

CEVA LOGISTICS - WAREHOUSE 1

Aspect Industrial Estate at

Mamre Road, Kemps Creek

SOIL & WATER MANAGEMENT

PLAN

August 2022 - Revision 1

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REFERENCED DOCUMENTS

Name of Document	Prepared by	Date
Aspect Industrial Estate - Environmental Impact Statement	Urbis Pty Ltd	November 2020
State Significant Development - Staged Development Application Consent No. SSD-10448	Department of Planning and Environment	May 2022
Pavement Plan	AT&L	April 2022
State Significant Development - Staged Development Application Consent No. SSD-10448-MOD-2	Department of Planning and Environment	November 2022

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1.0 INTRODUCTION

1.1 Context

Rubicon Enviro Pty Ltd (Rubicon) has been engaged by Richards Crookes Constructions (RCC) to prepare a Soil and Water Management Plan (SWMP) to support the construction of a proposed warehouse for CEVA Logistics which is known as Warehouse 1 (Lot 1) at Aspect Industrial Estate (AIE) at Mamre Road, Kemps Creek NSW 2178 (the Project).

This SWMP has been prepared to detail strategies and measures to assist with the management of soil and water impacts for the duration of earthworks, service installations and construction works at the Project site.

This SWMP is required to support the CEMP and has been prepared to address the requirements of a Development Application - State Significant Development (SSD) 10448 and subsequent Modification No. 2 (MOD2), and the Environmental Impact Statement, titled 'Aspect Industrial Estate - Environmental Impact Statement' prepared by Urbis Pty Ltd, dated November 2020.

1.2 Project Background

Aspect Industrial Estate (AIE) is a regional warehouse, distribution and industrial centre located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Mamre Road Precinct located within the Western Sydney Employment Area.

Mirvac Property Services (Aust) Pty Ltd (Mirvac) obtained the Consent for SSD 10448 on 24 May 2022 from the Department of Planning and Environment (DPE) for the AIE Concept Proposal and Stage 1 Development of the AIE (AIE – Stage 1). The AIE Concept Proposal & Stage 1 comprises:

- A Concept Proposal for the staged development of an industrial estate comprising of 11 buildings with a total GFA of up to 247,990 square metres (m2) for industrial, warehousing and distribution centres, and café uses.
- Stage 1 development comprising site preparation works, vegetation clearing, realignment of the existing creek, construction of access roads and eastern half of Mamre Road/ Access Road 1 intersection works, construction, fit out and operation of one warehouse and one industrial building with ancillary offices, car parks, landscaping, signage and a café, construction and operation of services and utilities, and subdivision of the site into three lots.

In accordance with the Conditions A10 and A19 of Schedule 2 of SSD 10448, an 'Indicative Building Staging Plan' was approved on 17 June 2022, for the construction of AIE – Stage 1 which includes:

- Bulk Earthworks (BEW) & Infrastructure: Estate-wide earthworks, infrastructure, and services,
- Building Works: Construction and use of warehouse and distribution centre buildings proposed in Lots 1 and 3

Subsequent to the Stage 1 SSD Approval, a Modification Application (SSD-10448 MOD 2) was lodged, and a Modification Report was prepared by Urbis in June 2022. The MOD 2 Application seeks changes to both the Concept Plan and Stage 1 works plans. The relevant changes for the construction of 'Warehouse 1' building during Stage 1 are:

'Concept Master Plan

• Re-location of Access Road 2 further west and the shortening of its length. The modification will re-locate the access road from the area between Warehouse/ Lot 2 and Warehouse/ Lot 3 to between Warehouse/ Lot 1 and Warehouse/ Lot 2.

- Adjustment of Lot 1, 2 and 3 configurations, site areas and warehouse alignments in accordance with the re-located Access Road 2 and new driveway connection.
- Adjusted car parking provision and hardstand areas across Lots 1, 2 and 3.

Modifications to the Warehouse 1 built form including:

- A decrease in warehouse GFA from 34,970sqm to 32,686sqm.
- Relocation of car parking to the south of the Warehouse 1 building with ingress/ egress relocated from Access Road 1 to Access Road 2.
- Provision of loading and hardstand areas along the north, east and west of the warehouse, including the introduction of hardstand, awnings and Roller Shutter Doors (RSDs) to the Mamre Road building frontage.
- Revised vehicular access arrangements with a 9.6m wide truck entry/exit way off Access Road 1 and two truck entry/exit ways off Access Road 2.
- Increase in overall warehouse ridge height from 13.7m to 16m, plus rooftop plant & equipment (18.4m at the maximum plant height).
- Updated landscaping provision across the surrounding area.

The Mod 2 development consent was granted by DPE on 30/11/2022 for the revisions to the proposed layouts for warehouses and access roads, however, no changes were made to the relevant conditions of the Development Consent SSD 10448.

Prior to any works commencing that are the subject of this SWMP, the site will have had bulk earthworks undertaken by others under the approval of Development Consent SSD 10448 & Mod 1-2 for the Concept Proposal and Stage 1 Development.

1.3 **Project Overview**

This SWMP addresses the management requirements for the bulk earthworks, services & infrastructure, drainage & operational stormwater, and construction of the Warehouse 1 development.

