SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN

Moorebank Precinct East Stage 1, Package 2

22 OCTOBER 2019

SYDNEY INTERMODAL TERMINAL ALLIANCE

Moorebank Precinct East Stage 1, Package 2

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REVISIONS

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0	17/05/16	Draft for SIMTA review / consultation	[redacted]	[redacted]
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2	31/01/17	Update CoC for consultation	[redacted]	[redacted]
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ACRONYMS AND DEFINITIONS

Terms	Explanation
ANZECC	Australia New Zealand Environment and Conservation Council
ACM	Asbestos Containing Material
As	Arsenic
ASS	Acid Sulfate Soil
CCOS	Council of City of Sydney
Cd	Cadmium
CEMP	Construction Environmental Management Plan
CoC	Conditions of Consent
CCoA	Commonwealth Conditions of Approvals
CMM	Commonwealth Mitigation Measures
CPCoA	Concept Plan Conditions of Approval
Cr	Chromium
CSWMP	Construction Soil and Water Management Plan
Cu	Copper
Blue Book	Managing Urban Stormwater: Soils and Construction, published by Landcom in 2004
BTEXN	Benzene Toluene Ethylbenzene Xylenes and Naphthalene
DPE	Department of Planning & Environment
EDO	Environmental Defenders Office
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ER	Environmental Representative
ERAP	Environmental Risk Action Plan
ERSED	Erosion & Sedimentation
FCMM	Final Compilation of Mitigation Measures
FERP	Flood Emergency Response Plan
Hg	Mercury
IFD	Intensity Frequency Duration
IMEX	Import Export Terminal. Includes the following key components: • Truck processing, holding and loading areas - entrance and exit from Moorebank Avenue • Rail loading and container storage areas – installation of four rail sidings with adjacent container storage area serviced by manual handling equipment initially and overhead gantry cranes progressively Administration facility and associated car parking- light vehicle access from Moorebank Avenue.

Terms	Explanation
IMT facility	MPE Stage 1 Package 2 including the construction of the following key components together comprising the Intermodal Terminal (IMT): • Truck processing and loading areas. • Rail loading and container storage areas. • Administration facility and associated car parking • Rail link.
LNAPL	Light Non-Aqueous Phase Liquid
L&EC	Land and Environment Court
MC	Managing Contractor
MPE	Moorebank Precinct East
MPE Stage 1, Package 1	The construction of the Rail Link connecting the Southern Sydney Freight Line to the IMEX, traversing across the Boot land, RailCorp Land, Moorebank Avenue, the MPW Golf Course, Georges River, and Glenfield Waste Facility
MPE Stage 1, Package 2	Construction of the IMEX Terminal (Figure 1) including the following key components: 1. Truck processing, holding and loading areas - entrance and exit from Moorebank Avenue 2. Rail loading and container storage areas – installation of four rail sidings with adjacent container storage area serviced by manual handling equipment initially and overhead gantry cranes progressively 3. Administration facility and associated car parking- light vehicle access from Moorebank Avenue
MPE Stage 1 Project	The whole of the land to which the MPE Stage 1 Project approval SSD 6766 relates including both MPE Stage 1 Package 1, and MPE Stage 1 Package 2.
MPE Stage 2 Project Site	The whole of the land to which the MPE Stage 2 Project approval SSD 7628 relates
MPW	Moorebank Precinct West
MPW Site	The site at Moorebank as approved by the Concept Plan (SSD 5066)
Ni	Nickel
Non-compliance	An occurrence, set of circumstances, or development that results in a non-compliance or is non-compliant with Development Consent SSD 6766 Conditions of Consent or EPBC Act Approval (EPBC 2011/6229) Conditions of Approval but is not an incident
Non-conformance	Observations or actions that are not in strict accordance with the CEMP and the aspect specific sub-plan.
NTU	Nephelometric Turbidity Unit
OC/OP	Organochlorides/Organophosphates
OEH	Office of Environment and Heritage
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulfate Soil
Pb	Lead
PEM	Project Environmental Manager
PMF	Probable Maximum Flood

Terms	Explanation
POEO Act	Protection of the Environment Operations Act 1997
RUSLE	Revised Universal Soil Loss Equation
RSoC	Revised Statement of Commitments
SIMTA	Sydney Intermodal Terminal Alliance
The Project	The subject of this sub-plan, Package 2 of the MPE Stage 1 Project includes all work areas of the MPE Stage 1 site (including the Operational area and indicative construction area). This area does not include the Rail Corridor.
TN	Total Nitrogen
TP	Total Phosphorus
TRH	Total Recoverable Hydrocarbons
TSS	Total Suspended Solids
Zn	Zinc

COMPLIANCE MATRICES

Table 1 Ministers Conditions of Consent (CoC)

CoC	Requirement	Document Reference
E6	Soil and water management measures consistent with Managing Urban Stormwater - Soils and Construction Vols 1 and 2, 4th Edition (Landcom, 2004) shall be employed during construction to minimise soil erosion and the discharge of sediment and other pollutants to land and/or waters.	Section 5.4 Table 11, SW1
E7	Construction shall be undertaken to comply with section 120 of the Protection of the Environment Operations Act 1997, which prohibits the pollution of waters.	This Plan Sections 2.1, 5.2, and 5.4 Table 11
E8	The Applicant shall store all chemicals, fuels and oils used on-site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's Storing and Handling Liquids: Environmental Protection – Participants Handbook.	Section 5.4 Table 11, SW14
E34 (f)	As part of the CEMP for the SSD, the Applicant shall prepare and implement: a Construction Soil and Water Management Plan to manage surface and groundwater impacts during construction. The plan shall be developed in consultation with, EPA, DPI Water, DPI Fisheries, and relevant Councils, and include, but not necessarily be limited to:	This Plan Section 5 Table 11, SW1
(i)	details of construction activities and their locations, which have the potential to impact on water courses, storage facilities, stormwater flows, and groundwater, including identification of all pollutants that may be introduced into the water cycle;	Table 9 for existing contamination Table 10 for construction activities and associated impacts
(iii)	emergency response procedures addressing potential flood impacts or spill incidents;	Section 5.3 Table 11, SW14, SW22
(iv)	an Erosion and Sediment Control Plan, detailing measures to manage any erosion and sedimentation impacts into the Georges River or Anzac Creek;	Appendix C ESCP measures also outlined in Appendix D and Table 11, SW1
(v)	an Acid Sulfate Soils Management Plan, if required, including measures for the management, handling, treatment and disposal of acid sulfate soils, including monitoring of water quality at acid sulfate soils treatment areas, should construction activities impact on acid sulfate soils;	Not applicable to this Project as Acid Sulfate soils do not exist.
(vi)	a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be undertaken, the locations where monitoring would take place, how the results of the monitoring would be recorded and reported, and, if any exceedance of the criteria is detected how any non-compliance can be rectified; and	Section 6.3

CoC	Requirement	Document Reference
(vii)	mechanisms for the monitoring, review and amendment of this plan.	Section 6.6

Table 2 Final Compilation of Mitigation Measures (FCMM)

FCMM	Requirement	Document Reference
5A	A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP), or equivalent, will be implemented, in accordance with the Preliminary Erosion and Sediment Control (PESCPs), included within the Stormwater and Flooding Environmental Assessment Report (Appendix P of this EIS). The following aspects will be addressed within the SWMP and ESCPs:	This Plan Table 11, SW1
	• The guiding principles for erosion and sediment control within the Blue Book will be adopted in the SWMP and when planning construction works, being:	Section 5.2
	– Minimise the area of soil disturbed and exposed to erosion at any one time.	Section 5 Table 11, SW1, SW7, SW8, SW10, SW15
	– Priority should be given to management practices that minimise erosion, rather than to those that capture sediment downslope or at the catchment outlet	Table 11, SW7, SW8, SW10
	– Divert clean water around the construction site or control the flow of clean water at non-erodible velocities through the construction site	Table 11, SW3, SW19, SW22
	– Provision of boundary treatments around the perimeter of construction areas to minimise the migration of sediment offsite.	Section 5.2, Table 11, SW5
	– Permanent or temporary drainage works will be installed as early as practical in the construction program to minimise uncontrolled drainage and associated erosion, including the onsite detention (OSD) and flood conveyance works	Table 11, SW3
	– Stockpiles will be located away from flow paths on appropriate impermeable surfaces, to minimise potential sediment transportation. Where practicable, stockpiles will be stabilised if in place for more than ten days and will be formed with sediment filters in place immediately downslope	Table 11,SW10
	– Existing catchments and sub-catchment boundaries will be maintained as far as practicable	Section 5.2

FCMM	Requirement	Document Reference
	– Site imperviousness and grades should be limited to the extent of existing imperviousness and grades under existing development conditions.	Section 5.2
	– Rehabilitate disturbed lands as soon as practicable	Section 5.2, Table 11, SW15
	– The wheels of all vehicles will be cleaned prior to exiting the construction site where excavation occurs to prevent the tracking of mud. Where this is not practical, or excessive soil transfer occurs onto paved areas, street cleaning will be undertaken when necessary.	Section 5.2, Table 11, SW6
	– Inspection of all permanent and temporary erosion and sedimentation control works prior to and post rainfall events and prior to closure of the construction site.	Section 6.3, Table 11, SW15
	– Erosion and sediment control structures to be cleaned repaired and augmented as required.	Section 5.2, Table 11, SW15
	• Where required, construction sediment basins and their outlets will be designed to be stable in the peak flow from at least the 10-year ARI time of concentration event. Sediment basins should be sized to accommodate the 5 day, 80th percentile storm event, with sufficient size and capacity to manage Type F soils. Sediment basins must be regularly cleaned to maintain the design capacity. Sediment basins will be located clear of waterway bed and banks and no additional riparian vegetation will be cleared outside the 20 metre Rail link to accommodate sediment basins. Prior to discharge from sediment basins, water will be tested for the following parameters to identify construction impacts: – pH – Turbidity / Total Suspended Solids (TSS) – Oil and grease.	Table 11, SW4, SW5
5G	A Flood Emergency Response Plan (FERP) will be developed for the Stage 1 site. The FERP will take into consideration, site flooding and broader flood emergency response plans for the Georges River and Anzac Creek floodplains and Moorebank area. The FERP will also include the identification of an area of safe refuge within the SIMTA site that will allow people to wait until hazardous flows have receded and safe evacuation is possible.	SIMTA CEMP Table 11, SW22

Table 3 Concept Plan Conditions of Approval (CPCoA)

CPCoA	Requirement	Document Reference
2.7	Any future Development Application for stage 1 shall include an assessment of soil and water impacts for the entire site including rail link. The assessment shall:	This document
	a) assess impacts on surface and groundwater flows, quality and quantity, with particular reference to any likely impacts on Georges River and Anzac Creek; b) assess flooding impacts and characteristics, to and from the project including rail link), with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: i) Hydraulic modelling for a range of flood events; ii) Description, justification and assessment of design objectives (including bridge, culvert and embankment design); iii) an assessment of afflux and flood duration (inundation period) on property; and iv) consideration of the effects of climate change, including changes to rainfall frequency and/or intensity, including an assessment of the capacity of stormwater drainage structures.; c) identify and assess the soil characteristics and properties that may impact or be impacted by the project, including acid sulfate soils;	Section 3
	d) include a contamination assessment in accordance with the guidelines made under the Contaminated Land Management Act 1997 and in consultation with the EPA for the subject site including the Glenfield Waste Facility. The assessment shall include:	Glenfield Waste Facility works are not applicable to MPE Stage 1, Package 2. This will be addressed in MPE Stage 1 Package 1 documents. A contamination assessment and Remediation Action Plan have been prepared separately to this document
	i) the potential environmental and human health risks of site contamination on the project site;	Contamination Management Plan and Health & Safety Plan have been prepared separately to this document which address this condition
	ii) a Remediation Action Plan	Remediation Action Plan (RAP) is prepared separately to this document
	iii) consideration of implications of proposed remediation actions on the project design and timing; and	RAP is prepared separately to this document
	iv) a Phase 2 environmental site assessment of the project site including rail corridor.	RAP and CMP are prepared separately to this document

Table 4 Concept Plan Revised Statement of Commitments (RSoC)

RSoC	Requirement	Timing	Document Reference
Contamination	Developing a Contamination Management Plan with detailed procedures on: • Handling, stockpiling and assessing potentially contaminated materials encountered during the development works; • Landfill gas management during the excavation, handling and stockpiling of waste materials, if excavation is required during the development, in the Glenfield Quarry and Landfill; • Assessment, classification and disposal of waste in accordance with relevant legislation; and • A contingency plan for unexpected contaminated materials, such as materials that are odorous, stained or containing anthropogenic materials that may be encountered during site works.	Prior to Construction of the three major stages of the Concept Plan	CMP is prepared separately to this document Glenfield Waste facility works are included within MPE Stage 1 Package 1 and not included within package 2. Table 11, SW14
Stormwater and Flooding	Implementation of management plan strategies prior to commencement of the staged construction phase	Prior to Construction	This Plan and CEMP will be implemented prior to and throughout Construction Phase
	Monitoring and review performance of sediment and water control structures during construction	Construction	Section 4.5 Table 11, SW15, SW16, SW17
	The Proponent will prepare and update a flood emergency response plan as necessary to address the staged development of the site. Details are to be provided prior to the construction of each of the three major stages of the development	Prior to Construction of the three major stages	Section 3.4 CEMP Appendix R Table 11, SW22

Table 5 Commonwealth Conditions of Approvals (CCoA)

CCoA	Requirement	Document Reference
2b	Implement all feasible and practicable measures that ensure sedimentation and/or erosion (as a result of the proposed action) do not lead to any further reductions in the water quality or degradation of, ***Macquarie Perch*** habitat.	Section 4 Table 11, SW1

Table 6 Commonwealth Mitigation Measures (CMM)

CMM	Requirement	Document Reference
Hydrology	The following mitigation measures will be adopted for the SIMTA proposal to mitigate potential impacts on hydrology, water quality and flooding resulting from construction and operation of the SIMTA proposal:	Section 4
	• Rainwater tanks will be installed to collect roof water from the warehouses on the SIMTA site, and will be used for non-potable water demands such as toilet flushing and outdoor use.	Warehouse are part of MPE Stage 2 and not included in SIMTA Scope of Works
	• Pre-treatment measures will be incorporated into the site stormwater design, including buffer strips and gross pollutant traps where deemed appropriate.	Table 11, SW23 Design Plans
	• Bio-retention systems will be incorporated into the site stormwater design, including rain gardens and bioswales, where deemed appropriate. These structures will also act as on-site detention basins, minimising the velocity and volume of flows leaving the site during storm events. Bio-retention systems will be designed to achieve the pollution reduction targets set out in the Liverpool DCP.	Table 11, SW24 Design Plans
	• On-site stormwater detention will be designed to achieve flood management in accordance with the flood modelling results outlined in the Flood Study and Stormwater Management report prepared by Hyder Consulting (Hyder Consulting, 2012a) and as updated within the Stormwater and Flooding Assessment (Hyder Consulting, 2012b).	Table 11, SW25 Design Plans
	• The following design principles will be adopted during the design phase of the Georges River bridge: Bridge design will comply with the requirements of Australian Standard 5100:2004 - Bridge Design and RailCorp Engineering Standard ESC 310 - Under bridges. – Bridge piers will be located and orientated to align with the piers of the existing East Hills Railway Line bridge. – The bridge deck height will match the height of the existing East Hills Railway Line bridge – Bridge piers will be designed and orientated to avoid the formation of large-scale turbulence or the erosion of the bed and banks of the waterway.	Applicable for Rail Link only

CMM	Requirement	Document Reference
	– Light penetration under bridges to encourage fish passage will be maximised. – Use and extent of those bed and bank erosion control measures that may reduce aquatic habitat values or inhibit the regrowth	
	• During construction of the Georges River bridge the following management approaches will be adopted: – Works across the bed of the Georges River will be staged to minimise the total disturbance at any given time and to allow the full bypassing of stream flows around the works to maintain fish passage. – The management principles outlined in Managing Urban Stormwater (Landcom 2004) for sites with high erosion potential will be implemented.	Applicable for Rail Link only
	• The following design principles will be adopted for design and sizing of the culverts across Anzac Creek: Fish passage requirements will be considered when selecting the type of culvert. – Where practical, culverts will be aligned with the downstream channel to minimise bank erosion. – A multi-cell culvert design will be considered with a combination of elevated "dry" cells to encourage terrestrial movement, and recessed "wet" cells to facilitate fish passage. – Altering the channel's natural flow, width, roughness and base-flow water depth through the culvert's wet cells will be avoided where possible. Wet cells will aim to have a minimum water depth of 0.2-0.5 metres to facilitate fish passage. – The culvert will be designed to maximise the geometric similarities of the natural channel profile from the bed of the culvert up to a flow depth of 0.5 metres ("Low Flow Design") as a minimum. – Where conditions allow, the construction of pools will be considered at both the inlet and outlet of the culvert to assist in the dissipation of flow energy and to act as resting areas for migrating fish. – If a low-flow channel is constructed within the base slab of the culvert, the channel will extend across the inlet and outlet aprons. – Debris deflector walls may be used to reduce the impact of debris blockages on fish passage. – Rock protection and/or the formation of a stabilised energy dissipation pool at the outlet will be considered if necessary to assist in minimising erosion to avoid the formation of a perched culvert and damage to the stream bed and banks. – The design of the crossing will refer to the detailed engineering guidelines provided in Fairfull and Witheridge (2002).	Applicable for Rail Link only

CMM	Requirement	Document Reference
	• The following management measures will be implemented during works in and adjacent to Anzac Creek to mitigated potential impacts on water quality during construction: – All reasonable efforts will be taken to program construction activities during those periods when flood flows and fish passage is not likely to occur. As a minimum requirement, fish migrations and breeding periods, as advised by NSW DPI, will be avoided. – Temporary sidetrack crossings will be constructed from clean fill (free of fines) using pipe or box culvert cells to carry flows, or a temporary bridge structure. – All temporary works, flow diversion barriers and in-stream sediment control barriers will be removed as soon as practicable and in a manner that does not promote future channel erosion. – The construction site will be left in a condition that promotes native revegetation and shading of habitat pools. – The management principles outlined in Managing Urban Stormwater (Landcom 2004) for sites with high erosion potential will be implemented. • A flood emergency response plan would be prepared and updated as necessary to address the staged development of the site. • A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP) will be implemented for the construction and operation phases of the development, with monitoring and review performance of sediment and water control structures during construction and operation phases. The SWMP and ESCPs will be developed in accordance with the principles and requirements of Managing Urban Stormwater (Landcom, 2004).	Applicable for Rail Link only

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1 INTRODUCTION

The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stage 1 of the Moorebank Precinct East (MPE) Project, comprising an Intermodal (IMT) Facility including a rail link (Package 1) and Import Export (IMEX) Terminal (Package 2) on 12 December 2016 (SSD 6766). The construction and operation of the MPE Stage 1 Project was subject to an appeal in September 2017 (Appeal Number 2017/00081889). The approval was upheld and the revised Conditions of Consent (CoC) were released on 13 March 2018.

This Construction Soil and Water Management Plan (CSWMP) has been developed to manage impacts associated with erosion and sediment control, surface water quality, site wastewater, potential water contamination, groundwater and flooding issues during the construction of Package 2 of the MPE Stage 1 Project (hereafter referred to as the Project).

Within this plan, a strategy has been established to demonstrate the contractor's approach to the management of soil and water. The CSWMP also accounts for requirements of the MPE Stage 1 Project Environmental Impact Statement (EIS) *[Appendix P – SIMTA Stage 1 – Stormwater and Flooding Environmental Impact Assessment, and Appendix E – SIMTA Stage 1 – Stormwater and flooding supplementary response material].*

This CSWMP addresses the relevant requirements of the Project Approvals, including the EIS, Submissions Report and Minister's Conditions of Consent (CoC), and all applicable guidelines and standards specific to the management of soil and water during construction of the Project.

1.1 Background and Scope

The MPE Project site is located approximately 27 kilometres (km) south-west of the Sydney Central Business District (CBD) and approximately 26 km west of Port Botany and includes the former Defence National Storage and Distribution Centre (DNSDC) site.

The MPE Project involves the development of an intermodal facility, including warehouse and distribution facilities, freight village (ancillary site and operational services), stormwater, rail link, landscaping, servicing and associated works on the eastern side of Moorebank Avenue, Moorebank. It is to be developed in three key stages:

- Stage 1 - Construction of the IMT
- Stage 2 - Construction of warehouse and distribution facilities
- Stage 3 - Extension of the IMT and completion of warehouse and distribution facilities.

