with transport.	During operations	Individual tenants	SSD 7628 CoC 142 e) and f)

4 MONITORING AND REVIEW

4.1 Monitoring Requirements

Waste and resource monitoring will be undertaken as required by this OWRMP and the CoC. Monitoring requirements relevant to the OEMP and OWRMP are summarised in Table 4-1.

Table 4-1: Monitoring Requirements

Monitoring Focus	Area/Location	Responsibility	Frequency
Rainwater reuse meter monitoring	Warehouses	Site SHEQ Manager / Advisor for MIP Precinct East Warehouse tenant	Continuous
Monitoring for training personnel to properly sort and transport waste into the right components and destinations	Whole Facility	Site SHEQ Manager / Advisor for MIP Precinct East	Continuous
Adequate bin storage for all waste streams	Warehouses	Site SHEQ Manager / Advisor for MIP Precinct East	Continuous
Waste Diversion from landfill	Warehouses	Site SHEQ Manager / Advisor for MIP Precinct East	Monthly

4.1.1 Monitoring Criteria

Monitoring criteria applicable to the OWRMP are provided in Table 4-2. In the event of an exceedance of waste and resource management levels, works will be managed at the direction of the Site SHEQ Manager / Advisor for MIP Precinct East. Remedial measures will be implemented.

Table 4-2: Triggers for remedial measures

Monitoring Focus	Trigger	Action	Responsibility
Rainwater reuse system	100% of rainfall captured to be reused onsite	Regular maintenance of the rainwater reuse system to ensure effective operation This is to ensure that all rainwater captured on site is reused to the fullest extent possible on operational activities including toilet flushing, wash down facilities and landscaping.	Site SHEQ Manager / Advisor for MIP Precinct East
Waste diversion from landfill	<60% of office waste by volume recycled	Review and improve training/education program (including shift pre-start meeting and toolbox talks) Ensure adequate recycling storage	Site SHEQ Manager / Advisor for MIP Precinct East

Monitoring Focus	Trigger	Action	Responsibility
Adequate bin storage for all waste streams	Inadequate bin storage for waste generated by individual warehouses, measured by - Bins overfull and waste stored on ground - Lids on bins cannot be closed due to excess waste - Excessive litter in waste storage area due to overfull bins - No labels on bins to ensure appropriate waste segregation	Ensure that bin storage is adequate to meet anticipated requirements ²² Clearly label all bins Records of waste and recyclable material are maintained (See Table 4-5)	Site SHEQ Manager / Advisor for MIP Precinct East
Personnel waste training	Inadequate training given to personnel to sort and transport waste into the right components: - Waste is not appropriately segregated i.e. recyclable waste (e.g. bottles, cans, paper) placed in general waste bins - General waste (e.g. food scraps) placed in recyclable waste bins - Waste not transported to correct disposal / recycling facility - Bins inappropriately stored (e.g. stacked on top of each other)	Review and improve training/ education program (including shift pre-start meeting and toolbox talks)	Site SHEQ Manager / Advisor for MIP Precinct East

4.2 Environmental Auditing

Waste and resource auditing will be undertaken in accordance with the EMS and CoC as outlined within the overarching OEMP (PREC-QPMS-EN-PLN-0001). Auditing applicable to this OWRMP is summarised in Table 4-3.

Table 4-3: Environmental Auditing and Reporting Requirements

Requirement	Area/Location	Responsibility	Frequency
Internal Auditing	Whole Facility	Site SHEQ Manager / Advisor for MIP Precinct East Qube for IMEX and Rail Link	Quarterly
Independent Environmental Audit	Whole Facility	Independent Auditor	Within 12 months of operation commencing Every 3 years thereafter unless directed by Secretary

²² Adequate storage is based on calculated waste and recycled material generation rates for the particular retail or commercial mix and building size (Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities, NSW EPA December 2012)

4.3 Reporting

Reporting requirements for monitoring, auditing and as required in the CoCs will be undertaken in accordance with the overarching OEMP (PREC-QPMS-EN-PLN-0001).

Table 4-4: Environmental Reporting Requirements

Requirement	Area/Location	Responsibility	Frequency
Annual Review	Whole Facility	ESR	Annually
NGERs Reporting	Whole Facility	ESR	Annually
Compliance Reporting	Whole Facility	ESR	Pre-operation Six-monthly
Compliance Reporting	Warehouses	Individual Tenants	Six-monthly

4.3.1 Waste and Resource Records

Waste and resource use will be tracked and recorded in a register for input into the reports summarised in Table 4-4. The Annual Review will also include a comparison of current waste and resource use against the targets proposed in Table 1-2 and Table 4-2.