Key components of the project include:

- Site establishment and installation of environmental controls,
- Earthworks including excavation and filling for building pads, underground services, piling works & footings,
- Retaining wall construction,
- Structural steel frame erection,
- Installation of roofing, wall cladding, and internal services,
- Formwork, steel reinforcement fixing and internal concrete floor pours and external concrete apron pours, including asphalt light vehicle parking area,
- Internal fit out and services works.

The Project layout is shown below in Figure 1.3.





1.4 Environmental management systems overview

The SWMP forms part of RCC's CEMP and the environmental management framework for the project.

The Primary Erosion and Sediment Control Plan (ESCP) has been prepared and is attached to this SWMP as Appendix A. The ESCP describes the intentions and fundamental principles for erosion and sediment control management for the duration of the entire project.

A series of staged Progressive Erosion and Sediment Control Plans (PESCPs) have also been prepared and are attached to ESCP as Appendix F. The PESCPs have been developed by Rubicon in consultation with the RCC construction & environmental personnel engaged on the Project. RCC will also seek the assistance of a Soil Conservationist (Certified Professional in Erosion & Sediment Control - CPESC) to review and oversee revisions of the PESCPs as required by the progression of work stages.

The PESCP's will be developed prior to any construction works commencing in the work zone and will be modified as required when:

- Site conditions evolve.
- Flow paths change.
- Construction activities that affect the characteristics of ground conditions change.

Management measures identified in these plans will be incorporated into site or activity specific Environmental Work Method Statements (EWMS) where required. EWMS will be developed and signed off by environment and management representatives prior to associated works.

A Soil Conservationist (CPESC) will be engaged and consulted throughout construction to provide advice on erosion and sediment control design, installation, maintenance, and the development of PESCPs.

The Project's Development Consent SSD 10448 – Condition D 26 requires that monthly soil and water management inspections are to be undertaken by a Soil Conservationist (CPESC) until the site has attained a degree of permanent stabilisation measures in accordance with 'Managing Urban Stormwater: Soils and Construction'. Landcom, Volume 1 (4th Edition) March 2004 (reprinted 2006) (known as the "Blue Book").

Used together, the CEMP, SWMP strategies, ESCP procedures, PESCP's and EWMS form management guides that clearly identify required environmental management actions for reference by the RCC's personnel and sub-contractors.

The RCC document review and control processes for this Plan are described in the Project CEMP.

2.0 PURPOSE & OBJECTIVES

2.1 Purpose

The purpose of this Plan is to describe how RCC will manage and minimise soil and water impacts during construction of the project.

2.2 Objectives

The key objective of the SWMP is to ensure that the potential impacts to soil and water quality are minimised. To achieve this objective, RCC is required undertake the following:

- Ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise erosion and sedimentation impacts and potential impacts to water quality in creeks, waterways, and groundwater adjacent to the Project.
- Ensure compliance with the Consent Conditions of the Development Application approval by CCC, and the CCC Development Control Plan 2021, Part G – Miscellaneous Development Controls.
- Ensure appropriate measures are implemented to address the relevant mitigation measures detailed in the CMP, SWMP, ESCP, PESCP's & EWMS.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan.

2.3 Targets

The following targets have been established for the management of soil and water impacts during the project:

- Ensure compliance with the relevant legislative requirements and environmental safeguards.
- Meet New South Wales Environment Protection Authority (NSW EPA) water quality discharge parameters for all planned water discharges and site dewatering.
- Manage downstream water quality impacts attributable to the project (i.e., maintain waterway health by avoiding the introduction of nutrients, sediment, and chemicals outside of that permitted by the NSW EPA and ANZECC guidelines).
- Ensure training on soil and water management is provided to all construction personnel through targeted training, site inductions and toolbox talks.

3.0 ENVIRONMENTAL REQUIREMENTS

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation and regulations relevant to soil and water management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act).
- Environmental Planning and Assessment Regulation 2000.
- Protection of the Environment Operations Act 1997 (POEO Act).
- Water Management Act 2000.
- National Parks and Wildlife Act 1974

Section 120 of the NSW POEO Act states that it is illegal to pollute waters. Under the POEO Act, 'water pollution' includes introducing litter, sediment, oil, grease, wash water, debris, and flammable liquids such as paint etc. into waters or placing such material where it is likely to be washed or blown into waters or the stormwater system or percolate into groundwater. All feasible steps should be taken to minimise the risk of pollution of waters.

3.1.2. Guidelines and standards

The main guidelines, specifications, and policy documents relevant to this Plan include:

- Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA, March 2004).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000).
- 'Bunding & Spill Management. Insert to the Environment Protection Manual for Authorised Officers' Department of Environment and Conservation (DEC) 1997.
- Draft Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets (NSW Government, 2022);
- 'Managing Urban Stormwater: Soils and Construction. Volume 1' (known as the "Blue Book") (Landcom 2006).
- 'Managing Urban Stormwater: Soils and Construction Volume 2A Installation of Services' (DECCW 2008).
- Water quality guidelines for the protection of aquatic ecosystems for lowland rivers and estuaries. (ANZECC, 2000).

3.2 Environmental management measures

The requirement for environmental safeguards and management measures are detailed in Development Consent SSD 10448, and they have remained unchanged for the MOD 2 Development Consent. The environmental management measures relevant to this Plan are listed Table 3-2 below. This includes reference to required outcomes, the timing of when the commitment applies, and the mitigation and management measure summary.