Stage 1 of the MPE Project comprises, and would be constructed across, two packages:

- Package 1: The Rail Link (not included within this CSWMP) includes a connection to the IMT facility, and traverses across Moorebank Avenue, Anzac Creek and Georges River prior to connecting to the Southern Sydney Freight Line (SSFL).
- Package 2 (Figure 1): The IMEX (subject of this CSWMP) includes the following key components:
  - Truck processing, holding and loading areas - entrance and exit from Moorebank Avenue
  - Rail loading and container storage areas – installation of four rail sidings with adjacent container storage area serviced by manual handling equipment initially and overhead gantry cranes progressively
  - Administration facility and associated car parking- light vehicle access from Moorebank Avenue

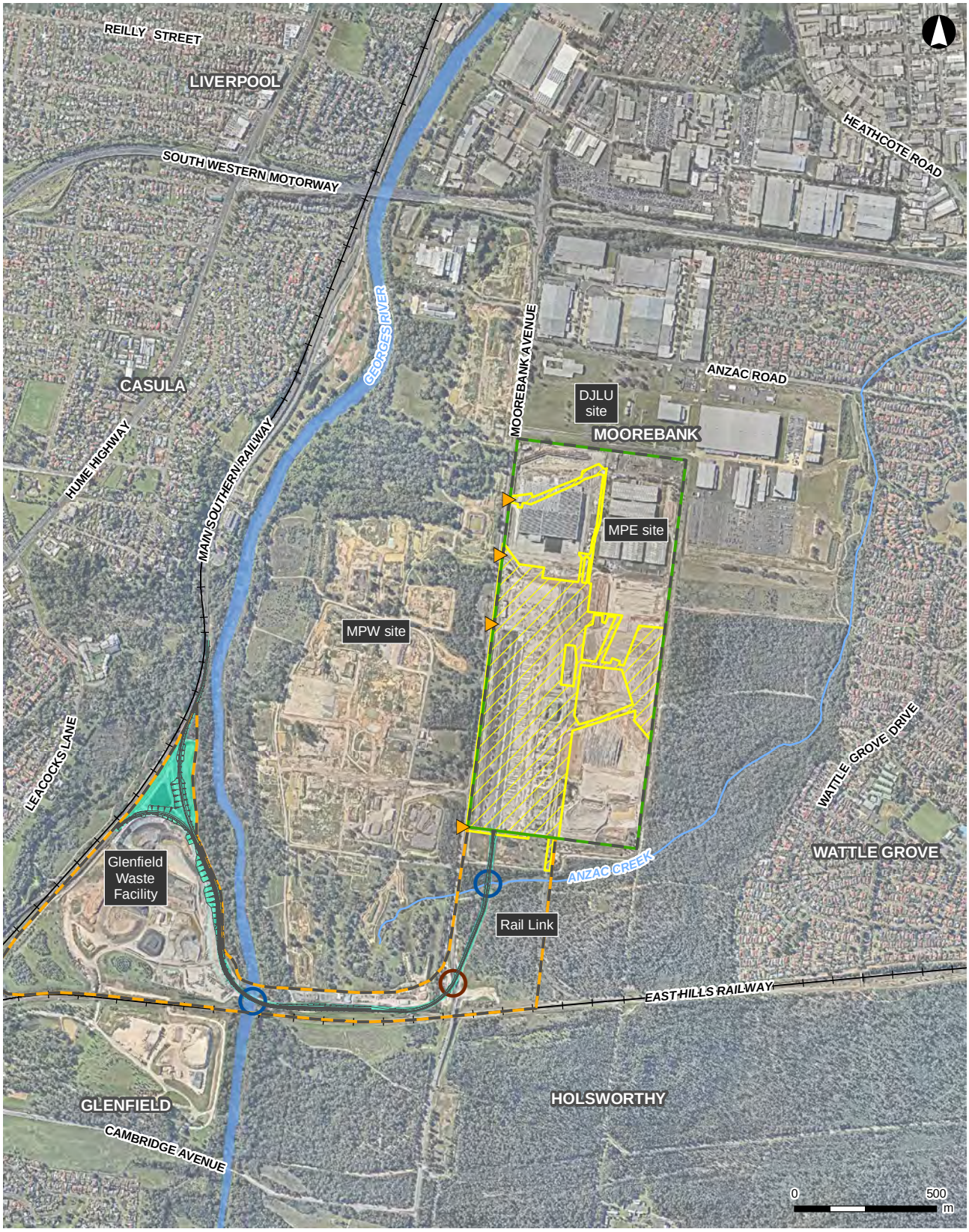
The layout of the IMEX facility generally comprises operational areas, an administration area, rail sidings, utilities and drainage infrastructure, landscaping and signage. The operational areas of the IMEX facility consist of the primary and secondary container loading / unloading areas and container storage areas, and the truck holding area. Within these areas containers would be stacked up to five high.

1.1.1 Environmental Planning Approval

The MPE Stage 1 Project has been assessed by the Department of Planning and Environment (DP&E) under Division 4.7 (Division 4.1 prior to March 2018) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as State Significant Development (SSD). The Planning Assessment Commission (PAC) granted Approval for the MPE Stage 1 Project on 12 December 2016 and is subject to the Minister's Conditions of Consent (CoC, 18 December 2016 (ref SSD-6766)). The MPE Stage 1 Project, its impacts, consultation and mitigation were documented in the following suite of documents:

- State Significant Development Application SSD 6766 (as amended in the Land and Environment Court 13 March 2018)
- SIMTA Intermodal Terminal Facility – Stage 1 – Environmental Impact Statement (Hyder Consulting Pty Ltd, May 2014)
- SIMTA Intermodal Terminal Facility – Stage 1 – Response to Submissions (Hyder Consulting Pty Ltd, September 2015)
- SIMTA Intermodal Terminal Facility- Stage 1 – Stormwater and Flooding Environmental Impact Assessment, Hyder Consulting Pty Ltd, dated April 2015.
- SIMTA Intermodal Terminal Facility- Stage 1 – Response to Submissions – Stormwater and Flooding Supplementary Material, Hyder Consulting Pty Ltd, dated September 2015

Table 1 demonstrates compliance with the relevant CoCs for the works, including CoC E34 which requires the Plan to be prepared, consulted and approved.



LEGEND

- Project site
- Construction footprint
- MPE site
- Rail Corridor
- MPE Stage 1 Package 1 (Rail Link)
- Site access point
- Creek/River crossing
- Road crossing
- Rail link
- Existing railway
- Watercourse

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Coordinate System: GDA 1994 MGA Zone 56
Aerial imagery supplied by nearmap (March, 2019)

1:20,000 at A4

Figure 1: MPE Stage 1, Package 1 Construction Footprint

1.2 Purpose and Application

Within the submission of planning approval for the MPE Stage 1, Arcadis (then Hyder Consulting) undertook a Stormwater and Flooding Environmental Impact Assessment. SIMTA have developed this CSWMP based on the initial Stormwater and Flooding Environmental Impact Assessment, and to address the final compilation of mitigation measures within the EIS and revised statement of commitments. This plan aims to demonstrate how soil and water will be managed during construction of the Project.

This plan provides methods to measure and reduce the impact associated with erosion and sediment control, surface water quality, site wastewater, potential water contamination, groundwater and flooding issues by the contractor during the construction of the Project, including all contractor and consultant partners.

Specifically, the purpose of this CSWMP is to:

- Manage soil and water in accordance with the Project approval documents (as outlined in Section 1.1.1)
- Review and consider the Stormwater and Flooding Environmental Impact Assessment, (Appendix P of EIS) during the construction phase of Package 2 of the MPE Stage 1 Project
- Review and consider the Stormwater and Flooding Supplementary Material, (Appendix E of EIS) during the construction phase of Package 2 of the MPE Stage 1 Project
- all applicable guidelines and standards specific to soil, stormwater and flooding management during the Stage 1 Operational Area construction.
- Ensure that through the use of best practice, impacts associated with soil and water are minimised

This -sub-plan supports the MPE Stage 1 (Package 2) Construction Environmental Management Plan (CEMP).

1.3 Objectives and Targets

This CSWMP provides the basis for the management of erosion, sediment, stormwater, water contamination and flooding issues and to minimise risk of impact during the first stage of development. The high level objectives and targets set for the MPE Stage 1 Project are outlined in Table 7 below:

Table 7 Objectives and Targets

Objectives	Targets
• Minimise erosion on site through implementation and maintenance of appropriate erosion and sediment controls.	• Following inspections, no occurrence of significant issues/non-compliances and non-conformances.
• Limit the disturbed area and stabilise as soon as practicable following the completion of works	• Target: no pollution incidents resulting in environmental harm or regulatory action
• Minimise potential pollution to surface water, via segregation of clean and dirty stormwater flows, to ensure existing water quality of surrounding surface watercourses is maintained.	• No written warnings or Penalty Infringement Notices arising from the works
• Ensure all discharges from site comply with the objectives of Section 120 of POEO Act.	• No non-compliances with s120 PoEO Act – i.e. no incidents of “pollution
• Minimise demand for, and use of, potable water for construction and maximise opportunities for water re-use from captured ‘dirty’ water runoff (within ESC measures e.g. sediment basins) and site wastewater.	

Objectives	Targets
• Design and construct works to minimise adverse increase in flood impacts to local and regional catchments. • No discharge of water without a valid permit to discharge	

1.4 Consultation Summary

The CoC for the Project requires that the CSWMP be prepared in consultation with:

- The Environmental Protection Authority (EPA)
- Department of Primary Industries (DPI) Water
- DPI Fisheries
- Relevant Councils – Liverpool City Council

A summary of consultation is provided in Table 8, with supporting evidence in Appendix E.

Table 8 Consultation Summary

Agency	Date	Person Contacted	Comment	Status
Liverpool City council	25/01/17	[redacted]	Phone call made to inform of CEMP and sub plans that would be provided for comment from 1 February to 15 February. LCC indicated they would be happy to receive and provide comment.	Open
	01/02/17	[redacted]	Email sent containing briefing note, CEMP, CSWMP, CTAMP, CHMP, reiterating the two-week deadline for comments received.	Open
	08/02/17	[redacted]	Phone call made on 8 February to confirm delivery of documentation and review progress.	Open
	15/02/17	[redacted]	Email received containing comments. Confirmation email sent to acknowledge receipt of comments.	**Closed**
Campbelltown City Council	24/01/17	[redacted]	Phone call made. Voice message left outlining provision of CEMP and sub-plans at the beginning of February. Follow up email was sent to [redacted] on 25 January.	Open
	1/02/17	[redacted]	Email sent containing briefing note, CEMP, CSWMP, CTAMP, CHMP, reiterating the two-week deadline for comments received.	Open
	08/02/17	[redacted]	Phone call and email sent to confirm receival of documentation and review progress. No answer, voicemail left.	Open
	15/02/17	[redacted]	Phone call made to notify comments deadline. Extension for comments deadline granted to 17 February	Open
	17/02/17	[redacted]	Email received with comments relating to plans. No comments were received regarding the CSWMP.	**Closed**
EPA	22/12/17	[redacted]	Contact by phone to inform CEMP and sub-plans would be submitted in mid-January. EPA stated they were happy to receive.	Open

Agency	Date	Person Contacted	Comment	Status
	22/12/17	[redacted]	Email sent to confirm conversation	Open
	25/01/17	[redacted]	Phone call made to inform of pending provision of sub-plans	Open
	27/01/17	[redacted]	Email received indicating that the EPA would not be endorsing or reviewing the plans, in order to maintain regulatory 'arms reach' of the project.	**Closed**
DPI Water	22/12/16	[redacted]	Phone call made inform CEMP and sub-plans would be submitted in mid-January. DPI Water stated that the documents should be submitted to the land use enquiries email address.	Open
	23/01/17	[redacted]	Phone call made to confirm plans would be submitted February 1. Janne reiterated that documents should be submitted to land use enquiries email, but confirmed that she would be the person undertaking the reviews.	Open
	01/02/17	[redacted]	Email sent containing briefing note, CEMP and CSWMP and requesting review of documents by 15 February 2017.	Open
	08/02/17	[redacted]	Phone call made to confirm delivery of documentation and to track review progress. No answer, voicemail left.	Open
	16/02/17	[redacted]	Phone call made to confirm that OEH do not wish to make comment as no comments were received. No answer, voice message left.	Open
	16/02/17	[redacted]	Email received indicating that DPI Water require 4 weeks for management plan reviews, and would endeavour to provide comments by 1 March.	Open
	17/02/17	[redacted]	Phone call made to explain that there were no significant issues involving creek crossings or water bodies on the Project site, in an attempt to speed up review process. It was stated however that the review time was standard procedure and prioritisation based on review simplicity is not possible. 2-week extension granted*.	Open
	08/03/17	[redacted]	Email received with comments relating to both the CEMP and CSWMP.	**Closed**
DPI Fisheries	22/12/16	[redacted]	Phone call made to inform the CEMP would be submitted in mid-January. DPI Fisheries	Open

Agency	Date	Person Contacted	Comment	Status
			stated they are happy to receive the document	
	23/01/17	[redacted]	Phone call made to confirm plans would be submitted February 1. It was confirmed she would provide comment to the documentation within the given timeframe.	Open
	01/02/17	[redacted]	Email sent containing briefing note, CEMP and CSWMP requesting review of documents by 15 February.	Open
	02/02/17	[redacted]	Email received indicating that all relevant plans were reviewed, with no objections, suggested changes or comments.	**Closed**

* It was agreed during a meeting held with the Department of Planning and Environment (DP&E) on 21/02/17 that the DPI Water review of documentation would be undertaken in conjunction with the DP&E review.

2 ENVIRONMENTAL OBLIGATIONS

2.1 Legislation

Key legislation relevant to this Plan includes:

- *Protection of the Environment Operations Act 1997*
- *Environmental Planning and Assessment Act 1979*
- *Environmental Protection and Biodiversity Conservation Act 1999*
- *Contaminated Land Management Act, 1997*
- Dangerous Goods (Road and Rail Transport) Act 2008
- Dangerous Goods (Road and Rail Transport) Regulation 2014
- *Water Management Act, 2000.*

A key legislative requirement applicable to construction soil and water management is Section 120 of the Protection of the Environment Operations Act 1997 which relates to pollution of waters and the need to implement all reasonable and feasible measures to minimise the risk of pollution of waters. Part 5.7 of the Act requires that a pollution incident causing or threatening material harm to the environment to be notified to EPA and other relevant authorities as outlined in the CEMP. Material harm constitutes actual or potential harm to the health or safety of humans and/or ecosystems that is not trivial, or results in actual or potential loss or property damage of amounts in excess of $10,000 in total.

An Environmental Protection Licence (EPL) (No 21054) was issued by the EPA on 4 June 2018 with a further variation issued on 18 April 2019 to capture cut and fill earthworks occurring on the MPE Stage 2 Project Site and additional considerations observed during a site inspection on the 23 November 2018.

The licence applies to the Moorebank Precinct (excluding the MPE Stage 1 Rail Access Land Package (RALP) which has a separate EPL licence (No. 20966) and authorises > 100,000 – 500,000 tonnes crushing, grinding or separating processing capacity per annum and > 500,000 – 2,000,000 tonnes extraction, processing or storage capacity per annum. The licence applies to all other activities carried on at the premises, including road construction, bulk earthworks ‘cut and fill’ and importing fill.

Specific requirements for EPL 21054 are addressed in Table 5 and Section 4.2 of the CEMP.

2.2 Project Approval Conditions

Tables 1-6 demonstrate compliance with the relevant CoCs for the works.

2.3 Guidelines

Additional guidelines and standards relating to the management of soil, stormwater and flooding include:

- NSW Landcom publication Managing Urban Stormwater - Soils and Construction Edition 4 March 2004 (Blue Book)
- Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (DECC 2015)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)
- Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004)
- Australian Rainfall and Runoff – Volume 1 (2001), Engineers Australia
- NSW EPA Best Practice Note: Land farming (2014).
- AS 1940-2004 The Storage and Handling of Flammable and Combustible Liquids
- Australian Dangerous Goods Code Edition 7.4
- State Environment Planning Policy 55

3 EXISTING ENVIRONMENT

3.1 Topography and Hydrology

The topography of the Project site is relatively flat, with reduced levels (RLs) ranging between 14 and 16 metres Australian Height Datum (mAHD). Along the eastern site boundary, the land rises from about RL14 mAHD at each end to a localised peak of RL22 mAHD about midway along the length. Assessment of hydrology across the Project site under current conditions presented in the EIS identified three internal catchment areas and two small upstream catchment areas discharging to the Project site. There are three existing stormwater culvert outlets from the site. Two outlets discharge eastward to Anzac Creek and cross under the Greenhills Road formation via pipes and headwalls (Outlets A and B). Stormwater to these two culvert outlets is conveyed through the site via formal open grass lined channels. From Greenhills Road to Anzac Creek the channels appear less formalised. A summary of existing site catchments and stormwater discharge points is presented as Appendix A.

The Project site falls within the Georges River Estuary catchment with a receiving environment of Botany Bay. The Botany Bay catchment includes residential, industrial, commercial, recreational and bushland with the main sources of pollution coming from stormwater runoff. Hydrology in the local area surrounding the Project site is characterised by the Georges River approximately 800m west of site and Anzac Creek (a tributary to the Georges River) as receivers for the Project site surface water.

3.2 Soils

The Project site is underlain by sand or clayey sand fill to depths of up to 1.5m over interbedded alluvial sand and clay inferred to be present to depths of up to 23m over shale and sandstone bedrock (Golder 2015). The soil landscape of the site is Berkshire Park that have the common constraints of impermeable water logged subsoils and low fertility. The slope range of the landscape varies between 0-5% and the soils belong to hydrologic group C, indicating a moderate to high runoff potential. The soil erodibility factor (or K-factor of this soil type is 0.048 (medium to high erodibility) and is characterised by a fine soil particle.

Previous investigation including intrusive inspection of the soil profile concluded an extremely low to low chance of Acid Sulphate Soils (ASS) exists beneath the Operational Area (JBS&G 2015). The extremely low to low likelihood of encountering ASS eliminates the requirement to prepare an ASS Management Plan.

3.3 Contamination

The Project site operated from 1915 until recently as the Defence National Storage and Distribution Centre (DNSDC), buildings and infrastructure associated with the DNSDC remain on site.

Potentially contaminating sources at the Project site, as identified in the EIS, are summarised in Table 9 below.

Table 9 Stage 1 Site Historical Contamination Summary

Potential Impact	Location	Contaminants of Potential Concern
General site fill	Inferred to be present across the site.	Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg), Asbestos, OC/OP, TRH, BTEXN, PAH
Localised fill and a waste storage pit	Adjacent and beneath Building 20.	As above
Underground collection pits and oil and water separators	Adjacent/beneath existing buildings	TRH, BTEXN, PAH

Potential Impact	Location	Contaminants of Potential Concern
Potential fuel leaks and spills associated with fuel storage and distribution	The refuelling area in the south-west corner of the site / adjacent Building 163.	TRH, BTEXN, Pb
Asbestos and lead based paint associated with demolition of previous structures and the deterioration of current structures	Across the site.	Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg), Asbestos, OC/OP, TRH, BTEXN, PAH, PCB

Impacts positively identified include:

- Light Non-Aqueous Phase Liquid (LNAPL) on groundwater at the refuelling area (Building 20)
- Asbestos Containing Material (ACM) in surface soil adjacent to the north-western corner of Building 11
- Copper and zinc in soil in the south-east corner of site exceeding ecological assessment criteria only
- Cadmium, copper, nickel lead, zinc in groundwater in northern and southern sections of the site exceeding ecological assessment criteria only.

3.4 Water Quality

Water quality sampling of the Georges River and Anzac Creek found that the majority of water quality parameters were within ANZECC (2000) guidelines for lowland aquatic ecosystems of south-eastern Australia, with the exception of pH and percent dissolved oxygen (DO). In the Georges River the pH was 6.06, below the lower guideline value of 6.5, and the percentage of DO results were also below the lower guideline value of 60 per cent. Within Anzac Creek the recorded pH was 5.62 and DO was at 11.6 percent, which were both considerably below the lower guideline values.

3.5 Rainfall Patterns

Based on historical data recorded since 1968 at Bankstown Airport (Hyder 2015), the region is characterised by moderate rainfall, with a mean annual rainfall of 870 mm, and an annual rainfall range between 493 mm and 1,398 mm. There is significant variation in monthly rainfall throughout the year, with the summer and autumn months typically experiencing higher falls than the remainder of the year. Rainfall data also shows that February is the wettest month with a mean rainfall of 108.5 mm over 11.0 rain days.