Table 4-5 outlines examples of records that could be kept in the waste and resource use register to demonstrate compliance with this plan.

Table 4-5: Examples of waste and resources records

Aspect	Classification / description	Quantity	Responsibility	Report/Reference
Waste	Non-recyclable (such as general residual waste, food scraps)	Tonnes/month	Waste contractor to provide Tenants and/or SHEQ Manager / Advisor for MIP East Precinct with waste reports	Annual review Compliance with: SSD 7628 B120(b) SSD 7628 B120(c) SSD 7628 B123 SSD 7628 B125
	Green waste (such as landscaping, grass cuttings)	Tonnes/month		
	Recycled waste (such as plastic, paper, glass, metal, cardboard)	Tonnes/month		
Energy	Electricity consumption	kWh/month	Tenants where electricity is sub-metered and SHEQ manager for their operations. This must be reported to the SHEQ Manager / Advisor for MIP East Precinct for reporting against the MIP East Precinct	Annual Review NGERs reporting Compliance with CEFC Clean Energy Finance Corporation Bilateral Facility Agreement
	Fuel / diesel usage for delivery vehicles	Litres/month		
	Fuel / diesel usage for locomotives	Litres/month		
Water use	Water usage (potable water from water mains)	Litres/month	Tenants where water is sub-metered for their operations. This must be reported to the SHEQ Manager / Advisor for MIP East Precinct for inclusion in reporting for the MIP East Precinct	Annual Review Compliance with reuse estimates proposed in the Stormwater Management Plan to address B40(b)(vii)

4.4 Review and Improvement

Review and improvement of this plan will be undertaken in accordance with the CoCs and Section 6.2 of the OEMP (PREC-QPMS-EN-PLN-0001). Continuous improvement will be achieved by the ongoing evaluation of environmental management performance and effectiveness of this plan against environmental policies, objectives and targets. ESR will undertake an annual review the adequacy of the OEMP and subplans.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure, as outlined in Section 1.4.1 of the OEMP.

4.5 Incidents

All environmental incidents are to be reported and managed in accordance with the Incident Reporting & Management Procedure [WHSMS-LOGOS-007] and Qube's Incident Reporting and Management Procedure [SHEMS-QL-13-PR-0126]. Incidents are classified based on the incident's severity as shown in Section 4.6 of the OEMP (PREC-QPMS-EN-PLN-0001).

All incidents will be managed and reported according to Section 4.6 of the OEMP.

4.6 Complaints

Complaints handling will be undertaken in accordance with Section 4.5.1 of the OEMP and the Community Communication Strategy (CCS).

4.7 Non-Compliance, Non-Conformances and Corrective Actions

Non-compliance, non-conformances and resulting corrective actions are to be managed in accordance with Section 6.4 of the OEMP.

APPENDIX A EVIDENCE OF CONSULTATION

Subject:

FW: Documentation Review - EPA comments

From: Craig Flemming <Craig.Flemming@epa.nsw.gov.au>**Sent:** Monday, 29 April 2019 3:48 PM**To:** Ian Irwin <iirwin@tacticalgroup.com.au>**Cc:** Fei Chen <fchen@tacticalgroup.com.au>; Ibrahim Awad <iawad@tacticalgroup.com.au>**Subject:** RE: Documentation Review

Hi Ian,

As you are aware, The EPA routinely declines to comment on Management Plans and other post approval documentation.

I understand there are numerous such documents required by the various consents for the Moorebank Precincts.

I suggest that you send a comprehensive list of all the documents that require consultation with the EPA. The EPA will then identify which, if any, the EPA will review.

This way you can quickly satisfy the need to consult with the EPA without the need for redundant correspondence reiterating the EPA's position one by one for each document.

Please note that at this stage there is no role for the EPA in your project during the operating stage and therefore any operational related plans are not going to be of interest to the EPA. You should consider, regardless of the consent conditions, whether it would be appropriate to consult with the appropriate regulatory authority under POEO Act for operational matters.

If, in future, there is a need for an operational licence under POEO, the relevant documentation may be required for the licence application.

Regards,

Craig Flemming**Unit Head, Sydney Industry Section**

Metropolitan Branch, NSW Environment Protection Authority

T 02 9995 6927 M 0436 675 169

craig.flemming@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA_NSW](https://twitter.com/EPA_NSW)**Report pollution and environmental incidents 131 555 (NSW only)**
or +61 2 9995 5555