Consent Condition	Requirement	Timing	Mitigation & Management
Condition D25	 'Prior to the commencement of any construction or other surface disturbance, the Applicant must design and detail the erosion and sediment control measures for the site to ensure the construction phase Integrated Water Cycle Management (IWCM) controls in the Mamre Road Precinct Development Control Plan (MRP DCP) are achieved. Detailed Erosion and Sediment Control Plans (ESCP) and drawings must: (a) be prepared by a Chartered Professional Erosion and Sediment Control (CPESC) specialist; (b) be prepared in accordance with Managing Urban Stormwater: Soils and Construction – Volume 1: Blue Book (Landcom, 2004) and with the WSUD design principles set out in the Draft Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets (NSW Government, 2022); (c) demonstrate the construction approach and timing to ensure the construction phase stormwater quality targets can be met; and (d) be included in the CEMP required by condition E2' 	Commencement duration and completion	 A Soil and Water Management Plan (SWMP) and associated Primary ESCP has been prepared by a CPESC, and they form part of the CEMP prepared for the development. The SWMP & ESCP detail the standards and specific management and mitigation measures. The SWMP and Primary ESCP have been prepared in accordance with Managing Urban Stormwater: Soils and Construction – Volume 1: Blue Book (Landcom, 2004) and with the WSUD design principles set out in the Draft Technical Guidance for achieving Wianamatta South Creek Stormwater Management Targets RCC to install, monitor and maintain sediment and erosion control measures as detailed in Table 6.1 of the SWMP and Table 9 of the ESCP which should ensure the construction phase stormwater quality targets will be met.
Condition D26	'The Applicant must ensure delivery and operation of all construction phase erosion and sediment controls on the site is supervised and certified by a CPESC. Monthly audits are to be completed by CPESC and kept on record for the duration of the construction and an additional 12 months following completion of construction works.	Commencement duration, completion and 12 months following completion	 A Soil Conservationist (CPESC) has been engaged to provide advice on erosion and sediment control design, installation, maintenance throughout construction stages. Monthly inspections will be completed by the Soil Conservationist CPESC, and the inspections reports kept on record for the duration of the construction, and an additional 12 months following completion of construction.

Table 3-2: Management measures relevant to construction soil and water management for the Development Consent SSD 10448.

4.0 EXISTING ENVIRONMENT

The following sections summarise what is known about factors influencing soils and water quality within and adjacent to the Project boundaries.

4.1 Topography and soil characteristics

The pre-existing land-use of the Project was a highly modified rural landscape, that was largely cleared pasture areas, minimal remnant native vegetation, and a few scattered dwellings. The pre-existing topography of the Project was characterised by relatively uniform, gently undulating rises on the Wianamatta Group shales. The landform to the east comprises of broad round crests and ridges with gently inclined slopes of 5% or less, intersected by a series of permanent and ephemeral watercourses.

Prior to the Stage 1 earthworks, the eastern boundary of the site has the highest elevation of the site, falling to the western boundary of the Project site. The Stage 1 Bulk Earthworks has altered the landform from a gentle, northwest facing slope to be an engineered pad that is largely at grade with Estate Road 1 on the eastern boundary, with a fill formation that forms a batter on the western side. The Project site is rectangular in shape and with an average grade of <1%. The eastern boundary of the site has the highest elevation of the site at falling to western boundary of the Project site.

Further reference to NSW Office of Environment & Heritage website resource '*eSPADE*', identified the extent and characteristics of the 'Blacktown' (bt) soil landscape unit, and the 'South Creek' (sc) soil landscape unit that underlay the project footprint,

4.1.1. 'Blacktown' (bt) landscape unit

The 'Blacktown' landscape unit is the predominant soil landscape in the western Sydney area. The soil landscape occurs over the Wianamatta Group and Ashfield Shale which consists of laminite and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminite and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone.

The soils are characterised by Red and Brown Podzolic soils on mid to upper slopes grading to Yellow Podzolic soils on lower slopes and drainage lines.

The erosion hazard of the varying soil types is rated as Slight to Moderate for non-concentrated flows, ranging to Moderate to High for concentrated flows. Other physical limitations of the landscape unit include hard setting soil profiles, moderately reactive deep clays and High shrink-swell potential (localised). The chemical soil characteristics include generally acidic soils (pH commonly ranging from 5.0 - 7.0), low to moderate fertility, and localised sub-soil salinity.



<u>Figure 4.1.1 – Extract map of the occurrence of the 'Blacktown' (bt) soil landscape unit from NSW</u> Office of Environment & Heritage website resource 'eSPADE'

4.1.2. 'South Creek' (sc) landscape unit

This 'South Creek' soil landscape commonly occurs over the present active floodplain of many drainage networks of the Cumberland Plain. The topography consists of floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain, with slopes being less than 5% generally and local relief of less than 10 metres. The geology is similar to adjoining soil landscapes with Quaternary alluvium derived from Wianamatta Group shales and Hawkesbury Sandstone

The soils commonly encountered are often very deep layered sediments over bedrock or relict soils. Red and Yellow Podzolic Soils are most common on terraces, with small areas of Structured Grey Clays, leached clays, and Yellow Solodic Soils. Structured Plastic Clays or Structured Loams are found in and immediately adjacent to drainage lines

The erosion hazard of this soil landscape is rated as is potentially very high to extreme as the area is an active floodplain and is presently being reworked by fluvial processes. Other physical limitations of the landscape unit include high erodibility, hard setting soil profiles, shrink-swell potential (localised), seasonal waterlogging, localised permanent high water tables, localised stoniness, and soil salinity. The chemical soil characteristics include strongly acidic soils, potential aluminium toxicity, low fertility, and localised potential for sodic soils.