Flood plain mapping provided by Liverpool City Council indicated that the Georges River flood prone areas extend to the west of the overbank of the Georges River through to the existing Glenfield Waste Facility which the proposed Rail link would traverse. Ground survey undertaken for the Proposal confirmed that the top of the western bank of the Georges River in this location is approximately 11.8 mAHD, which is 0.3m above the Georges River 100 year ARI flood level in this area. RAFTs and TUFLOW modelling was used to determine the existing flood extent along Anzac Creek floodplain within the vicinity of the SIMTA site. This modelling showed that under the 100 year average recurrence interval (ARI) event the flood levels to the south of the SIMTA site is 14.9 mAHD and the probable maximum flood (PMF) level is 15.6 mAHD.

Appendix A presents a summary of flood and stormwater modelling from the EIS and identifies the southern portion of the Project site is likely to be affected by a 1 in 100 year flood and PMF event under existing conditions.

3.6 Groundwater

Groundwater beneath the Project site has been previously observed at depths of 5.5-5.8m and is understood to flow north and west toward the Georges River. A deeper aquifer has been reported at

a depth of up to 11m. The deeper aquifer was observed to be more saline than the shallow aquifer perhaps as a result of local recharge.

Groundwater systems have been reported as impacted by various activities across the site. In particular, groundwater within the vicinity of the UPSS has significant light non-aqueous phase liquid (LNAPL) above.

Other than the LNAPL contamination, groundwater samples analysed by JBS&G (2015b) on the Project site and within the Rail link were below the limit of recognition for all analytes, with the exception of several samples that had heavy metal concentrations above the ecological investigation level. However, the heavy metal concentrations in the samples were considered to be representative of background concentrations in groundwater in urban areas of Sydney.

3.7 Acid Sulfate Soils

Given that regional trends indicate an extremely low to low likelihood of ASS and site investigations reviewed to date have not identified ASS the overall risk of ASS occurring on site is considered to be negligible.

4 ASPECTS, IMPACTS AND RISKS

An aspects and impacts register has been created for the project and is located in Appendix O of the CEMP. The project has the potential to impact local soil and water quality through the erosion and transport of sediment and contaminated soils generated from the processing and transport of materials, loss of vegetation cover and the exposure of soils and erosion.

Table 10 summarises the key activities and potential impacts on soil and water quality whilst sections 4.1-4.5 provide further detail as to the impacts.

Table 10 Construction Activities and Associated Impacts

Works Period	Activities	Potential Impacts
1	Site preparation – demolition, salvage	Potential for off-site transport of eroded sediments and pollutants, generation of dust, mobilisation of sediment and potential pollution of waterways
2	Earthworks, drainage, utilities	Potential for off-site transport of eroded sediments and pollutants, generation of dust, mobilisation of sediment and potential pollution of waterways
3	Engineering fill	Potential for off-site transport of eroded sediments and pollutants, generation of dust, mobilisation of sediment and potential pollution of waterways
4	Construction and rail alignment	Potential for off-site transport of eroded sediments and pollutants, generation of dust, mobilisation of sediment and potential pollution of waterways
5	Miscellaneous, finishing works, landscaping	Potential for off-site transport of eroded sediments and pollutants, generation of dust, mobilisation of sediment and potential pollution of waterways
	Removal of disused rail spur	

Further information relating to contamination and the management of contamination on the site is provided in the Contamination Management Plan.

4.1 Soils

The earthworks will require the disturbance of soils thus providing the potential for erosion and the generation of sediment laden water. Exposed soil will have the potential to become mobilised in the wind, with the potential for fugitive dust to leave the site. It is noted that the EIS identified that the majority of the proposal site has a low erosion potential. Open excavations have the potential to capture surface water runoff in the event of precipitation and potentially ground water intrusion, such water becomes heavily sediment laden and potentially contaminated. Soil contamination may occur during construction due to hydrocarbon/other chemical releases from unintentional chemical spills, hydraulic hose leaks and refuelling incidents.

Additionally, targeted excavation of sub-surface features is proposed to address identified contaminant and geotechnical impacts associated with site history.

4.2 Contamination

It is valuable to consider risks associated with contamination during the Project construction in terms of existing contamination and potential contamination that may be generated by construction.

Existing contamination includes:

- LNAPL on groundwater related to the former refuelling facility;
- asbestos in soil;
- heavy metals in soil and groundwater; and
- a range of contaminants associated with remaining site structures (e.g.: asbestos, lead, PCB).

Mobilisation of identified contamination and potentially contaminated building materials during the Project construction is identified as a risk. It is noted that potential impacts associated with heavy metal contamination identified on the site are limited to ecological receptors and are unlikely to occur under current or future land use. Potential mobilisation of heavy metals and subsequent exposure to ecological receptors during the Project construction is however identified as a risk.

Potential contamination that may be directly generated through construction activities include hydrocarbon leaks or spills from equipment during construction, unintentional chemical spills, refuelling incidents, pH and salinity impacts associated with demolished concrete, and generation of dust. Mobilisation of contaminants generated during construction through stormwater runoff or infiltration to groundwater, distribution within site soils and as windblown dust are identified as project risks.

4.3 Water Quality

Potential impacts associated with quality of water discharging off site are primarily associated with a potential increase in sediment entrainment that will result following removal of hardstand and during earthworks. Secondary impacts identified include potential mobilisation of contaminants as discussed in Section 4.2.

4.4 Flooding

The Project construction works, in particular demolition and earthworks components will impact existing stormwater management provisions. An associated risk has been identified for increased potential of adverse flood impacts on neighbouring property. Further, the EIS identifies impacts associated with probable maximum flood (PMF) events should be considered to inform evacuation and refuge requirements during the Project construction. The post-development flows are provided in Appendix A.

4.5 Groundwater

Identified potential impacts to groundwater during the Project construction relate to contamination described in Section 4.2 above. The likelihood of groundwater impacts is expected to relate to the degree and extent of contamination and the amount of surface water infiltration that occurs. Risks associated with potential groundwater impacts include an increase in the degree of contamination on site, migration of contamination in groundwater off site and pollution of proximate surface water receptors through groundwater migration.

Disturbance of groundwater during the Project works is not predicted except during remediation of hydrocarbon impacts associated with the refuelling facility. It is noted that in the event of identifying the potential for these works to intersect the groundwater table, a report detailing the results of further investigations into surface water, groundwater and geotechnical issues will be prepared in consultation with the EPA and NOW and submitted to the Secretary prior to these potentially impacting works commencing. This report would include identification of relevant licencing requirements or other approvals under the Water Act 1912 and/or Water Management Act 2000 and consideration of impacts against the NSW Aquifer Interference Policy. If contaminated groundwater is intersected by the construction works and dewatering is required, the requirements set in section 4.2 above prevail.

5 MANAGEMENT MEASURES

This Section describes the overall approach and principles associated with managing and mitigating soil, stormwater and flooding risks during the Project.

The management measures prescribed for the Project construction herein are based on the mitigation measures presented in the EIS, Commonwealth conditions of approval of the EIS and the Minister's Conditions of Consent (CoC), the Moorebank Precinct Environmental Protection Licence (EPL 21054) as well as applicable industry guidelines.

5.1 Key Soil and Water Management Tools

The hierarchy of management documentation used for the implementation of the mitigation measures on each site are as follows:

4. Construction Soil and Water Management Plan (CSWMP) – this Plan – key guidance document from which the practical site-based management tools are developed
5. Environmental Controls Map (ECM) – plan/map based tool specific to site/work area and includes the location of existing waterways, environmental protection measures, monitoring requirements, environmentally/community sensitive areas, etc.
6. Erosion and Sedimentation Control Plans (ESCPs) – A site-specific ESCP developed to ensure conformance with the Blue Book and POEO Act requirements. Consisting of the initial Primary ESCP prior to construction followed by Progressive ESCPs (PESCPs) to reflect changing nature of the site as works progress. The ESCPs would include the location of existing drainage infrastructure in proximity to the works and associated controls to be installed.

5.2 Management Principles

The following points have been identified as the key techniques to control water quality on the project. These points collectively fulfil the principles of sound soil conservation practice. In selecting appropriate control structures care must be taken so that their use does not exceed design limitations. Where exceedance of design limitations cannot be avoided detailed design of the structure will be required.

The guiding principles for erosion and sediment control within the Blue Book will be adopted in the SWMP and when planning construction works as follows:

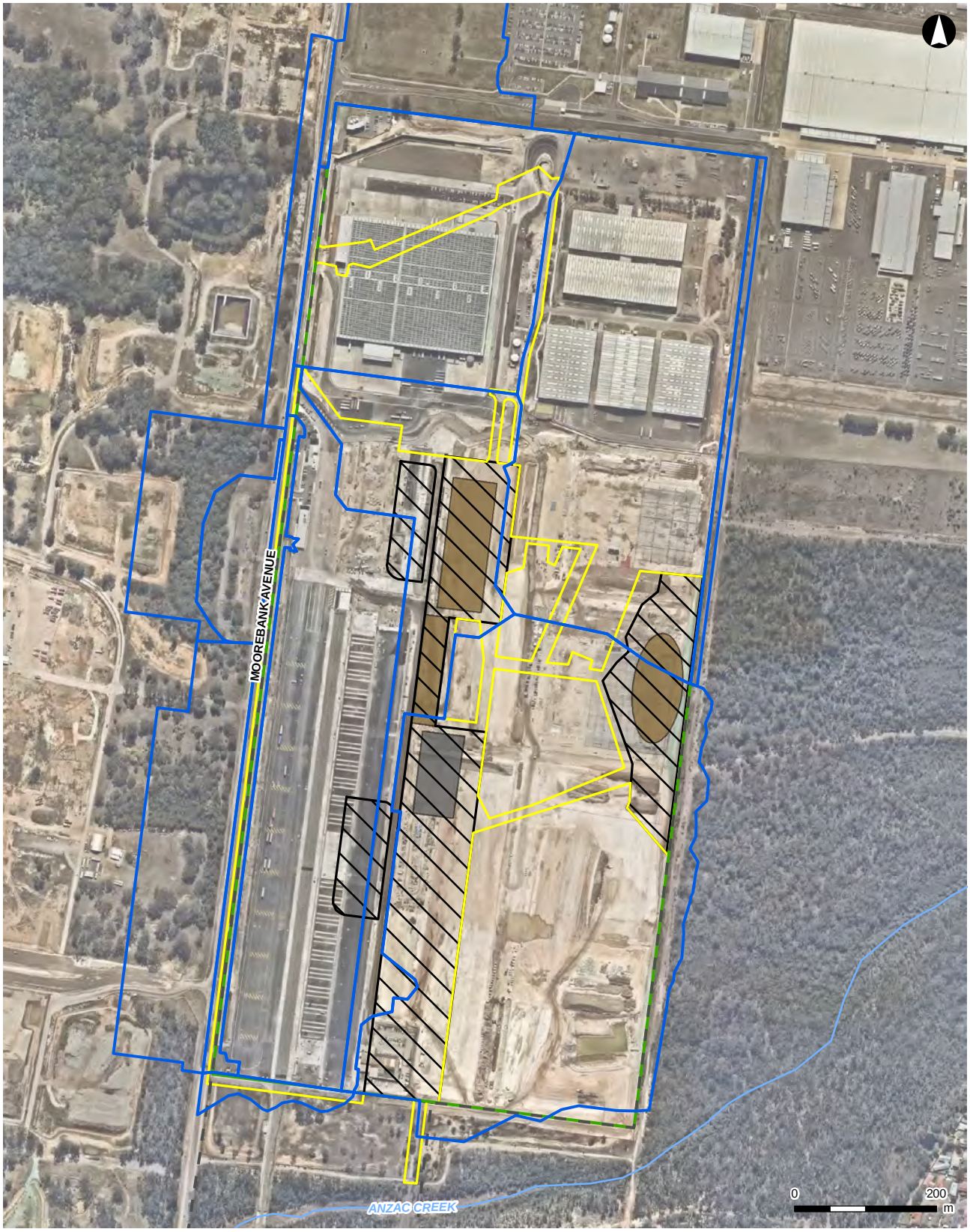
- Priority should be given to management practices that minimise erosion, rather than to those that capture sediment downslope or at the catchment outlet
- Minimise the area of soil disturbed and exposed to erosion at any one time
- Divert clean water around the construction site or control the flow of clean water at non-erodible velocities through the construction site
- Provision of boundary treatments around the perimeter of construction areas to minimise the migration of sediment offsite
- Permanent or temporary drainage works will be installed as early as practical in the construction program to minimise uncontrolled drainage and associated erosion, including the onsite detention (OSD) and flood conveyance works
- Stockpiles will be located away from flow paths on appropriate impermeable surfaces, to minimise potential sediment transportation (refer Figure 2 below). Where practicable, stockpiles will be stabilised if in place for more than ten days and will be formed with sediment filters in place immediately downslope.
- Existing catchments and sub-catchment boundaries will be maintained as far as practicable
- Site imperviousness and grades should be limited to the extent of existing imperviousness and grades under existing development conditions
- Rehabilitate disturbed lands as soon as practicable

- The wheels of all vehicles will be cleaned prior to exiting the construction site where excavation occurs to prevent the tracking of mud. Where this is not practical, or excessive soil transfer occurs onto paved areas, street cleaning will be undertaken when necessary
- Inspection of all permanent and temporary erosion and sedimentation control works prior to and post rainfall events and prior to closure of the construction site
- Erosion and sediment control structures to be cleaned repaired and augmented as required.

The key measures associated with sediment and erosion control will include:

- Any additional construction areas, such as site offices and stockpile locations will be located, where possible, within existing cleared or disturbed areas.

Check the operation of all project-related sediment and erosion controls at least once per day during operational hours, to help identify potential water pollution risks. A Preliminary Erosion and Sediment Control Plan has been developed and presented in Appendix C.



LEGEND

- Project site
- Construction footprint
- MPE site
- Compound and stockpile area
- Existing catchment
- Concrete / crushing
- Fill material
- Watercourse

ARCADIS AUSTRALIA PACIFIC PTY LTD
ABN 76 104 485 289
Level 16, 580 George St | Sydney NSW 2000
P: +61 (0) 2 8907 9000 | F: +61 (0) 2 8907 9001

Coordinate System: GDA 1994 MGA Zone 56
Aerial imagery supplied by nearmap (Sep, 2019)

1:8,000 at A4

Figure 2: MPE Stage 1, Proposed stockpile locations

5.3 Emergency Spill Response

In the event of a spill incident, the emergency spill response procedure below will be implemented. Emergency spill clean-up kits will be maintained on-site in agreed locations that are accessible and known to all site workers. Spill kits will be used in the event of inadvertent spills of fuels, oils, hydraulic fluids and other hazardous wastes, to contain the spill and avoid contamination of waters. Workers will be trained in the use of spill kits. Contaminated soils shall be excavated and disposed by means to be authorised by the Site Superintendent. Contamination mitigation and management measures are further outlined in Table 11, SW14.

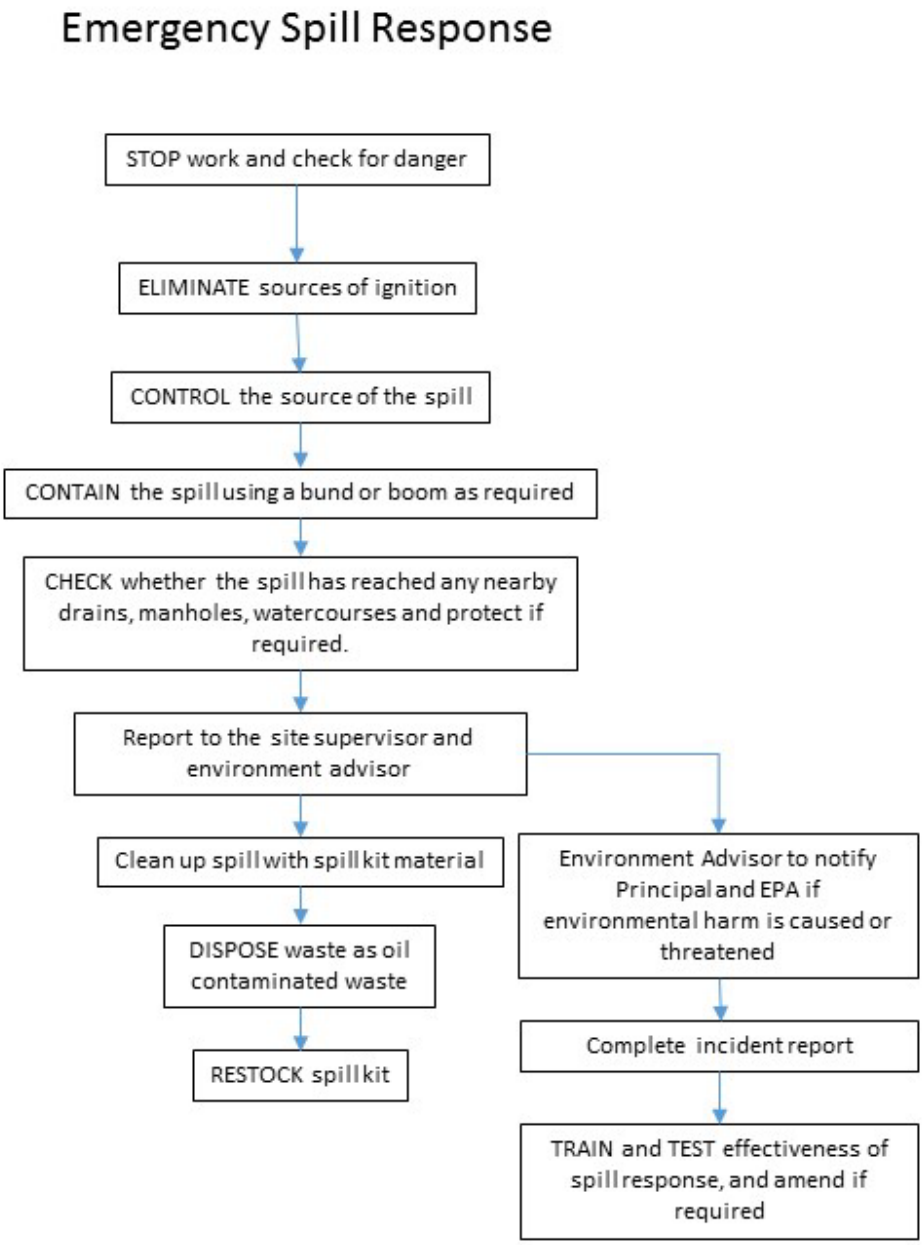


Figure 3 Emergency Spill Response Procedure

5.4 Controls

The Table 11 outlines controls/mitigation measures that will be implemented during construction.