Figure 4.1.2 – Extract map of the occurrence of the 'South Creek' soil landscape unit from NSW Office of Environment & Heritage website resource 'eSPADE'

4.2 Acid Sulphate Soils (ASS)

Potential Acid Sulfate Soils (PASS) are soils that have concentrations of iron sulphide layers that can oxidise when exposed to oxygen generating sulphuric acid. In general, these soils occur less than 5 metres elevation above sea level and are predominantly restricted to low-lying coastal areas, adjoining estuarine areas. More recently, acid sulphate soils have been identified in long-term, drought-affected inland areas where water levels have dropped in waterways and wetlands, exposing acid sulphate material that has subsequently oxidised.

The Project sits at an approximate elevation of 47m AHD and is not considered to be in close proximity to areas ASS affected areas. Further reference to the online soil mapping resource '*eSpade*' (NSW Department of Environment & Heritage) indicate that the site is not situated in an area at risk of Acid Sulphate Soils, with mapping indicating that the closest known occurrence is around the upper reaches of the Parramatta River, which is approximately 20km to the east of the Project, and the upper reaches of the Georges River which is approximately 18km to the south-east of the Project

4.3 Surface water

The proposed development is located to the east of the confluence of Kemps Creek and South Creek, on the South Creek floodplain, which forms part of the larger Hawkesbury-Nepean Basin. The preexisting drainage patterns have been significantly altered by rural and pastoral activities. The predisturbance landform would have been relatively uniform, with undulating rises and alluvial flats occurring across the site, intersected by a series of creeks and tributaries associated with the South Creek drainage system.

The assessment of the existing water quality attributes of the Project catchments noted that vegetation across the Project has been heavily modified for agricultural purposes. Remnant native vegetation structure is only present in a few isolated areas, generally confined to the steeper slopes and adjacent to drainage lines. All drainage lines are almost devoid of riparian vegetation over their length and the contributing catchments have been under scrubbed of low to mid storey native vegetation for the purposes of agriculture.

In general terms, water quality in the area is likely to be typical of aquatic ecosystems that have been disturbed by agricultural practices. Long term agricultural land use has given rise to surface water pollution which would likely exceed the levels considered to be suitable for the sustainability of ecosystem integrity. The pre-existing area did not have water quality treatment measures in place as part of the drainage infrastructure.

The AIE precinct drains to the west via culverts under Mamre Road. The Stage 1 earthworks will realign and existing unnamed watercourse, and also include the construction of a permanent, large water quality control basin which is located directly adjacent to the western boundary of the Project site.

4.4 Water Quality and Receiving Environment Assessment

The Project activities that have the potential risk of negative impacts on water quality parameters include:

- Installation of erosion and sediment controls.
- Ancillary site preparation, establishment, and operation.
- Bulk earthworks, trenching, earthworks, and underground services service installation.
- In-situ concrete works and concrete curing.
- Stormwater construction and drainage structures.
- Dewatering 'dirty' water from site areas and sediment control operations.
- Spills & leaks of fuels & oils from mobile and static machinery.
- Storage of chemicals, fuels & oils.
- Generation of building and construction waste.
- Importing, handling, stockpiling, and transporting materials & resources.
- Plant maintenance.
- General waste generation from compound/s & works areas.

The determination of the assessment of the drainage patterns, the heavily modified existing receiving environments, and the attributes of the receiving waters in the vicinity of the Project have been assessed as 'standard' in accordance with Blue Book Volume 1- Sect. 6.3.4 - (f) & Volume 2D – Table 6.1.

4.5 Groundwater

The presence of groundwater primarily impacts on erosion and sediment control during construction with regard to piling, foundation earthworks, trenching for drainage and services, culvert construction, and sediment control construction.

There are no obvious indicators of shallow groundwater sources, however the detectable presence of groundwater at or near the soil surface is highly dependent on seasonality and rainfall rates. Further assessment was undertaken utilising the NSW Groundwater Bore Database (Department of Primary Industries – Water 2018).

The database was reviewed for information on existing groundwater bores in a three-kilometre radius of the Project area. Fourteen (14) groundwater sites were located with the search radius, with the majority of site occurring in a cluster to the north of the Project, approximately 2 to 2.5km distant. Groundwater drill records for several sites were reviewed with final bore depths commonly being 50-60m below ground level. Groundwater table depths were not indicated.

In summary, the assessment indicates that groundwater is not likely to impact on the scope of the Project works. In summary, the assessment indicates that groundwater is not likely to impact on the scope of the Project works, however, construction activities such as piling, foundation earthworks, trenching, culverts, and basin construction should be closely monitored during works.

Figure 4.5 – Extract map from Water NSW of the presence of groundwater bores in the Project vicinity.