Table 11 Mitigation/ Management/ Control Action and Responsibilities

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
Controls				
SW1	**Erosion and Sediment Control Plan** An Erosion and Sediment Control Plan (ESCP) for the Project construction is presented as Appendix C. The plan includes ERSED controls in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom 2006) (the Blue Book") as outlined further below. Standard Drawings of ERSED controls are provided in Appendix D. These drawings outline construction measures and methods of installation of controls. The ESCP must be developed and approved by the Principal. The Principal's Environmental Representative will inspect the installation of the controls prior to breaking ground.	Pre-Construction Construction	Environmental Manager Supervisors	CoC E34(f) CMM - Hydrology CCoA 2b FCMM 5A
SW2	**Vegetation** The following controls will be implemented to minimise impacts associated with vegetation: • Clearing of vegetation will not be undertaken during overland flow events • Clearing areas will be constrained by clear identification of sensitive areas and areas for construction. The extent of clearing should be delineated with high visibility temporary fencing and the extent and limitations to vegetation clearing will be clearly identified on construction plans • All disturbed areas where trees and other vegetation are removed are to be stabilised and or revegetated in accordance with the contractual requirements as soon as practical following final land shaping • Any additional construction areas, such as site offices, construction stockpile locations and machinery/equipment laydown areas will be located, where possible, within existing cleared or disturbed areas. A preliminary plan presenting construction areas across the Project site is presented in Figure 1. • Rehabilitation will commence as soon as possible.	Pre-Clearing Clearing Construction	Construction Manager Supervisors	FCMM 5A CoC E34(d) CFFMP FCMM 5A
SW3	**Drainage**	Construction	Design Manager	CoC C9, E6,

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	Upslope diversion drains/bunds are to be installed to prevent clean water runoff from entering disturbed construction catchments. Clean water diversion drains are to be lined with geo-fabric and discharge to stabilised areas via level spreaders. Final design swales need to be established as soon as is practicable as they will play a role in the sediment control on the site, upon the insertion of rock check dams.		Supervisor	E7, E8, E34 FCMM 5A
SW4	**Sediment Basins** Sediment basins were originally proposed in the ESCP by Hyder (2015), however upon completion of the erosion hazard assessment and annual soil loss calculation it has been determined that sediment basins are no longer necessary. The details of the erosion hazard assessment are provided in Appendix B.	Construction	Environmental Manager	CoC E34(f)(iv) FCMM 5A
SW5	**Sediment Fences** Sediment fences are located around the perimeter of the site to ensure no untreated runoff leaves the site. They have also been located around the existing and proposed drainage channels to minimise sediment migration into waterways and sediment basins. Sediment fences are to be installed in accordance with Standard Drawing (SD) 6-8 as provided in Appendix D.	Construction	Environmental Manager Supervisors	CoC E34(f)(iv) FCMM 5A
SW6	**Stabilised Site Access and Truck Washdown** A stabilised site access is to be located on Moorebank Avenue, and a truck wheel wash bay, is proposed via a detour along the Main IMT construction haul road, to the north of the Main IMT compound area (refer to Environmental Control Mapping, Appendix Q of this CEMP). The wheel wash is to be used by all trucks leaving the site, limiting the risk of sediment being transported onto Moorebank Avenue and other public roads. The stabilised site access is to be installed in accordance with SD 6-14. Where required, a street sweeper will also be utilised as required during the construction phase of the project.	Construction	Construction Manager Environmental Manager	CoC E34(f) CMM - Hydrology FCMM 5A
SW7	**Batter and Excavation Face Protection** Exposed batters and/or disturbed surfaces of the site during earthworks represent a significant source of readily erodible material until final stabilisation is achieved. To minimise the potential for the generation of sediment laden water run-off from exposed surfaces during the works, various materials such as geotextile fabric, polymers, cover crop, plastic sheeting etc. will be placed and secured as a temporary erosion control measure where practical. To be installed in accordance with SD 5-2. In addition to these	Construction	Construction Manager Environmental Manager Supervisors	CoC E34(f) CMM - Hydrology FCMM 5A

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	materials, other options such as progressive revegetation and staged clearing will be considered.			
SW8	**Sandbags and Sediment Socks** Sandbags and sediment socks are utilised to create a weir or check dam in table drains to slow the runoff water velocity and enable coarse sediment to settle. They can also be used to create diversion drains or bunds walls to contain liquids, or to supplement existing sediment controls and will be placed around any existing live stormwater pits or drop inlets prior to decommissioning of the structure. Locations will be confirmed on site and included in working sediment and erosion control plans.	Construction	Supervisors	CoC E34(f) CMM - Hydrology FCMM 5A
SW9	**Dust Control** Water carts fitted with sprays will be used to wet down any unsealed haul roads and fill areas to minimise the amount of dust generated where required. The number and size of the water carts shall be regularly reviewed by the Site Supervisor and the Project Manager to ensure that adequate watering is taking place and dust is kept to a minimum. Care is to be exercised to limit the amount of water used to ensure run-off does not occur and leave the site.	Construction	Supervisors Water cart contractor	CoC E34(f) CMM - Hydrology FCMM 5A
SW10	**Stockpiles** Temporary stockpiles shall be located away from drainage lines and water courses. Sediment barriers shall be erected on the down slope side so that any sediment laden runoff from the stockpile is captured and controlled. On the upslope, berms or catch drains shall be installed, if practicable, to divert clean water away from the stockpile. Stockpiles will be covered or stabilised when not in use to minimise erosion and dust. ***Contaminated Material Stockpiling*** All USTs and associated infrastructure within the Project site would be decommissioned and most likely removed by a suitably qualified contractor. During this process, any hydrocarbon impacted soils identified will be chased out from the walls and base of the excavations formed. Excavated material would segregated and stockpiled, based on initial screening levels of contamination, on an area of plastic sheeting that would provide a separation layer between the potentially contaminated soils and surface soils. Excavation validation sampling would then be undertaken in accordance with the RAP to confirm that contaminated soils have been removed to the practicable limits of excavation. Clean or validated material would be used to backfill the excavation.	Construction	Supervisors Contamination Consultant Environmental Manager Construction Manager	CoC E34(f) CMM - Hydrology FCMM 5A

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	Impacted soils would be bio-remediated, in accordance with the NSW EPA *Best Practice Note: Landfarming* (2014). Impacted soils would be spread out on the designated, lined and bunded bioremediation area. The soils would be turned monthly over a period of three to four months. During this period an environmental consultant would sample the material every eight weeks until the soil has reached suitable levels to be used as backfill within the Proposal site. Any material that is unsuitable to be used as backfill on the site would be classified in accordance with the Waste Classification Guidelines (NSW EPA, 2014), prior to offsite disposal at an appropriately licensed facility. SD 4-1 demonstrates stockpile protection measures to be implemented on-site.			
SW11	**Rock Check Dams** Rock checks are effective to slow the velocity of runoff collected in diversion drains, and allow some entrained sediment to settle out. They are simple to construct and are very effective. Refer to SD5-4 Rock Check Dam.	Construction	Supervisors	CoC E34(f) CMM - Hydrology FCMM 5A
SW12	**Inlet Pit Protection** Inlet pits linking to subsurface drainage will be implemented progressively across the site as construction is completed. As these pits are completed sediment controls will need to be installed until the upslope catchment conveying water to the inlet pit is considered stabilised and sediment laden runoff is no longer generated. SD 6-11 and 6-12 provide design characteristics for the protection of inlet pits to be utilised on site as appropriate	Construction	Supervisors	CoC E34(f) CMM – Hydrology FCMM 5A
SW13	**Vegetated Buffer Zones** The vegetated area down gradient of the eastern cut area will provide further treatment of any runoff coming from the disturbed catchment following treatment through the perimeter control of a mulch bund or sediment fence. This will provide additional area for infiltration of runoff and the vegetation will facilitate further settlement of fines.	Construction	Construction Manager	CoC E34(f) CMM – Hydrology FCMM 5A
SW14	**Contamination Control** A site audit statement has been prepared for the Project stating that the site is suitable for use as a commercial/industrial site subject to compliance with the Environmental Management Plan, Former DNSDC, Moorebank NSW, developed by GHD Pty Ltd in	Construction	Contamination Consultant Construction Manager Environmental Manager	CoC E8 RSoC FCMM 5A

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	September 2016. The GHD Environmental Management Plan outlines procedures to be followed for: • Signage • Asbestos Containing Material • Unexploded Ordnance • Unexpected Finds • Record Keeping • Review of EMP Implementation • Review of EMP – Site and/or Land Ownership Changes Furthermore, a Construction Contamination Management Plan has been produced which outlines further detail as to how to manage contamination on site. **Management of contamination will be in accordance with these procedures.** A hazardous materials assessment will be undertaken prior to the commencement of demolition Primary management measures for potential contamination that may be generated during construction and target prevention of contamination are manifest within SIMTA standard operating procedures. SIMTA procedures specific to prevention of contamination include: • regular maintenance and pre-start checking of all machinery used on-site to minimise potential for leaks and spills from vehicles • refuelling of mobile plant within a designated lined and bunded area where practicable. Refuelling will be undertaken at a minimum of 40m away from surface water features such as creeks, rivers, drains, swales, stormwater pit inlets etc. Plant nappies/drip trays will be utilised for all refuelling operations. • emergency spill clean-up kits will be maintained on-site in agreed locations that are accessible and known to all site workers. Spill kits will be used in the event of inadvertent spills of fuels, oils, hydraulic fluids and other hazardous wastes, to contain the spill and avoid contamination of waters. Workers will be trained in the use of spill kits. Contaminated soils shall be excavated and disposed by means to be authorised by the Site Superintendent. • fuels, oils, lubricants and similar products will be stored in designated secondary containment areas (e.g. internally bunded shipping containers or purpose built structures). Bulk storage areas for fuels, oils and chemicals used during			MLP EPL No. 21054

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	construction will be contained within an impervious bund to retain any spills of more than 110% of the volume of the largest container in the bunded area. Any spillage will be immediately contained and absorbed with a suitable absorbent material. Storage will comply with AS 1940-2004 The Storage and Handling of Flammable and Combustible Liquids. • trade waste receptacles will be provided for the safe and efficient storage of all construction and miscellaneous wastes. Recyclable materials shall be separated and recycled where possible. Otherwise, disposable wastes will be removed from site regularly and disposed by approved means. • All potentially contaminated material will be tested in line with NSW Waste Classification guidelines and disposed of at a licensed facility. Additional general environmental measures that will be include: • the drainage controls defined in SW3 which will mitigate potential migration of contamination through surface water and • the dust controls presented in SW9 which will mitigate potential airborne migration of contamination.			
SW15	**Inspections and Wet Weather** Construction water quality structures and sediment controls will be implemented and maintained until such times as disturbed areas have been stabilised. Weather forecast will be checked daily by supervisors and wet weather plans will be developed accordingly. Wet weather plans during pre-rainfall inspections will include predicted rainfalls and erosion sediment controls will be implemented accordingly. The Site Supervisor and Project Environmental Manager will continually inspect the site's environmental controls during active works and when controls are required to be installed and left on site between shifts, and within 24 hours of expected rainfall. An inspection of the site will also be undertaken following heavy rainfall events (within 18 hours following an event of sufficicient intensity to cause runoff onsite), further details of monitoring and inspection requirements are outlined in section 6.3 of this CSWMP. The Site Supervisor and Environmental Manager will also inspect the site prior to Rostered Day Off (RDO site shut-down day) weekends or other periods of extended closure. Permanent and temporary sediment control structures which become blocked or overloaded with sediments will be cleaned out using appropriate methods such as an	Construction	Construction Manager Environmental Manager Supervisors	FCMM 5A RSoC

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	excavator, backhoe or by manual means. Cleaning shall be performed prior to or when the accumulated sediment has reduced the capacity of the structure to less than 60%, based on a visual assessment. Silt collected from cleaning temporary and permanent sediment and erosion control measures shall be mixed with dry material and incorporated into the works where deemed appropriate. All temporary erosion and sediment controls will be removed and the areas rehabilitated as per the revegetation and landscaping details.			
Site Water Controls				
SW16	Trade waste and sewage will be generated during the Project. Sewage waste will be disposed of by a licensed waste contractor in accordance with Sydney Water and OEH requirements. Trade waste will be discharged to the sewer through a trade waste agreement with Sydney Water. If wastewater is to be re-used for dust suppression or is discharged to vegetation for the purpose of maintaining biodiversity offset areas, it will be applied in a manner that does not cause surface run-off or release spray offsite or into a watercourse. The application of wastewater will also not exceed the absorption capacity of the soil.	Construction	Supervisors	RSoC MLP EPL No. 21054
SW17	**Concrete Washout** • The Site Supervisor will locate a designated washout area a minimum of 20m away from any natural watercourses or drainage lines • a concrete washout pit will be established within the approved project limits for cleaning out the concrete pump and be located in as flat an area as possible. Inflows will be redirected around the washout • The washout is to be established prior to the arrival of the concrete trucks; • Concrete truck chutes and concrete pump and hand tools may be washed within concrete washout pit but concrete trucks must return to the batch plant to washout agitators, where possible; • Concrete for testing will be placed in to skip bins, where volumes are significant enough to warrant this technique; • Excess concrete will be left to harden over night before removal from the washout • The washout will be lined with black construction plastic.	Construction	Supervisors	RSoC

<table>
<tr><th>Item</th><th>Mitigation / Management / Control Measure</th><th>Timing</th><th>Responsibility</th><th>Reference</th></tr>
<tr><td></td><td>Concrete Washout areas will be set up in accordance with the intent of the NSW EPA guideline 'Environmental Best Management Practice Guideline for Concreting Contractors' (2002).</td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Water Discharge Requirements</td></tr>
<tr><td>SW18</td><td>Criteria for Discharge to Water from areas identified as not potentially contaminated

Water quality performance targets are derived from the mitigations measures defined within the EIS approval requirements and are summarised in Table 5.1 below.

Dewatering discharge criteria

<table>
<tr><th>Analyte</th><th>Criteria</th></tr>
<tr><td>Total Suspended Solids (TSS)</td><td>50mg/L</td></tr>
<tr><td>Turbidity</td><td>25 NTU</td></tr>
<tr><td>pH</td><td>6.5-8.5</td></tr>
<tr><td>Oil and Grease</td><td>Visible sheen</td></tr>
</table>
Prior to discharge, the quality of the discharge is to be tested and characterised to demonstrate compliance. TSS and turbidity limits for the discharge points identified in Figure 5 do not apply when the discharge occurs solely as a result of rainfall measured at the premises which exceeds; a total of 24.4 millimetre of rainfall over any consecutive 5 day period</td><td>Construction</td><td>Supervisors
Environmental Manager
Construction Manager</td><td>FCMM 5A
CoC E34(f)
MLP EPL No. 21054</td></tr>
<tr><td>SW19</td><td>Discharge from areas identified as contaminated

Groundwater and any potential surface runoff entering the excavation around the Underground Petroleum Storage System (UPSS) will be managed by multiphase extraction. Should MPE not be appropriate a liquid waste vacuum truck may be more appropriate for disposal of contaminated waters at a licenced off-site facility. Contaminated areas should be exposed for the absolute minimum period possible to prevent the likelihood of surface water inflow requiring treatment. Upslope diversions should be utilised to prevent surface water infiltration into disturbed areas.</td><td>Construction</td><td>Supervisors
Environmental Manager
Construction Manager
Contamination Consultant</td><td>FCMM 5A
CoC E34(f)
MLP EPL No. 21054</td></tr>
</table>

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	In the event that remediation works of groundwater impacts associated with the refuelling facility (SW corner of Stage 1 site) intersect the groundwater table a report detailing the results of further investigations into surface water, groundwater and geotechnical issues will be prepared in consultation with the EPA and NOW and submitted to the Secretary prior to these potentially impacting works commencing.If contaminated groundwater is extracted during any activity on site, it should not be reused on site.			
SW20	**Discharge to Land** Limitations on infiltration rates associated with clay soils underlying the site and salinity of groundwater make discharge to land impractical and undesirable	Construction	Supervisors Environmental Manager Construction Manager	FCMM 5A CoC E34(f) MLP EPL No. 21054
SW21	**Reuse on Site** Water to be reused on site for dust suppression or other uses will not require the TSS, TP and TN criteria to be assessed as the water will not be discharged from the Project site, however pH testing and visual inspection for oil and grease is still to be undertaken. Rain water collection systems will be installed on mobile site sheds. Collected rain water will be utilised for toilet flushing and cleaning where required.	Construction	Supervisors Environmental Manager Construction Manager	FCMM 5A CoC E34(f)
Drainage/Flood Response and Construction				
SW22	A Flood Emergency Response Plan (FERP) has been addressed as an Environmental Risk Action Plan (ERAP) within CEMP Appendix A: • Monitor meteorological conditions – develop contingency strategy for rainfall > 100mm in 24hours or potential for > 1in 5 ARI • All chemicals, fuels and other hazardous substances to be in secured containers and stored within a sealable shipping container • Remove plant and equipment from low lying areas • Secure plant that cannot be removed • Review site drainage flow paths: • Redirect site drainage to prevent flooding of residential/business premises • Ensure site drainage does not concentrate surface flow	Construction	Supervisors Environmental Manager Construction Manager	FCMM 5A RSoC

Item	Mitigation / Management / Control Measure	Timing	Responsibility	Reference
	• Review and address the potential for excess water entering the site • Review and maintain erosion and sedimentation controls • Evacuate personnel to safe refuge area in the north of the site based on likely flood behaviour.			
SW23	Pre-treatment measures will be incorporated into the site stormwater design, including buffer strips and gross pollutant traps where deemed appropriate.	Design Construction	Design Manager	CMM - Hydrology
SW24	Bio-retention systems will be incorporated into the site stormwater design, including rain gardens and bioswales, where deemed appropriate. These structures will also act as on-site detention basins, minimising the velocity and volume of flows leaving the site during storm events. Bio-retention systems will be designed to achieve the pollution reduction targets set out in the Liverpool DCP.	Design Construction	Design Manager	CMM - Hydrology
SW25	On-site stormwater detention will be designed to achieve flood management in accordance with the flood modelling results outlined in the Flood Study and Stormwater Management report prepared by Hyder Consulting (Hyder Consulting, 2012a) and as updated within the Stormwater and Flooding Assessment (Hyder Consulting, 2012b).	Design Construction	Design Manager	CMM - Hydrology

6 COMPLIANCE MANAGEMENT

6.1 Roles and Responsibilities

All roles and responsibilities are detailed in Section 9.1 of the CEMP. Further to this, the management measures outlined in Section 5 detail personnel responsible for undertaking specific actions.

6.2 Training

All site personnel shall undergo site specific induction training, which will include environmental awareness. It will also include training in the need for effective erosion and sediment control on site. Toolbox meetings will also be undertaken as and when required; covering specific environmental issues and shall include erosion and sediment control measures.

Personnel directly involved in implementing sediment and erosion control measures on site will be given specific training in the construction, operation and maintenance of the various measures to be implemented.

Personnel conducting sampling, measuring, monitoring and reporting activities are to be suitably trained or experienced in the activity. Records of all training are to be filed in accordance with the project filing system.

It is the Project Environment Manager (and Site Environmental Officers) responsibility to ensure all personnel are appropriately trained as outlined above.

6.3 Monitoring, Auditing and Reporting

Monitoring, auditing and reporting will be undertaken in accordance with the CEMP, as well as additional requirements listed below, (Table 12).

Table 12 Monitoring Requirements

Monitoring Details	Area/Location	Responsibility	Frequency
Weather	Nearest BOM weather station observations	Environmental Manager	Daily
Rainfall Inspections (pre, post, during)	All water quality control and sediment control structures	Environmental Manager	Inspection of the site drainage and ESC measures should be undertaken: • during dry conditions within 24 hours of expected rainfall. • within 18 hours following a rainfall event of sufficient intensity and duration to cause runoff onsite.
Sensitive Receptor Inspections (post rainfall event)	Anzac Creek	Environmental Manager	within 18 hours following a rainfall event of greater than 10mm and sufficient to cause runoff from site.
Supervisor Daily Inspections	Entire Project Site	Supervisor	Daily

Monitoring Details	Area/Location	Responsibility	Frequency
Weekly Inspections	Entire Project Site	Environmental Manager	Weekly – also prior to RDO weekends and other times where the site will be closed or inactive for an extended period.
Discharge Water Quality	All water quality control and sediment control structures	Environmental Manager	Prior to, during and after any heavy rainfall event of sufficient intensity and duration to cause runoff onsite.
Receiving Water Quality	All water quality control and sediment control structures	Environmental Manager	Prior to, during and after any heavy rainfall event of sufficient intensity and duration to cause runoff onsite. Regardless of whether trigger rainfall (above) has occurred, on a monthly basis Anzac Creek will be monitored for evidence of visual plume and Water Quality Monitoring will take place in locations identified in Figure 4. Then if exceedance is identified during the General Site Monitoring, any rectification measures that may be need to be implemented will be identified. If non-compliance is found during Water Quality Monitoring a sample will be retaken the same day to confirm the non-compliance. If the non-compliance is confirmed then Incident Response Measures will be implemented.
Plant and Equipment	Entire Project Site	Construction Manager	Daily

All water quality control and sediment control structures (e.g. sediment fences, drainage protection, temporary check dams/sumps) will be regularly inspected and maintained throughout the project. Inspection of the site should be undertaken during dry conditions within 24 hours of expected rainfall, and within 24 hours following a rainfall event of sufficient intensity to cause runoff on-site. Upon the cessation of any rainfall event, inspections should be undertaken to confirm that controls remain functional and identify if maintenance is required. The Site Construction Manager is responsible for managing the installation of controls and rehabilitation of the site in accordance with the requirements. The Project Environment Manager (and Environmental Site Officers) are responsible for monitoring the installation and maintenance of controls and providing training.

Daily inspections of controls will be made by Supervisors and maintenance will be recorded in site diaries during active site works.