(Note: the Project site is circled in a dashed orange line and the nearest groundwater bores indicated are circled in red)



4.6 Rainfall

Rainfall data was assessed from the Sydney Equestrian Centre Automatic Weather Station (AWS), located approximately seven (7) kilometres east-southeast of the Project at Horsley Park. This data was recorded between 1997 to 2022. (Bureau of Meteorology, 2022). The Sydney Equestrian Centre AWS was also selected for the Project as it will provide real time weather monitoring during the proposed construction period.

Rainfall data collected shows that typically rainfall is higher during summer and autumn. Winter and spring are generally drier periods during the year. February is the wettest month, with a mean rainfall total of 124.5 millimetres. Both the mean and median average annual rainfall totals are 780.3 mm and 724.7 mm, respectively.

Table 4-5 below provides a summary of climate data at the weather station.

Summary of rainfall records from 1997 - 2022													
Summer			Autumn Winter		Spring Summer								
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year
Mean rainfall	74.3	124.5	94.5	67.0	42.9	71.3	38.4	39.1	36.4	60.8	78.8	66.2	780.3
Mean rain days >1mm	7.8	7.6	8.7	6.5	5.0	6.3	5.0	4.0	4.7	5.9	7.2	7.2	75.9

Table 4-6 - Summary of rainfall records

Red = highest value blue = lowest value

4.7 Rainfall erosivity factor and design rainfall depth

The rainfall erosivity factor is a measure of the ability of rainfall to cause erosion (referred to as "R" in the Revised Universal Soil Loss Equation - RUSLE). The rainfall erosivity factor is used to determine the soil loss in tonnes per hectare over one year and is used in calculations when sizing construction sediment basins.

The rainfall erosivity factor which is referred to as the 'R' Factor has been assessed from an Intensity Frequency Duration Table (see below) prepared for the site based on the 2-year, 6 hours storm event of 9.13 mm/hour. The R Factor value of 1892 is calculated from the 0.5 'Exceedances per year', 6 Hour storm of 9.13 mm/hour being 'S', where R = 164.74(1.1177)'S^{0.6444}, as per the Blue Book - Appendix A2 & B.

The nearest 'Blue Book' centre for detailed rainfall depths is Blacktown which is approximately 13.5 kms north-east of The Project (Blue Book Volume 1- Table 6.3a). As noted above at Section 4.3, the Project was assessed as 'standard' in accordance with Blue Book Volume 1- Sect. 6.3.4 - (f) & Volume 2D – Table 6.1, however, we have elected to adopt the 5-day 85th percentile rainfall depth for Blacktown of 32.2mm.

Table 4.7 - Intensity Frequency & Duration Table

Location

Label: Not provided

Latitude: -33.8404 [Nearest grid cell: 33.8375 (S)]

Longitude:150,7834 [Nearest grid cell: 150,7875 (E)]

Very Frequent Design Rainfall Depth (mm)

Issued: 14 August 2022

Rainfall depth for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP). FAQ for New ARR probability terminology

Exceedance per Year (EY)								
Duration	12EY	6EY	4EY	3EY	2EY	1EY	0,5EY#	0.2EY*
1 min	0.817	0.942	1.17	1.33	1.58	2.03	2.57	3.31
2 min	1,39	1,63	2,01	2,28	2,66	3,32	4,15	5,24
3 min	1.89	2.21	2.75	3.14	3.68	4.61	5.79	7.33
4 min	2,32	2,72	3,41	3,90	4,59	5,80	7,31	9,30
5 min	2.70	3.17	3.98	4.57	5.41	6.87	8.69	11.1
10 <u>min</u>	4,11	4,83	6,13	7,07	8,44	10,9	13,9	18,0
15 min	5.09	5.97	7.57	8.75	10.5	13.6	17.3	22.5
20 <u>min</u>	5,83	6,84	8,67	10,0	12,0	15,6	19,9	25,7
25 min	6.44	7.55	9.55	11.0	13.2	17.1	21.8	28.2
30 <u>min</u>	6,96	8,15	10,3	11,9	14,2	18,4	23,4	30,2
45 min	8.18	9.57	12.0	13.8	16.5	21.4	27.0	34.6
1 hour	9,11	10,6	13,4	15,3	18,3	23,6	29,7	37,7
1.5 hour	10.5	12.3	15.4	17.6	20.9	26.9	33.7	42.5
2 hour	11.7	13,6	17,0	19,5	23,1	29,6	37,0	46,3
3 hour	13.4	15.6	19.5	22.4	26.5	34.0	42.3	52.7
4,5 hour	15,4	18,0	22,5	25,9	30,7	39,5	49.9	60,9
6 hour	17,0	19,9	25,0	28,7	34,2	44,1	54,8	68,1
9 hour	19,6	22,9	28,9	33,4	40,0	51,9	64.7	80,8
12 hour	21.5	25.3	32.1	37.2	44.7	58.4	73.1	91.9
18 hour	24.5	29.0	37.2	43.2	52,3	69.0	86.9	111

4.8 Flooding

As noted above, the eastern boundary of the site has the highest elevation of the site at approximately 47m AHD. Further assessment was undertaken for the flooding risk of the Project site area by reference to the EIS mapping, specifically '*Figure 49 – Extent of Flooding on AIE (Pre-Development)*' and '*Figure 50 Extent of Flooding on AIE (Post-Development)*'. The 'Post Development' Flood Risk Map confirmed the Project building pad is unlikely to be at risk of flooding for the 1% (100-year) ARI Flood Event, however the adjacent re-aligned watercourse and permanent water quality control basin may be impacted by riverine flooding.

<u>Figure 4.8 – Extract of 'Figure 50 - Extent of Flooding on AIE (Post-Development) EIS Flood Mapping</u>" (Note: The Project site is circled in a dashed red line)



5 ENVIRONMENTAL ASPECTS AND IMPACTS

5.1 Construction activities

Key aspects of the project that could result in adverse impacts to soils and water include:

- Installation of preliminary erosion and sediment controls and establishment of water diversions.
- Establishment of compounds, exclusion zones, and stockpile areas.
- Minor earthworks, site preparation and site access/temporary access roads.
- Trenching and earthworks for service installation.
- In-situ concrete works and concrete curing.
- Operation of internal haulage and access routes.
- Stormwater construction and drainage stabilisation, including temporary sediment controls.
- Dewatering 'dirty' water from site areas and sediment control operations
- Importing, handling, stockpiling, and transporting materials & resources.
- Compound operation including fuel and chemical storage, refuelling and chemical handling.
- Plant maintenance and spills & leaks of fuels & oils from mobile and static machinery.
- Generation of building and construction waste
- General putrescible waste from compound/s & works areas
- Noxious weed treatment including herbicide spraying.
- Topsoil replacement, revegetation, and landscaping
- Landscaping.

5.2 Impacts

The potential for impacts on soil and water will depend on a number of factors. Primarily, impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction might include:

- Exposure and disturbance of soils during earthworks, creating the potential for off-site transport of eroded sediments and pollutants.
- Alteration of surface and subsurface flows that could cause disturbances to hydrology and hydraulics.
- Off-site discharge of water containing sediment from dewatering activities.
- Contamination of soils, and surface and groundwater from accidental spills or oil leaks. This might include grease or fuel from machinery and vehicles, construction sites or compounds, or spills of other chemicals that may be used during the course of construction.
- Disturbance of unidentified contaminated land e.g. pesticide/chemical concentrations in soil from historical land use practices, and subsequent generation of contaminated runoff.
- Litter and gross pollutants from construction activities.
- Erosion and sedimentation of active construction zones during construction of the project as a result of a large rainfall event or storm event.

6 ENVIRONMENTAL CONTROL MEASURES

Specific measures and requirements to address soil and water management are outlined in in Table 6-1.

Table 6-1 - Management and mitigation measures

ID	Measure / Requirement	When to implement	Responsibility	Reference
General				
SW1	Training will be provided to all project personnel, including relevant sub-contractors on sound erosion and sediment control practices and the requirements from this plan through inductions, toolboxes, and pre-start briefings.	Pre-construction Construction	Project Manager / Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW2	A Project Soil Conservationist (CPESC) will be engaged and consulted throughout construction to undertake monthly site inspections and to provide advice on erosion and sediment control design, installation, maintenance, and the development of PESCPs.	Pre-construction Construction	Project Manager / Environmental Site Representative	SSD 10448 Consent Condition D26 Best Practice
SW3	 EWMSs may be prepared and implemented to manage soil and water impacts that include but are not limited to: Activities assessed as having high environmental risk Activities that impact on environmentally sensitive areas Activities that pose a risk to receiving water quality Earthworks including temporary stockpiling and disposal of excavated material and protocols for the management of contaminated material Work around drainage lines and where construction water may be discharged into natural waterways Construction and operation of sediment basins including connecting drainage for the associated catchment area; and drainage works. 	Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 Best Practice
SW4	Contaminated soils and Acid Sulfate Soils and / or Potential Acid Sulfate Soils are to be managed in accordance with the Erosion and Sediment Control Plan, which forms Appendix A of this SWMP.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A

ID	Measure / Requirement	When to implement	Responsibility	Reference
Erosion a	nd sediment control			
SW5	A Primary Erosion and Sediment Control Plan (ESCP) has been prepared by the Soil Conservationist (CPESC) and is included in Appendix A of this SWMP. The plan includes arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in wet weather. The Primary Erosion and Sediment Control Plan is to be referred to and considered when preparing progressive erosion and sediment control plans.	Pre-construction and construction	Environmental Site Representative / Project Soil Conservationist	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW6	Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared and implemented in advance of construction. PESCPs will be updated as required.	Pre-construction and construction	Environmental Site Representative / Project Soil Conservationist	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW7	Hardstand material, rumble grids or similar will be provided at exit points from construction areas onto public roads to minimise the tracking of soil and particulates onto public roads.	Pre-construction / Construction	Project Engineer / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW8	Site compounds, access tracks, stockpile sites and temporary work areas will be designed and located to minimise erosion and temporarily stabilised where required.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW9	Works will be programmed to minimise the extent and duration of unstabilised soil surfaces.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A