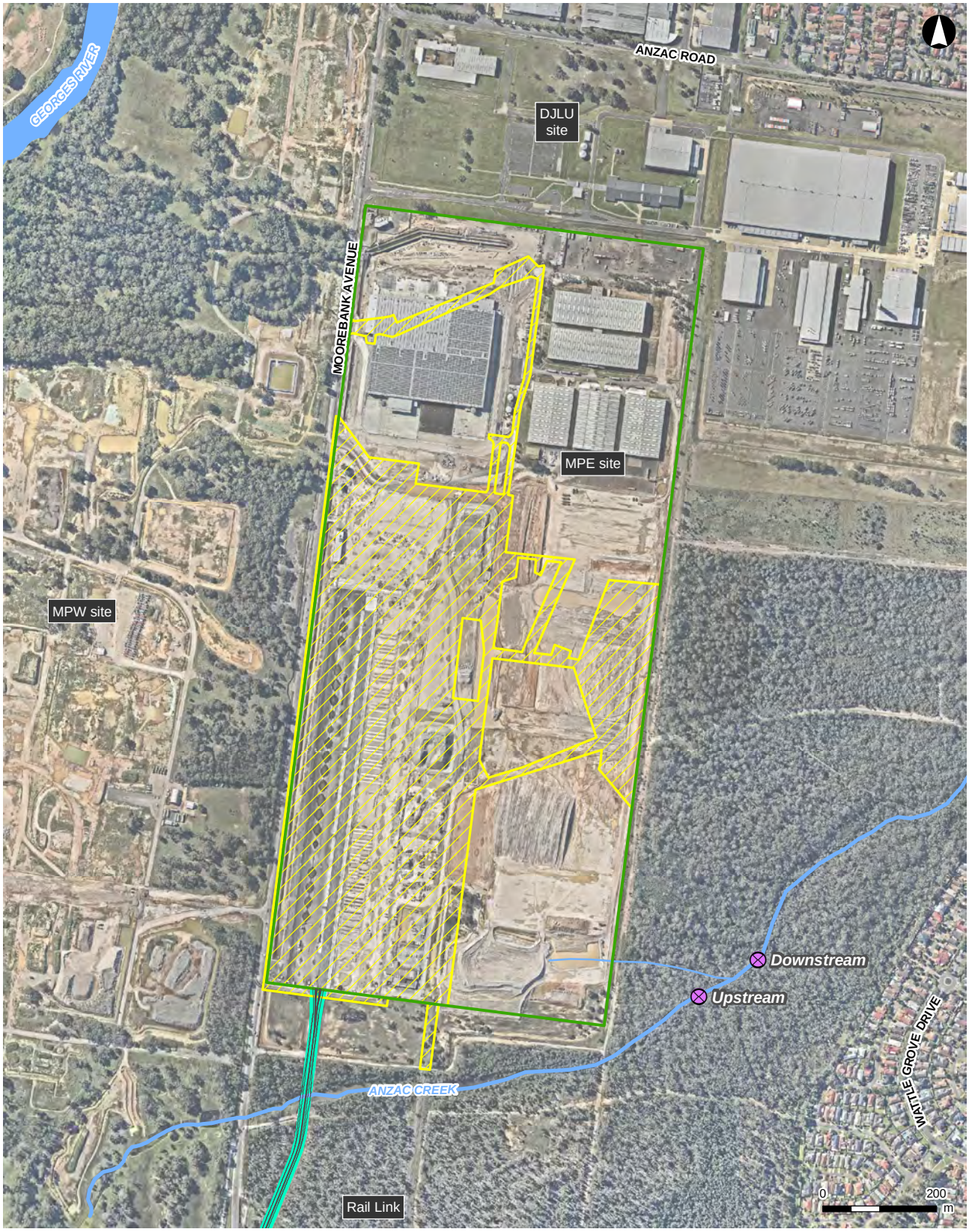
The Project Environmental Manager will conduct a detailed documented inspection at least once per week during active works as well as prior to, during and after any heavy rainfall (as outlined above with events of greater than 10mm and 50mm). An inspection of the site will also be undertaken prior to RDO weekends and other times where the site will be closed or inactive for an extended period. The inspections will focus on the integrity, capacity and performance of the site control measures which will include the sediment fences, temporary check dams/sumps, diversion bunds, drain protection and rehabilitation works.

Items that require repair or action will be documented on the site environmental inspection. Items that require specific and detailed action will be recorded on the Project's Corrective Action Register. The

Superintendent will be responsible for providing appropriate resources in terms of labour, plant and equipment to enable the items to be rectified in the nominated timeframes.

If deemed necessary, additional sedimentation control measures will be implemented to ensure that water quality is maintained throughout the works. Improvement requests received from the Principals Environmental Representative, the EPA or other appropriate agencies shall be assessed and responded to within 24 hours if the issue is not environmentally threatening.

The implementation and record keeping of monitoring initiatives listed in Table 12 will allow the Project Environmental Manager and Site Officers to determine compliance with the Ministerial CoC, Environmental Protection Licence (EPL 21054) and Environmental Best Practice. Specific requirements for EPL 21054 are addressed in Table 5 and Section 4.2 of the CEMP.



LEGEND

- Water quality monitoring location
- IMEX Boundary
- RALP Boundary
- MPE site
- Rail link
- Watercourse
- Unnamed tributary

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Coordinate System: GDA 1994 MGA Zone 56
Date issued: July 5, 2019
Aerial imagery supplied by nearmap (March, 2019)

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ARCADIS

SIMTA

Figure 4: Water Quality Monitoring Locations

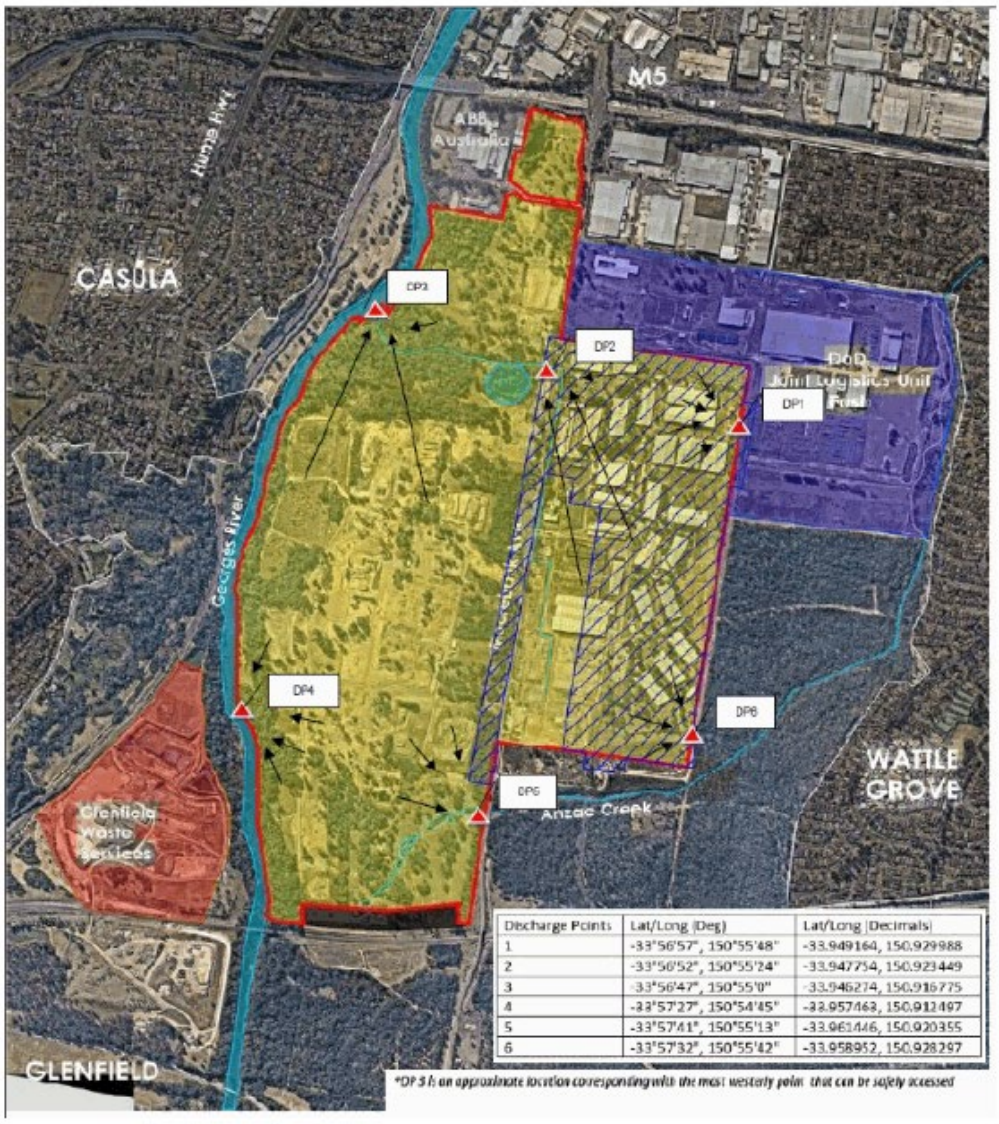


Figure 5 Water discharge points

6.4 Enquiries, Complaints and Incident Management

Enquiries, complaints and incident management will be undertaken as per the CEMP, including those related to soil and water management.

Accordingly, in the case of an incident resulting in contamination of water (e.g. fuel spill) or contaminated / turbid water being discharged from the site, the incident management response procedures provided in the CEMP will be implemented. In all cases, the situation will be assessed and if safe to proceed, measures implemented to stop or slow down the released of contaminated material from the site. The Project Construction Manager and Environmental Manager will be informed and all necessary stakeholders informed as per the incident management process in the CEMP.

There is a duty to notify 'relevant authorities' as specified in section 148(8) of the POEO Act (the EPA, local authority, Ministry of Health, SafeWork NSW and Fire and Rescue NSW) of pollution incidents where material harm to the environment is caused or threatened.

6.5 Non-compliances, Non-conformance and Actions

It is the responsibility of all site personnel to report non-compliances and non-conformances to the Site Supervisor and/or the Contractor's EM.

Non-compliances, non-conformances and corrective and preventative actions will be managed in accordance with Section 9.2.1 of the CEMP.

6.6 Review and Improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against regulatory environmental policies, legislative requirements, SIMTA's Environmental Policy, Project objectives and targets for identifying opportunities for improvement.

The continuous improvement process is designed to:

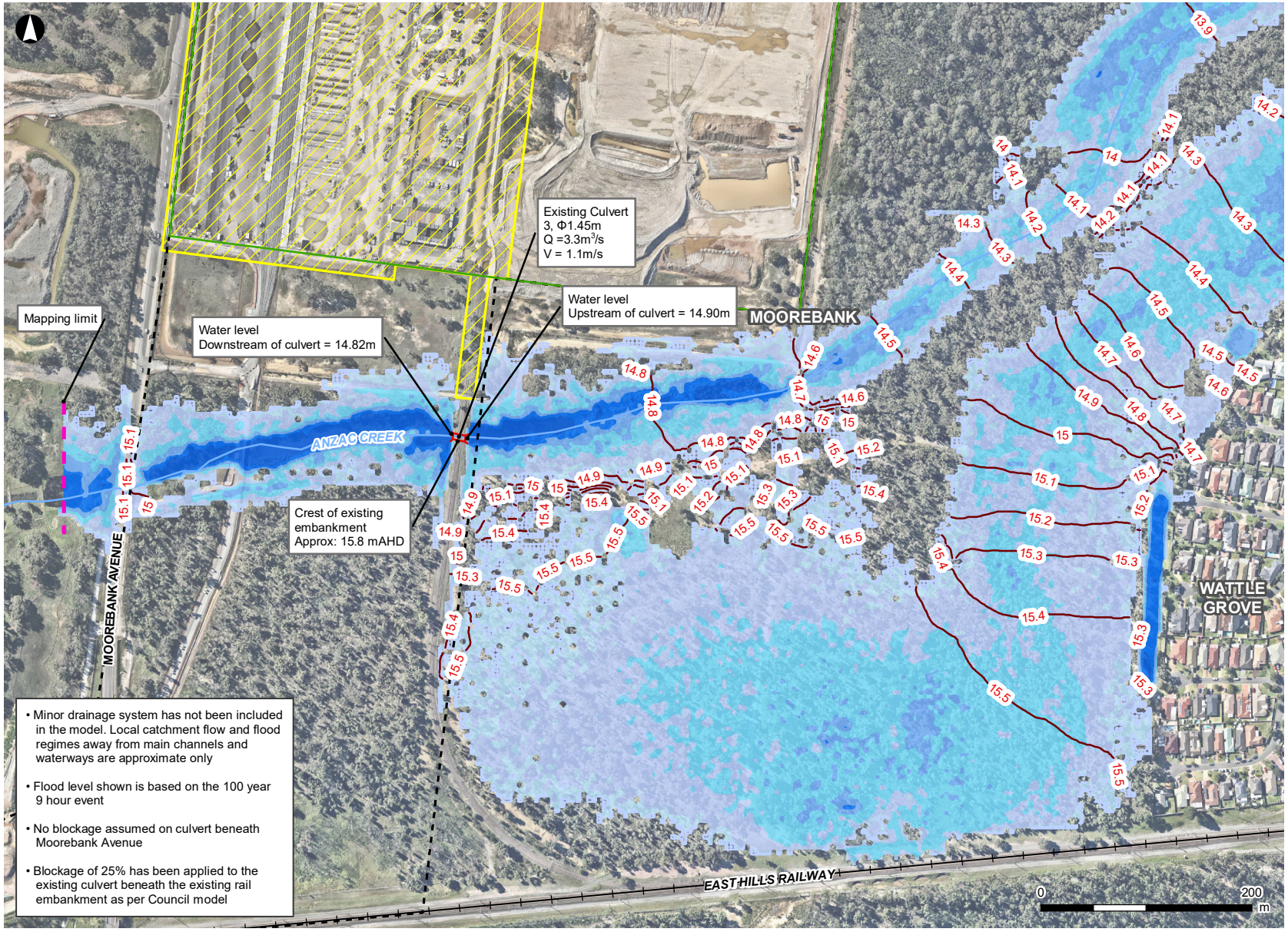
- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances, non-compliances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances, non-compliances and deficiencies
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

Any revisions to the CSWMP will be in accordance with the process outlined in Section 1.6 of the CEMP. A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

This plan will be reviewed annually as a minimum but may be updated more regularly depending on process changes and refinements.

APPENDIX A

Additional Figures: 1 - 5



LEGEND

- Project site
- Construction footprint
- MPE site
- Existing railway
- Culvert
- Watercourse
- Flood level (mAHD)
- < 0.1
- 0.1 to 0.2
- 0.2 to 0.4
- 0.4 to 0.6
- 0.6 to 0.8
- 0.8 to 1.0
- 1.0 to 1.5

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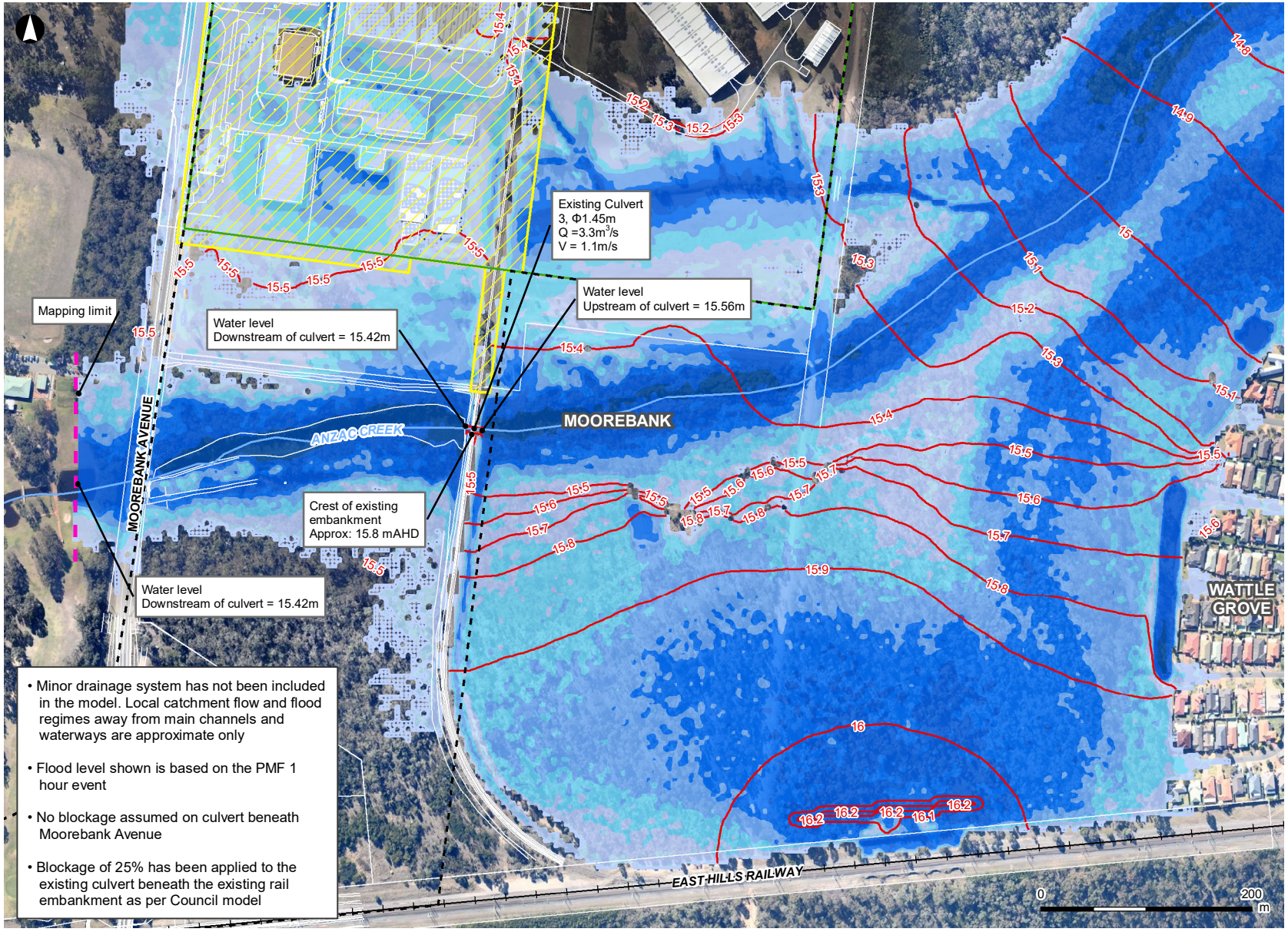
Aerial imagery supplied by Nearmap (Mar, 2019)

Figure 1: AnzacCreek (Culvert) – 100 Year ARI flood depth and level contours - existing conditions



LEGEND

- Construction footprint
- MPE site
- Project site
- Existing railway
- Watercourse
- Flood level (mAHD)
- < 0.1
- 0.1 to 0.2
- 0.2 to 0.4
- 0.4 to 0.6
- 0.6 to 0.8
- 0.8 to 1
- 1 to 1.5
- 1.5 to 2

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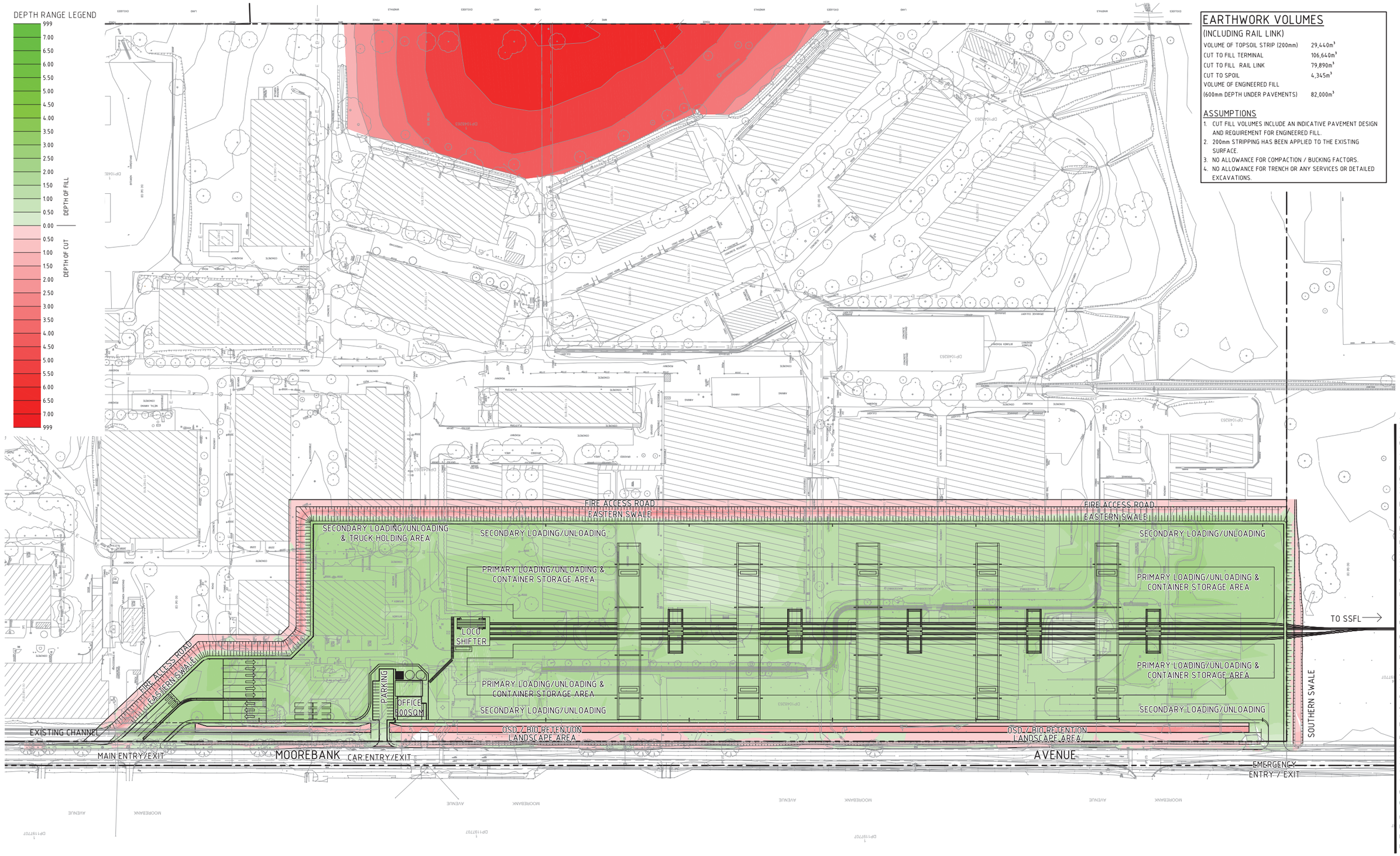
Aerial imagery supplied by Nearmap (Mar, 2019)

Figure 2: Anzac Creek (Culvert) – Probable maxium flood depth and level contours - existing conditions



EARTHWORK VOLUMES

(INCLUDING RAIL LINK)

VOLUME OF TOPSOIL STRIP (200mm)	29,440m³
CUT TO FILL TERMINAL	106,640m³
CUT TO FILL RAIL LINK	79,890m³
CUT TO SPOIL	4,345m³
VOLUME OF ENGINEERED FILL (600mm DEPTH UNDER PAVEMENTS)	82,000m³

ASSUMPTIONS

1. CUT FILL VOLUMES INCLUDE AN INDICATIVE PAVEMENT DESIGN AND REQUIREMENT FOR ENGINEERED FILL.
2. 200mm STRIPPING HAS BEEN APPLIED TO THE EXISTING SURFACE.
3. NO ALLOWANCE FOR COMPACTION / BUCKING FACTORS.
4. NO ALLOWANCE FOR TRENCH OR ANY SERVICES OR DETAILED EXCAVATIONS.

Issue	Description	Date
02	ISSUE FOR SSD APPLICATION (RESPONSE TO SUBMISSIONS)	20.08.15
01	ISSUE FOR SSD APPLICATION	10.04.15

0 30 60 90 120 150m

1 : 1500

Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

Scales	1:1500	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	G.HUZIJ
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project

MOOREBANK
INTERMODAL TERMINAL FACILITY
STAGE 1
(CONCEPT DESIGN)

Title

STAGE 1 SITE
CUT AND FILL PLAN

HYDER CONSULTING PTY LTD

ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
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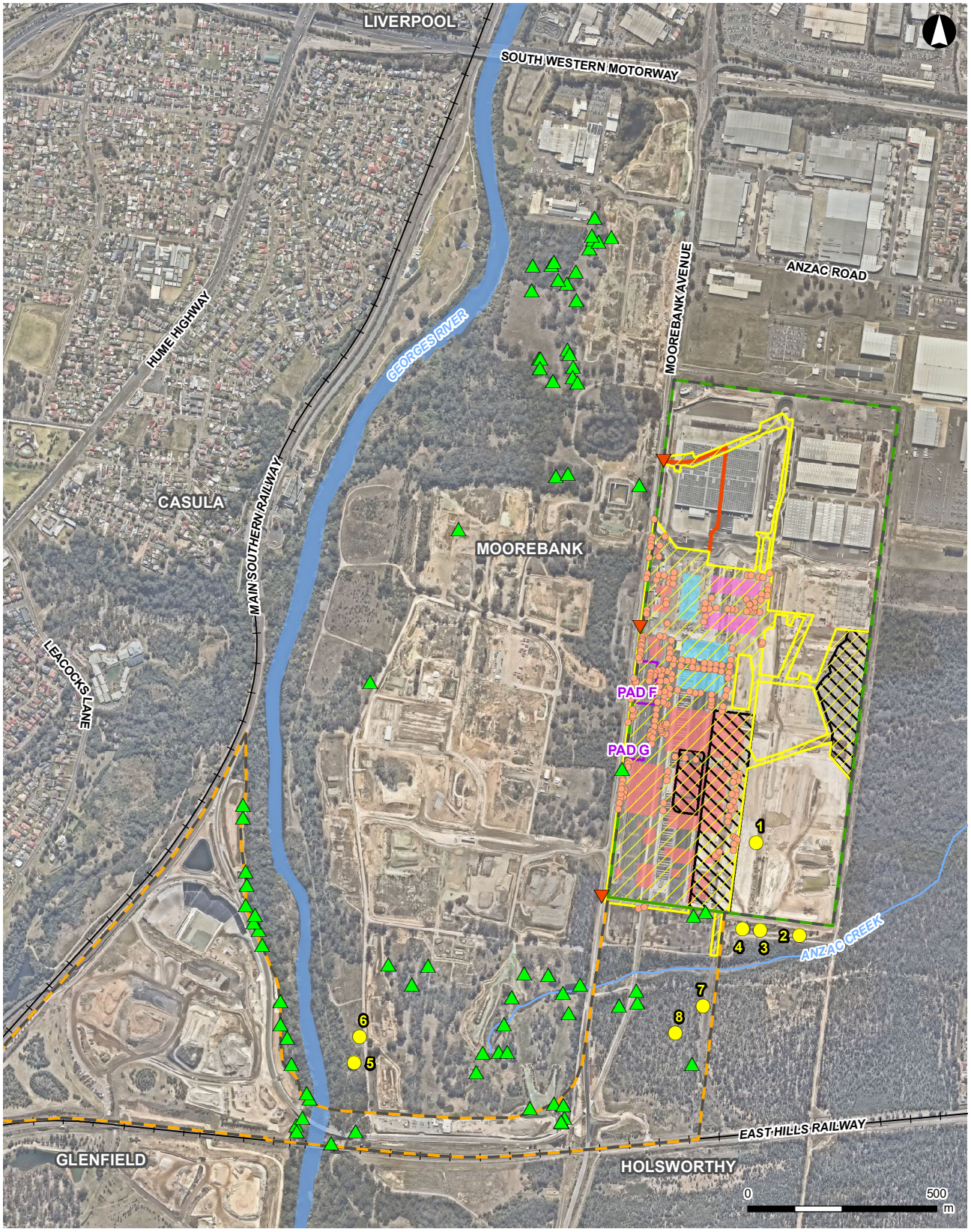
Drawing No.	Project No.	Issue
EISC1021	AA003760	02

100mm on Original

Date Plotted: 20 Aug 2015 - 03:12PM File Name: \\HC-AUS-NS-FS-01\jobs\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1021-AA003760-NSD-CutAndFillPlan.dwg V1



LEGEND

- Project site
- MPE site
- Construction footprint
- Rail corridor
- Compound and stockpile area
- WWII composite timber and steel store buildings
- WWII timber post and beam store buildings
- Modern buildings, c. 1990s
- Approximate PAD location
- Isolated aboriginal finds
- Hollow bearing trees
- Construction access
- Existing vegetation to be removed

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Aerial imagery supplied by nearmap (Sep, 2019)

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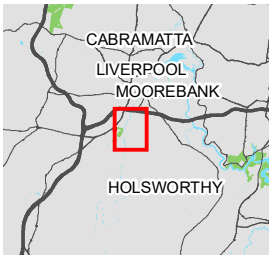
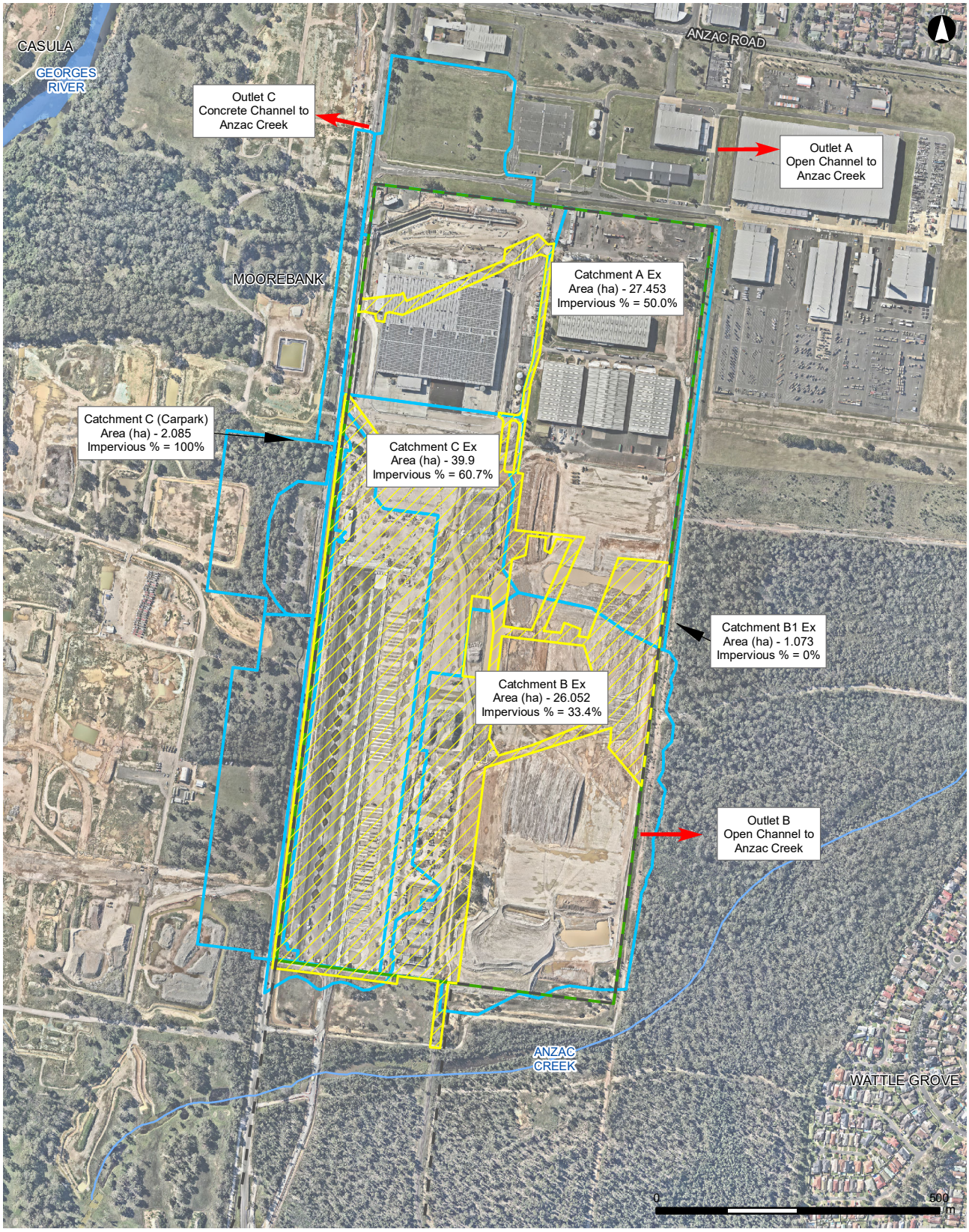


Figure 4: Environmental Constraints Overview



LEGEND

- Project site
- MPE site
- Construction footprint
- Existing catchment
- Watercourse
- Existing railway

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Figure 5: Site catchments

APPENDIX B

Erosion Hazard Assessment

Revised Universal Soil Loss Equation

The Revised Universal Soil Loss Equation (RUSLE) is designed to predict the long term, average, annual soil loss from sheet and rill flow at nominated sites under specified management conditions. It is used to estimate sediment flux to sediment basins, where these are used on high erosion hazard lands. Additional information can be found in Appendix A of the "Blue Book" (Landcom, 2004).

The equation is represented by:

A = R K LS P C

where,

A = computed soil loss (tonnes/ha/year)

R = rainfall erosivity factor

K = soil erodibility factor

LS = slope length/gradient factor

P = erosion control practice factor

C = ground cover and management factor.

R-Factor

The rainfall erosivity factor, R, is a measure of the ability of rainfall to cause erosion. It is the product of two components: total energy (E) and maximum 30 minute intensity for each storm (I30). Rosewell and Turner (1992) identified a strong correlation between the R-factor and the 2-year ARI, 6-hour storm event (denoted S, equals 10.8 mm/hour at Liverpool, refer attached Intensity Frequency Duration (IFD) table and further information regarding IFD below) and proposed the following equation:

R = 164.74 (1.1177)S S0.6444

Using the above, at Liverpool R = 2530.

K-Factor

The soil erodibility factor, K, is a measure of the susceptibility of soil particles to detachment and transport by rainfall and runoff. Texture is the principle component affecting K, but structure, organic matter and permeability also contribute. In the RUSLE, it is a quantitative value that is normally experimentally determined.

A K-factor of 0.048 was obtained from Table C19 of Landcom (2004). The Soil Landscapes of the Penrith 1:100,000 Sheet (Bannerman and Hazleton, 1990) mapping identified that the landscape affected by the Project works is Berkshire Park (bp), with Table C19 detailing that the C-factor for this soil landscape is 0.048. This has been used to account for the fill materials likely to be encountered on the site as well, given that a typical conservative value is 0.05.

LS-Factor

The slope length-gradient factor, LS, describes the combined effect of slope length and slope gradient on soil loss. It is the ratio of soil loss per unit area at any particular site to the corresponding loss from a specific experimental plot of known length and gradient. The LS factor can be read from Table AI in the "Blue Book"). It should be noted that an increase in slope gradient has a proportionately greater effect on LS, compared with an increase in slope length.

The maximum slope length will be maintained at 80 - 100m and slope gradients would be typically in the range of 2%. For a slope length of 80 – 100m and gradient of 2-3%, the LS factor is approximately 0.44 - 0.65.

P-Factor

The erosion control practice factor, P, is the ratio of soil loss with a nominated surface condition ploughed up and down the slope. It is reduced by practices that reduce both the velocity of runoff and the tendency of runoff to flow directly downhill. At construction sites, it reflects the roughening or smoothing of the

soil surface by machinery. The P-factor that shall be used for this project is 1.3, the worst case scenario and value that is normally assigned to compacted construction sites.

C-Factor

The cover factor, C, is the ratio of soil loss from land under specified crop or mulch conditions to the corresponding loss from continuously tilled, bare soil. The most effective method of reducing the C-factor is maintenance, or formation of a good ground cover. The best practices are those that reduce both the soil exposed to raindrop impact and the erosive effects of runoff. The C-factor assigned for the site operations is 1.0, typical of that for bare, compacted soil. Table A3 in the "Blue Book" (Edition 4) provides estimated C-factors for various cover types and is useful in selecting covers for rehabilitating or providing temporary protection to disturbed land.

Soil Loss Calculation Summary

The erosion hazard assessment is provided in the Table below. Total soil loss of greater than 150 tonnes/hectare/year is considered the trigger to warrant installation of a sediment basin. This trigger was not exceeded in any of the disturbed catchments. The alternative controls besides a Basin (Type 1 control) are type 2 and type 3 controls. These include the measures outlined in the report such as sediment fence, rock check dams, vegetative buffers, sandbags and sediment socks. In areas that are greater than 2500m² soil loss of less than 75tonnes/hectare/year can be effectively managed by the lowest form of control, a type 3 control (the predominant form of type 3 control to be used for sediment control in this ESCP is sediment fence). The soil loss from the western fil area and the adjacent storage/laydown area is 70tonnes/hectare/year. The eastern disturbance area where material will be cut from has a soil loss of 103tonnes/hectare/year. With the implementation of a contour bund to halve the slope length in this location, the annual soil loss decreases to 74tonnes/hectare/year. This is shown in the furthest right column of the table below. The cutting to take place in this area will ultimately level the area, thus the slope will be continually decreasing (and thus the annual soil loss will also be decreasing) as the works progress. With the implementation of the contour bund and the eventually levelling of the cut area, the annual soil loss from the disturbed catchments is less than 75tonnes/hectare/year, thus justifying sediment fence to be the primary control method across the site.

Further inputs – Intensity Frequency Duration (IFD) Data

Site hydrological data was obtained from an intensity-frequency-duration (IFD) table developed for the site using the process outlined in Australian Rainfall and Runoff (Pilgrim, 1987). The Bureau of Meteorology's web-based IFD application was used to develop the table (found at http://www.bom.gov.au/hydro/has/cdirswebx/cdirswebx.shtml). A copy of the IFD table is provided below.

Intensity-Frequency-Duration Table

Location: 33.950S 150.925E NEAR.. Moorebank Avenue Issued: 15/5/2016

Rainfall intensity in mm/h for various durations and Average Recurrence Interval

Average Recurrence Interval

Duration	1 YEAR	2 YEARS	5 YEARS	10 YEARS	20 YEARS	50 YEARS	100 YEARS
5Mins	85.3	109	137	154	175	203	224
6Mins	79.7	102	129	144	164	190	210
10Mins	65.3	83.5	105	118	134	156	172
20Mins	47.9	61.2	77.1	86.1	98.2	114	126
30Mins	39.0	49.8	62.7	70.1	79.9	92.7	102
1Hr	26.3	33.7	42.6	47.6	54.4	63.1	69.7
2Hrs	17.1	22.0	27.9	31.3	35.8	41.7	46.1
3Hrs	13.2	16.9	21.6	24.2	27.8	32.4	35.9
6Hrs	8.40	10.8	13.9	15.6	18.0	21.0	23.3
12Hrs	5.37	6.92	8.96	10.2	11.7	13.8	15.3
24Hrs	3.43	4.45	5.85	6.67	7.74	9.17	10.3
48Hrs	2.14	2.79	3.75	4.32	5.06	6.06	6.82
72Hrs	1.57	2.06	2.80	3.25	3.83	4.60	5.20

(Raw data: 33.88, 6.93, 2.06, 63.24, 13.71, 4.6, skew=0.00, F2=4.29, F50=15.82)

© Australian Government, Bureau of Meteorology

1. Erosion Hazard and Sediment Basins

Site Name: **Moorebank intermodal**

Site Location: **Liverpool, NSW**

Precinct/Stage: **Stage 1**

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	East	STA	FILL	East/2			
Total catchment area (ha)	3.3	12	15.8	3.3			
Disturbed catchment area (ha)	3.3	12	15.8	3.3			

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	F	F	F	F			From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	F	F	F	F			Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5	5			See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	80	80	80	80			
x-day, y-percentile rainfall event (mm)	24.4	24.4	24.4	24.4			
Rainfall R-factor (if known)	2530	2530	2530	2530			Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.8	10.8	10.8	10.8			

RUSLE Factors

Rainfall erosivity (*R* -factor)	2530	2530	2530	2530			Auto-filled from above
Soil erodibility (*K* -factor)	0.048	0.048	0.048	0.048			RUSLE LS factor calculated for a high rill/interrill ratio.
Slope length (m)	80	100	100	40			
Slope gradient (%)	3	2	2	3			
Length/gradient (*LS* -factor)	0.65	0.44	0.44	0.47			
Erosion control practice (*P* -factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C* -factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.35	0.35	0.35	0.35			See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