ID	Measure / Requirement	When to implement	Responsibility	Reference
SW10	Clean and dirty water runoff will be adequately separated to avoid mixing where possible through the use of diversions, clean water drains, and the early installation of permanent drainage infrastructure.	Pre-construction / Construction	Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW11 Stabilisation will be implemented for dormant areas exposed for four weeks or more (including stockpiles and batters); by providing soil surface protection (i.e. geotextile fabric, stabilised mulch, soil binder or spray grass)		Construction	Project Engineer / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
 SW12 Drains, banks, or diversions will be formed (and stabilised where required) to direct runoff from disturbed areas to sediment basins/sumps or adequate sediment control devices, and away from watercourses or tributary drainage lines. Lip berms and batter chutes with velocity dams will be progressively formed and maintained on fill formations. 		Construction	Project Engineer / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW13 Staged re-vegetation and/or other permanent stabilisation will be implemented in Site areas as work proceeds.		Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
Stockpile	S			
SW14	 Stockpiles will be: located in designated stockpile sites, above 10-year flood levels, located at least 5 m from likely areas of concentrated water flows and drainage lines, topsoil stockpiles formed to heights to no greater than 2 m, and all other soil materials to be no higher than 5m, and batter slopes to be no steeper than 2:1, established so that any slump of the stockpile will not affect erosion and sediment control measures or infringe on specified minimum clearance requirement, 	Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A

ID	Measure / Requirement	When to implement	Responsibility	Reference
SW14	 covered or otherwise protected from erosion where stockpiles will be in place for more than 20 days, or temporary stockpiles that are susceptible to wind or water erosion, within 5 days of forming each stockpile. managed to avoid contamination with noxious weeds and cross-mixing with other stockpiled materials. Weed growth on stockpiles will be monitored and suppressed as required. 	Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
Water Qu	ality Control			
SW15	Construction sediment basin/s will be designed and constructed in accordance with the requirements and procedures detailed in the Blue Book Volume's 1 & 2D. The construction sediment basin design/s, restoration and revegetation methodology will be formulated and/or reviewed by the Project Soil Conservationist.	Pre-construction / Construction	Project Soil Conservationist / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW16	All sediment basins will have depth indicators installed that clearly show the sediment storage zone together with basin identification signage basin number.	Pre-construction / Construction	Project Soil Conservationist / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW17	Run-off from areas within catchments (that are controlled by sediment basins, excavated sumps & compacted mulch sediment traps) is to be diverted to the sediment basins/sumps/traps/tanks in stabilised drainage lines where possible.	Pre-construction / Construction	Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW18	Suitable all-weather access will be constructed and maintained to sediment basins/sumps/traps/tanks to allow for testing, treatment, discharge, and maintenance.	Pre-construction / Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW19	Sediment basins/sumps/traps/tanks shall be flocculated with an appropriate approved flocculant (eg. gypsum) using an early dosing system to minimise the	Construction	Supervisor	NSW POEO Act 1997 SSD 10448 Consent Condition D25

ID	Measure / Requirement	When to implement	Responsibility	Reference
	settling time of suspended dispersible and small sediment particles and to maximise the efficiency of the basins.			EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW20	Prior to discharging any water from any sediment basins/sumps/traps/tanks, representative water samples will be obtained and tested to ensure that it meets the NSW EPA water quality criteria.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 10448 Consent Condition D25
				EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW21	Flocculant or coagulant (whether gypsum or another approved material) will be applied to settle suspended sediments as soon as possible after the conclusion of each rain event causing runoff. The cycle time to treat, dewater and return the maximum storage capacity to any individual water quality control device prior to the next rainfall event shall not exceed 5 days.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 Best Practice Managing Urban Stormwater: Soils and Construction Volume 1
SW22	Subsequent to the initial series of basin sample tests, where a statistical correlation can be demonstrated between turbidity and Total Suspended Solids (TSS), an application may be made to the Principal to allow for the discharge of supernatant waters based on turbidity measurements before confirmatory laboratory data is available.	Construction	Environmental Site Representative	NSW POEO Act 1997 Best Practice Managing Urban Stormwater: Soils and Construction Volume 1
Dewateri	ng			
SW23	Personnel responsible for approval and/or carrying out dewatering activities will be adequately trained and inducted on the dewatering procedures and requirements.	Construction	Environmental Site Representative / Supervisor	Best Practice Managing Urban Stormwater: Soils and Construction Volume 1
SW24	 Water to be discharged from site will be discharged in accordance with a Site Dewatering Procedure. In accordance with NSW EPA water quality criteria, the water quality parameters for discharge from site discharge points will be: Total Suspended Solids <50mg/L pH 6.5 - 8.5 Oil & grease – not visible. 	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A

ID	Measure / Requirement	When to implement	Responsibility	Reference
SW25	 A site dewatering register will be maintained for site areas (other than sediment basins) that require treatment, dewatering, and discharge to off-site areas. The register will record: dewatering procedure date and time for each discharge at each location water quality test results for each discharge personnel approving the dewatering activities evidence of discharge monitoring, or risk assessment and mitigation measures used to eliminate the risks of pollution or erosion. 	Pre-construction / Construction	Environmental Site Representative / Project Engineer	NSW POEO Act 1997 SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW26	Water captured in water quality control devices and other site works areas will be reused for dust suppression, compaction, or other construction activities where possible. If a proposed source, other than a town water supply or natural water source, procedures will be developed for regular testing to ensure that the water is suitable for the purpose and is not hazardous to health and the environment.	Construction	Environmental Site Representative / Project Engineer / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW27	 All dewatering activities will be subject to prior approval from relevant project personnel. The dewatering activities will be monitored to ensure: intake suction devices are positioned to prevent extraction or disturbance of settled sediments, no erosion is occurring at discharge locations and/or downstream areas, no inadvertent or intentional controlled discharge of untreated waters occurs. 	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
Site stabi	lisation and restoration			
SW28	Management and procedures for site stabilisation will be in accordance with the primary Erosion and Sediment Control Plan at Appendix A of this SWMP.	Construction	Environment Manager / Project Soil Conservationist	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW29	The rehabilitation of disturbed areas will be undertaken progressively as construction stages are completed and in accordance with procedures detailed in the Blue Book Volume's 1 & 2D.	Construction / Post construction	Environmental Site Representative / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and