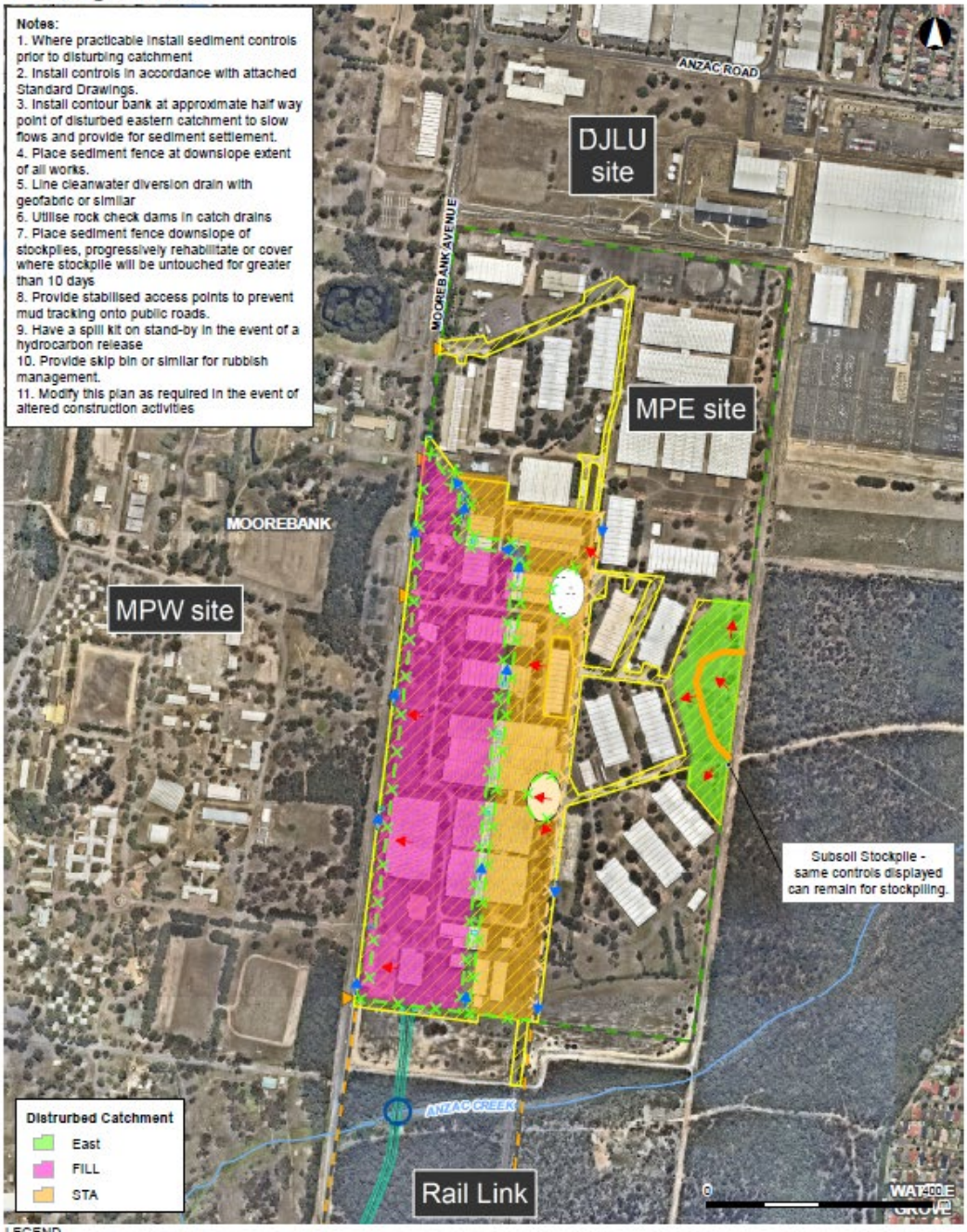
Soil loss (t/ha/yr)	103	70	70	74			
Soil Loss Class	1	1	1	1			See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	79	54	54	57			Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	43	108	142	31			See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	282	1025	1349	282			See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	325	1133	1491	313			

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

APPENDIX C

Erosion and Sediment Control Plan

MPE Stage 1 CSWMP



LEGEND

- Project site
- Construction footprint
- MPE site
- Rail corridor
- MPE Stage 1 Package 1 (Rail Link)
- Stabilised site access
- MPES1_RockCheck...
- Waste concrete stockpile
- Top soil stockpile
- Creek/river crossing
- Road crossing
- Clean run off
- Sediment entrained runoff
- Sediment fence
- Unsloped diversion drain/bund
- Rail link
- Existing railway
- Watercourse
- Contour band
- Construction access

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Erosion and Sediment Conrol

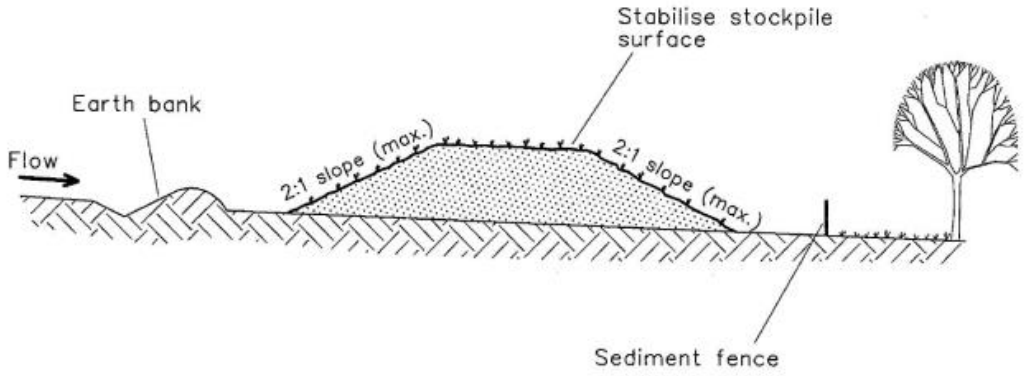
Date: 11/07/2019 Path: F:\AA0067551L-GSNA_Currenhill_Mapsl\MPES1\CEMP\CSWMP\SIMTA_MPES1_CEMP_007_CSWMP_ErosionSedimentControl_A4P_v7.mxd
Created by : TP
QA by : EM

APPENDIX D

Landcom "Blue Book" Standard Drawings

Landcom Standard Drawings

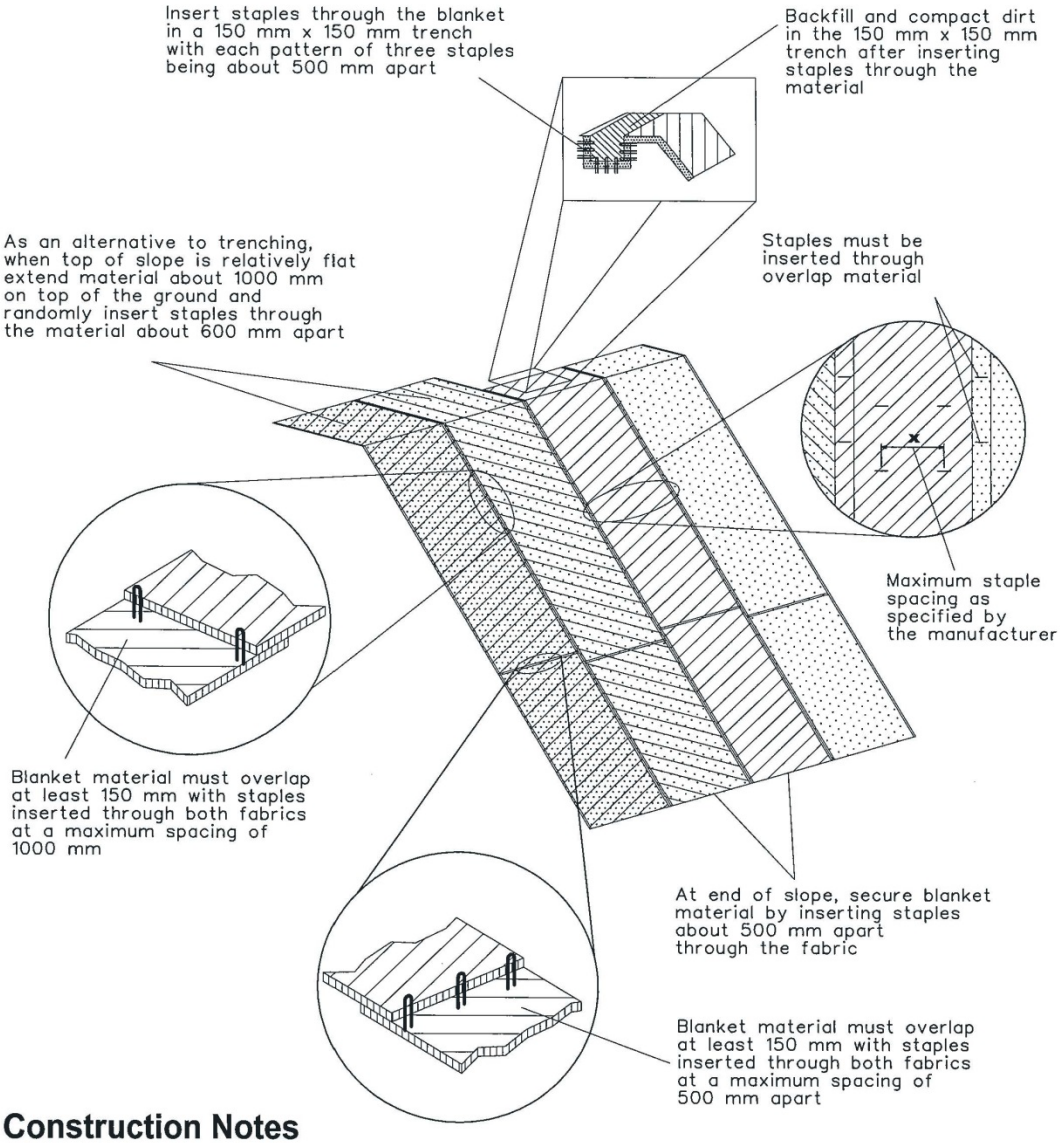
NSW Landcom Standard Drawing	SD 4-1	Stockpiles
NSW Landcom Standard Drawing	SD 5-2	RECP: Sheet Flow
NSW Landcom Standard Drawing	SD 5-4	Rock Check Dams
NSW Landcom Standard Drawing	SD 5-5	Earth Bank (Low Flow)
NSW Landcom Standard Drawing	SD 6-8	Sediment Fence
NSW Landcom Standard Drawing	SD 6-9	Alternative Sediment Fence
NSW Landcom Standard Drawing	SD 6-11	Mesh and Gravel Inlet Filter
NSW Landcom Standard Drawing	SD 6-12	Geotextile Inlet Filter
NSW Landcom Standard Drawing	SD 6-14	Stabilised Site Access



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES **SD 4-1**



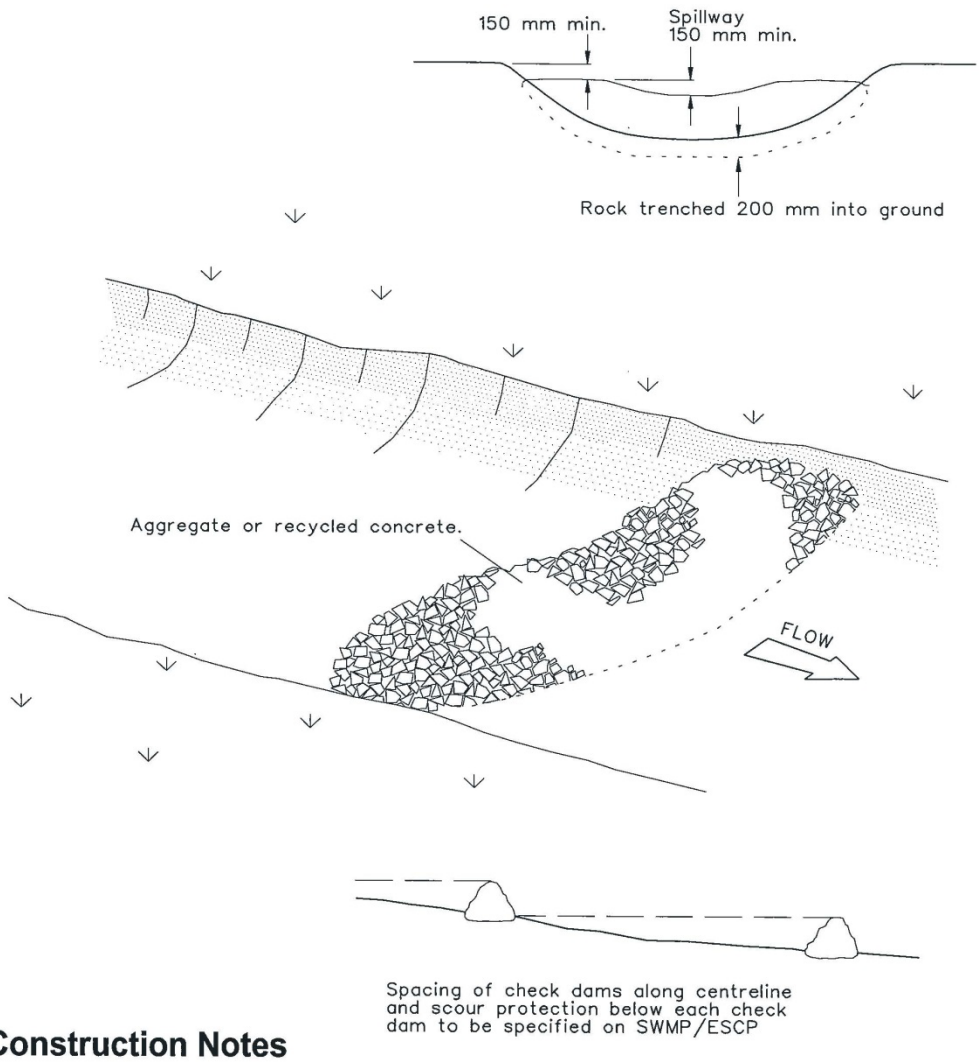
Construction Notes

1. Remove any rocks, clods, sticks or grass from the ground surface before laying the matting.
2. Spread topsoil to at least 75 mm depth.
3. Where appropriate, complete fertilising and seeding on a properly prepared seedbed (Standard Drawing 7-1) before laying the matting.
4. Ensure the fabric can be continuously in contact with the soil by grading the surface carefully first.
5. Lay the matting in "shingle-fashion" with the ends of each upstream roll overlapping the next roll downslope.
6. Ensure sufficient staples are used to maintain a good contact between the soil and the matting.

RECP : SHEET FLOW

SD 5-2

SOURCE: Managing Urban Stormwater, Soils and Construction (Vol 1, 4th ed.)



Construction Notes

1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.

2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.

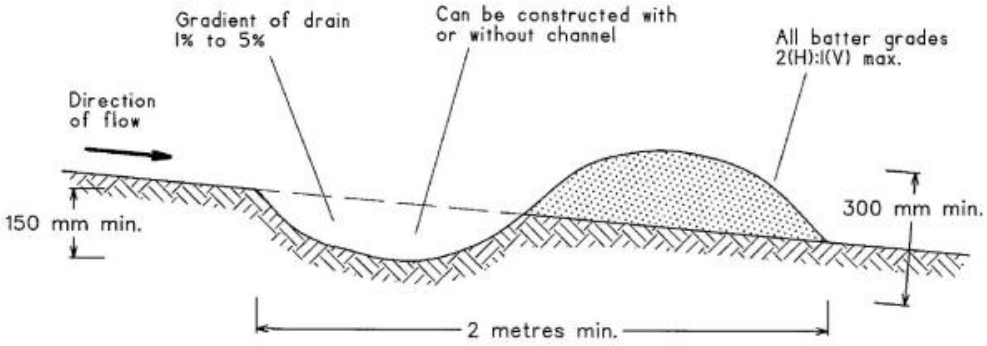
3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.

4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM

SD 5-4

SOURCE: Managing Urban Stormwater, Soils and Construction (Vol 1, 4th ed.)

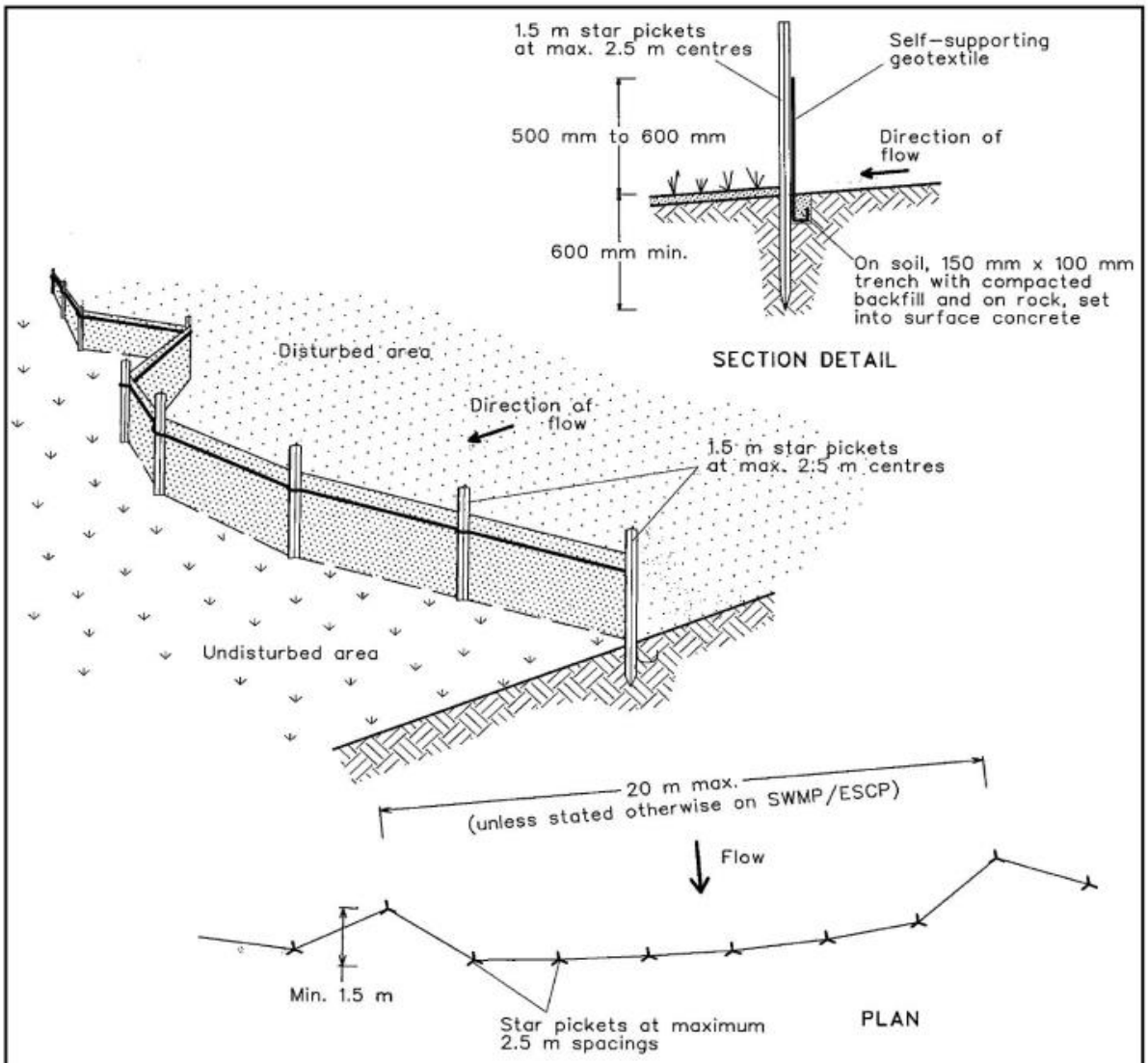


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

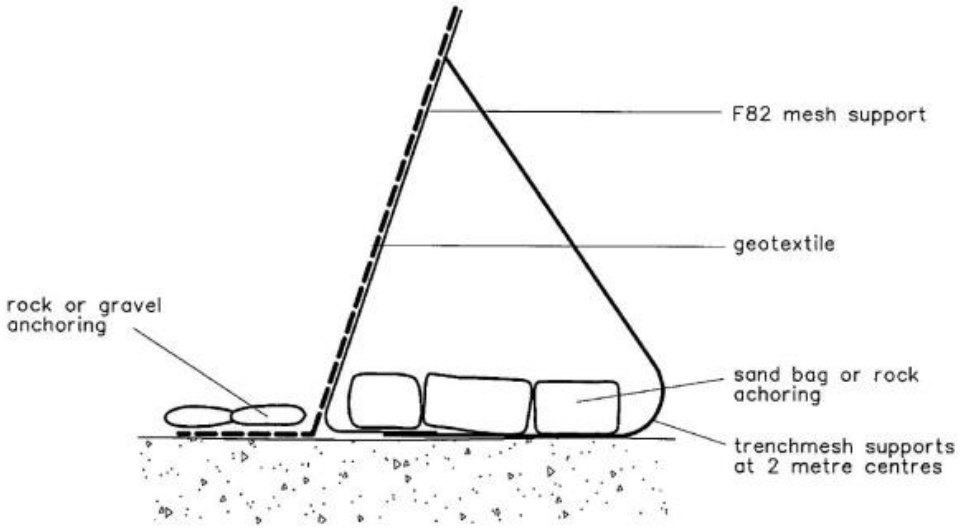
EARTH BANK (LOW FLOW) **SD 5-5**



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

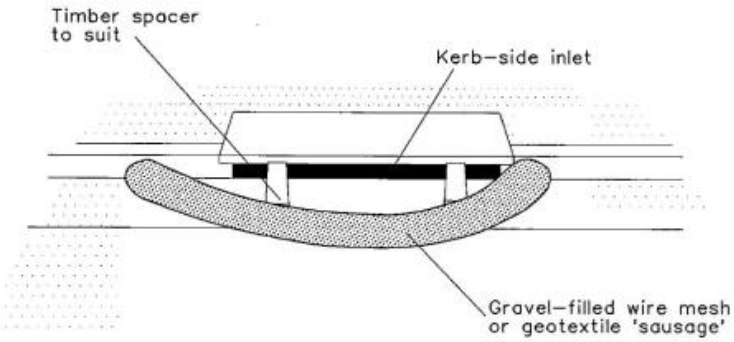


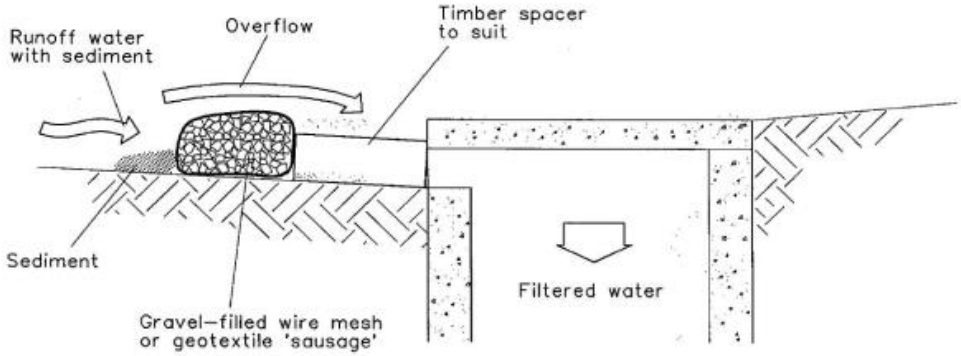
Construction Notes

1. Install this type of sediment fence when use of support posts is not desirable or not possible. Such conditions might apply, for example, where approval is granted from the appropriate authorities to place these fences in highly sensitive estuarine areas.
2. Use bent trench mesh to support the F82 welded mesh facing as shown on the drawing above. Attach the geotextile to the welded mesh facing using UV resistant cable ties.
3. Stabilise the whole structure with sandbag or rock anchoring over the trench mesh and the leading edge of the geotextile. The anchoring should be sufficiently large to ensure stability of the structure in the design storm event, usually the 10 year event.

ALTERNATIVE SEDIMENT FENCE

SD 6-9



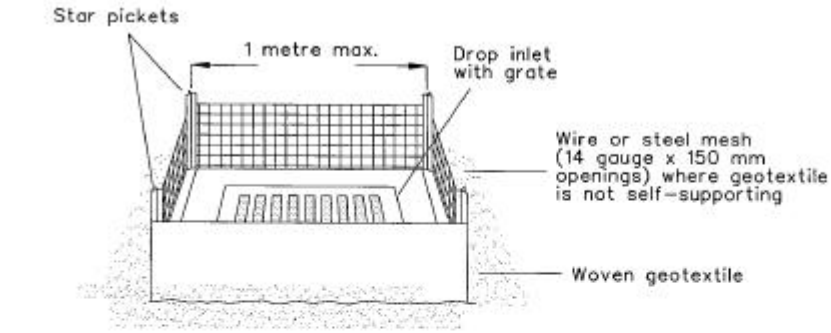


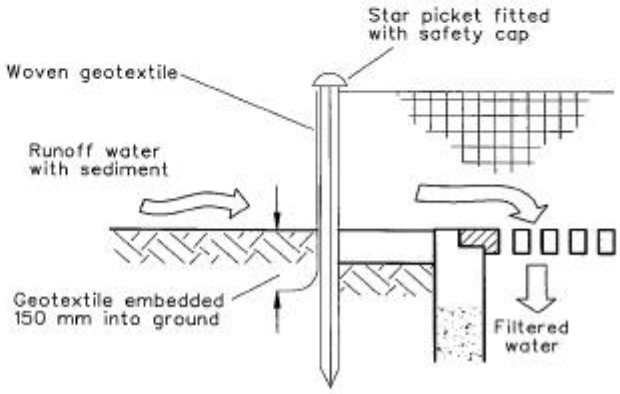
NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

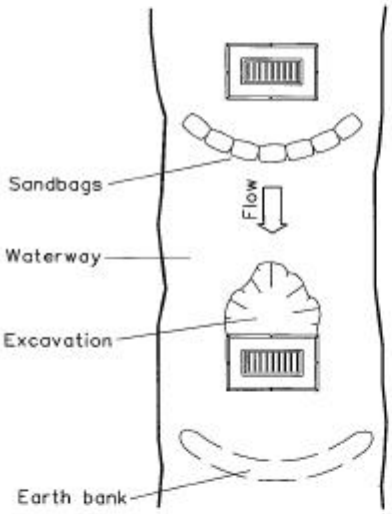
Construction Notes

1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

MESH AND GRAVEL INLET FILTER **SD 6-11**





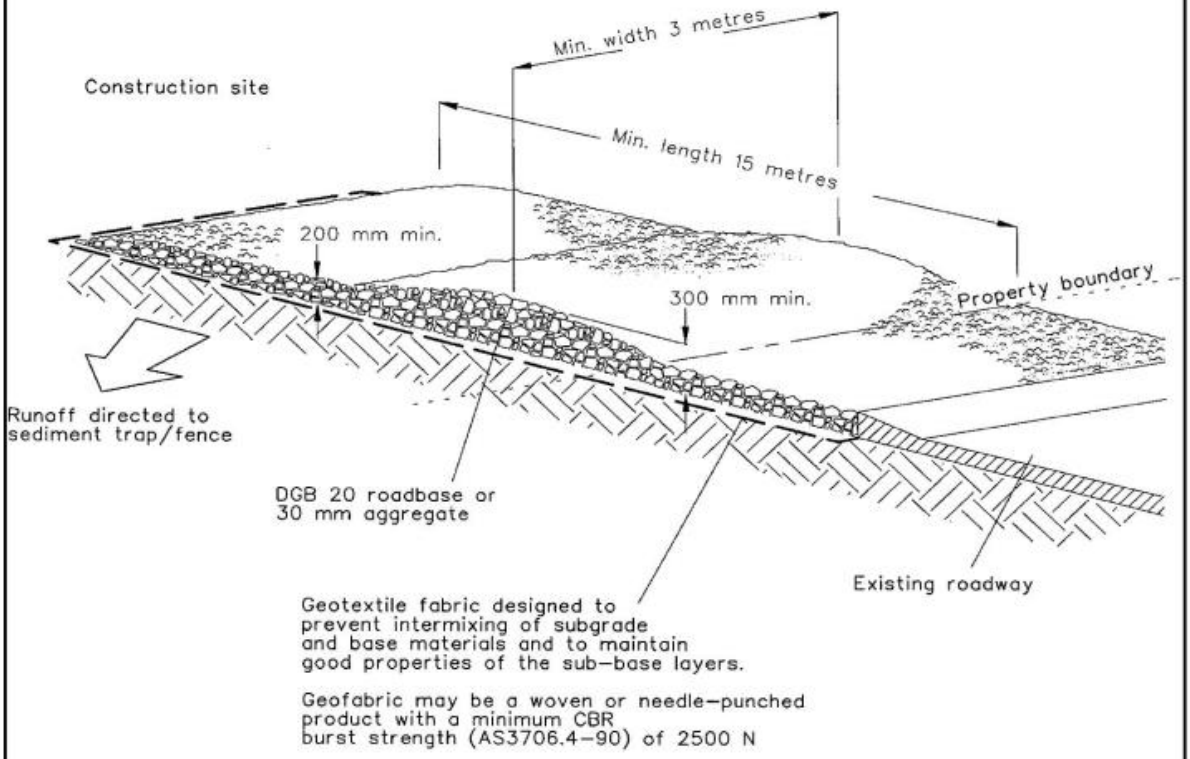


For drop inlets at non-sag points, sandbags, earth bank or excavation used to create artificial sag point

Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER **SD 6-12**



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS **SD 6-14**

APPENDIX E

Consultation Evidence

Liverpool City Council provided comments on the Construction Soil and Water Management on 15/02/2017. The comments were addressed and submitted to Liverpool Council on 21/02/17 as detailed below.

Liverpool City Council Comment	SIMTA Response
The Construction Soil and Water Management Plan, Moorebank Precinct East Stage 1, Package 2, Revision V2 prepared by Tim Haydon dated 31 January 2017 was presented to the Environment and Health Section for review. Section 2.1 of the Construction Soil and Water Management Plan refers to the Dangerous Goods Act 1975 which has been repealed.	Reference to this repealed act has been removed. References to the Dangerous Goods (Road and Rail Transport) Act 2008, Dangerous Goods (Road and Rail Transport) Regulation 2014, Australian Dangerous Goods Code Edition 7.4 and State Environment Planning Policy 55 have been included and referenced.
Section 2.3 of the Construction Soil and Water Management Plan specifies the Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (DECC 2009). This reference may also need to be updated as these Guidelines were revised in September 2015 by the NSW Environment Protection Authority.	Update reference to the 2015 guideline.
AS 1940-1993 The Storage and Handling of Flammable and Combustible Liquids was also specified within the Plan. This standard was revised and republished in 2004 and is now known as AS 1940-2004 The storage and handling of flammable and combustible liquids. Consequently, these references must be updated accordingly.	Updated reference to the AS1940-2004 standard.

The Department of Primary Industries (Water) provided comments on the Construction Environmental Management plan and Construction Soil and Water Management Plan on the 08/03/17. The comments were addressed and submitted to Department of Primary Industries (Water) on 15/03/17 as detailed below.

DPI Water Comment	SIMTA Response
2.1.1 Works Period 1: Site Preparation The CEMP indicates that Package 2 for the IMEX facility includes clearing of approximately 1.25 ha of native vegetation (page 34). It is recommended the clearing of native vegetation includes a procedure that native plants are to be translocated from the remnant areas that are to be cleared and planted in the riparian areas that are to be rehabilitated on the MPW site and along Anzac Creek and the Georges River associated with MPE Stage 1 Package 1 (Rail link) to assist in the rehabilitation of riparian land.	Reference to clearing of 1.25 Ha related to the RALP works, and not to MPE. It was erroneously included within the CEMP, and has now been removed. Additionally, for information, and as per the MPE Construction Flora and Fauna Management Plan, the ecological survey found: *Based on the results of the field assessment reported in the Biodiversity Assessment Report (Hyder 2015), the vegetation within the Project site consists almost entirely of planted trees with a mown or managed understorey, and does not meet the criteria for any threatened ecological communities.*
Section 2.1.2 of the CEMP notes that where possible "excavated soil would be reused on site for foundation preparation, levelling works or maintenance access roads" (page 41). It is recommended this section includes that topsoil (and seedbank) collected from native vegetation areas to	The following has been included with Section 2.1.2: *In disturbance areas containing a clearly discernible 'A' profile (topsoil), the topsoil will be stripped and stored on site for later re-use within site landscaping, or riparian restoration where appropriate, Topsoil*

DPI Water Comment	SIMTA Response
be cleared should be stockpiled and used in the rehabilitation of riparian land.	*stockpiles will not exceed a 2m windrow height, be clearly sign-posted, and separated from sub-soil stockpiles.*
Section 4.1 of the CEMP indicates Appendix M details the key legislative requirements for the project (page 52). If groundwater is to be encountered as part of the works and temporary dewatering is required, Appendix M must outline: the temporary dewatering of the groundwater during construction requires a licence under the Water Act 1912, the proponent must provide DPI Water with details on the volume of groundwater that is encountered and the duration of pumping, note that it is a legal requirement for any take of groundwater to be authorised by a Water Act 1912 licence (in the case of dewatering activity) or a Water Access Licence (for onsite reuse) unless an exemption applies.	Appendix M updated to include reference to Water Act 2012, and specifically: *"• If during construction earthworks, the temporary dewatering of groundwater (from an excavation) is deemed necessary, then a licence to carry out such activity will be required under the Water Act."* *• SIMTA must provide DPI Water with details on the volume of groundwater that* *is encountered and the duration of pumping,* *• It is a legal requirement for any take of groundwater to be authorised by a Water Act 1912 licence (in the case of dewatering activity) or a Water Access Licence (for onsite reuse) unless an exemption applies."*
SWMP	
Table 7 Objectives and Targets Table 7 in the CEMP includes an objective to minimise the demand for, and use of, potable water for construction and maximise opportunities for water reuse from captured stormwater and groundwater (page 4). The SWMP needs to provide further details on the proposed reuse of groundwater and clarify whether the water to be reused only comprises groundwater that needs to be dewatered during construction, or if it is proposed to abstract groundwater as a water supply. In relation to dewatering activities, a licence will be required under Part 5 of the Water Act 1912 and any reuse of this water will require a Water Access Licence. The SWMP should clarify whether the surface water that it is proposed to be reused consists of any clean surface water runoff, or only runoff from disturbed areas. The collection of dirty water in sediment basins for a water supply is exempt from requiring a licence under the Water Management (General Regulation) 2011 but any collection of clean surface water runoff for a water supply is not exempt and must be in accordance with an appropriate Water Access Licence and a nominated work.	Table 7 revised to clarify that only disturbed area (dirty) runoff is collected for re-use, and reference to 'groundwater' removed, thus: *" • Minimise demand for, and use of, potable water for construction and maximise opportunities for water re-use from captured 'dirty' water runoff (within ESC measures e.g. sediment basins) and site wastewater. "*
4.5 Groundwater Section 4.5 notes disturbance of groundwater during the project works is not predicated except during	Table 11 Item SW19 amended to now include: *"In the event that remediation works of groundwater impacts associated with the refuelling facility (SW*

DPI Water Comment	SIMTA Response
remediation of hydrocarbon impacts associated with the refuelling facility. It indicates in the event that these works intersect the groundwater table a report detailing the results of further investigations into groundwater issues will be prepared (page 11). It is recommended Table 11 is amended to include this as a mitigation /management measure that this report must be prepared in the event that groundwater is intersected. If contaminated groundwater is extracted during any activity on site, it should not be reused on site. The SWMP must outline that, if groundwater is intersected by the proposed works and dewatering is required, the requirements set in section 4.1 above prevail.	*corner of Stage 1 site) intersect the groundwater table a report detailing the results of further investigations into surface water, groundwater and geotechnical issues will be prepared in consultation with the EPA and NOW and submitted to the Secretary prior to these potentially impacting works commencing. If contaminated groundwater is extracted during any activity on site, it should not be reused on site."* and Section 4.5 amended to include: *"If contaminated groundwater is intersected by the construction works and dewatering is required, the requirements set in section 4.2 above prevail."*
Table 11 Mitigation /Management/ Control Action and Responsibilities Section 1.1 outlines that Package 2 for the IMT facility which is the subject of this SWMP includes clearing of approximately 1.25 ha of native vegetation (page 1). As noted above for the CEMP, it is recommended that native plants are translocated, as described above in section 2.1.1. It is recommended Table 11 is amended to include the following Mitigation /Management/ Control Measures: • Native vegetation that is to be cleared as part of Package 2 should be translocated into the riparian corridors along Anzac Creek and/or the Georges River where rehabilitation is required as part of the with MPE Stage 1 Rail link project and the MPW project. Riparian areas to be rehabilitated should be identified on a scaled plan. • topsoil (and seedbank) collected from native vegetation areas to be cleared should be stockpiled and used in the rehabilitation of riparian land.	Reference to clearing of 1.25 Ha related to the RALP works, and not to MPE. It was erroneously included within the CEMP, and has now been removed.
6.3 Monitoring, Auditing and Reporting Table 12 indicates that all water quality control and sediment control structures should be inspected during dry conditions, following 10 mm of rainfall and following any rainfall events greater than 50 mm (page 27). The draft SWMP for Stage 1 RALP – Package 1 includes that all drainage and erosion and sediment control measures must be inspected and monitored: • within 24 hours of expected rainfall • within 18 hours of a rainfall event of sufficient intensity and duration to cause runoff onsite.	Table 12 adjusted to include: <u>Rainfall Inspections</u> *"Inspection of the site drainage and ESC measures should be undertaken:* • *during dry conditions within 24 hours of expected rainfall.* • *within 18 hours following a rainfall event of sufficient intensity and duration to cause runoff onsite."* And also <u>Discharge and Receiving Water Quality:</u>

DPI Water Comment	SIMTA Response
It is suggested the SWMP for Package 2 also inspects the sediment and erosion control measures in accordance with the above frequencies to be consistent with the SWMP for Stage 1 RALP – Package 1.	*"Prior to, during and after any heavy rainfall event of sufficient intensity and duration to cause runoff onsite."*

Email documentary evidence

Extract from email correspondence to DPI Fisheries

From: [redacted]
Sent: Thursday, 2 February 2017 10:36 AM
To: [redacted]
Subject: Re: FW: Moorebank Precinct East, Stage 1 Construction Management: Consultation

Dear [redacted],

Please be advised that DPI Fisheries has reviewed the following plans sent with your email below and has no objections to what is being proposed and has no suggested changes or other comments to make on these plans:

- *Construction Environmental Management Plan - Moorebank Precinct East Stage 1, Package 2* (SIMTA, 30 January 2017, Revision Text 001)
- *Construction Soil and Water Management Plan - Moorebank Precinct East Stage 1, Package 2* (SIMTA, 31 January 2017, V2)

If you wish to discuss this further, please call.

Regards,

[redacted] | Fisheries Manager | Aquatic Ecosystems Unit
NSW Department of Primary Industries | Fisheries NSW
Block E, Level 3, 84 Crown Street, Wollongong NSW 2500
SEND MAIL TO: Locked Bag 1 | Nelson Bay NSW 2315
T: [redacted]
W: www.dpi.nsw.gov.au

Conserve, Share, Provide

PERMIT APPLICATION FORMS & FISH HABITAT PROTECTION POLICIES AT:
www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/toolkit
EMAIL COMPLETED APPLICATIONS TO: ahp.central@dpi.nsw.gov.au
APPLICATION PROCESSING TIMES (from date received): 28 days for Permits & Consultations; 40 days for IDA Referrals

On 1 February 2017 at 12:41, [redacted]> wrote:
[redacted],

As highlighted previously (I refer back to our telephone discussion on 23 January 2017), we are currently preparing to undertake construction works for the Moorebank Precinct East, Stage 1 Works (Construction of IMEX Terminal). A key component of this work is the preparation of the Construction

Environmental Management Plan (CEMP) and sub-plans, which we have now drafted and are now seeking your input as part of the consultation process.

Accordingly, please find dropbox links enclosed for the following documentation:

- - Construction Environmental Management Plan (CEMP): https://www.dropbox.com/s/l6ezq7phq5nk1j8/IMEX-QPMS-EN-PLN-00000%20CEMP%20FINAL.pdf?dl=0
- - Construction Soil and Water Management Plan (CSWMP): https://www.dropbox.com/s/nin82v7vm59rg5u/IMEX-QPMS-EN-PLN-00008-V2%20SWMP_FINAL%20-%20Signed.pdf?dl=0

Please provide any comments on the plans by the 15th February 2017 (two weeks from today).

Please also find attached a briefing note, intended to provide you with background information regarding the spatial layout, context of the works with regard to the overall precinct, and the role of the CEMP as an effective environmental management tool.

Should you have any questions regarding the above please do not hesitate to call either myself, or [redacted].

Regards,

[redacted]

[redacted] | Environmental Consultant | MSc. EMP | [redacted]
Arcadis | Level 5/141 Walker Street, North Sydney | NSW 2060 | Australia
T. [redacted]
[redacted]
www.arcadis.com

APPENDIX F

Contamination Management Plan

APPENDIX G

Flood Emergency Response Plan