ID	Measure / Requirement	When to implement	Responsibility	Reference
				Construction Volumes 1 & 2A
SW30	 Restoration of these areas includes; topsoiling of the areas; seeding, planting, watering and maintenance; removal of temporary erosion control devices and of accumulated sediments removal of unused construction materials and waste materials. 	Construction / Post construction	Environmental Site Representative / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
Spill pre	vention and response			
SW31	Management for spill prevention and response will be in accordance with the CEMP. An Emergency Spill Response Procedure has been developed in the CEMP.	Pre-construction / Construction	Environmental Site Representative / Supervisor / Project Manager	NSW POEO Act 1997 SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW32	Emergency wet and dry spill kits will be kept on site at locations described within the Emergency Spill Response Management Procedures (ie at compounds). All personnel will be made aware of the spill kit locations and will be trained in their use.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW33	A schedule of all hazardous materials kept on site during construction will be maintained for the duration of the project.	Construction	Environmental Site Representative / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Best Practice
SW34	 The ancillary facilities will be managed within the ESCP. The following measures will be included to limit sediment and other contaminations entering receiving waterways: Chemicals will be stored within a sealed or bunded area not within 5 m of any aquatic habitat, any areas of concentrated water flow, flood prone or poorly drained areas, or on slopes steeper than 1:10 Vehicle movements will be restricted to designated pathways where feasible and appropriate controls will be in place where plant is stored Areas that will be exposed for extended periods, such as car parks and main access roads, will be stabilised where feasible. 	Contractor	Construction	NSW POEO Act 1997 SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A

ID	Measure / Requirement	When to implement	Responsibility	Reference
SW35	All spills and associated environmental incidents are to be reported in accordance with the CEMP, and where applicable, in accordance with Section 148 of the NSW POEO Act 1997.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 &
Monitorin	ng and inspections			
SW36	Nominated project personnel will conduct site inspections of erosion and sedimentation controls at least weekly. A Project Soil Conservationist (CPESC) will undertake monthly site inspections and provide a written report detailing identified issues and recommendations for remedial actions.	Construction	Environmental Site Representative / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW37	 All disturbed areas, revegetated/stabilised areas and all permanent and temporary erosion and sediment control works will be inspected: At least weekly Immediately before extended site shut down At the conclusion of all rainfall events exceeding 10mm and during periods of prolonged rainfall as soon as practicable. 	Construction	Environmental Site Representative / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW38	 Any rectification measures which are identified will be addressed and / or recorded to ensure appropriate rectification within the nominated timeframe. The timeframe for rectification works is based on a risk assessment of deficiencies in controls, being; High: within 24 hours of inspection Medium: within 3 working days of inspection; and Low: within 3 working days of inspection. 	Construction	Environmental Site Representative / Supervisor	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW39	Monitoring of rainfall events (with observations of rainfall in millilitres) will be undertaken daily during normal work days.	Construction	Environmental Site Representative	SSD 10448 Consent Condition D25 EIS Section 6.1 - Table 41 Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A

7 COMPLIANCE MANAGEMENT

7.1 Roles and responsibilities

The RCC Project Team's organisational structure and overall roles and responsibilities are outlined in CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to soil and water management issues. The induction training will address elements including:

- Existence and requirements of this sub-plan.
- Relevant legislation.
- Incident response, management and reporting.
- Roles and responsibilities for soil and water management.
- Water quality management and protection measures.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in soil and water management. Examples of training topics include:

- ERSED control installation methodology.
- Sediment basin/sump/trap/tank construction, operation, and maintenance.
- Working near or in drainage lines.
- Emergency response measures in high rainfall events.
- Preparedness for high rainfall events.
- Lessons learnt from incidents and other event e.g., high rainfall/flooding.
- Spill response.
- Stockpile location criteria.

7.3 Monitoring and inspection

Regular monitoring and inspections will be undertaken during construction. Monitoring and inspections will include, but not be limited to:

- Immediate areas and drainage lines adjacent to the Project area
- Construction water quality control devices prior to discharge.
- Weekly and post rainfall inspections to evaluate the effectiveness of erosion and sediment controls measures in accordance with Table 6-1.

Table 7-3 Inspection Schedule

Activity	Frequency	Location	Responsibility	Record
Environmental Site Inspection	Weekly	Site wide	Environmental Site Representative	Site inspection log
Rainfall Inspection (10mm or greater rainfall).	Prior to rainfall event, during event, within 24 hours after the event	Site wide	Environmental Site Representative	Site inspection log
Soil Conservationist (CPESC) site inspections	Monthly	Site wide	Environmental Site Representative	Inspection Report

7.4 Licences and permits

The water quality discharge criteria for the project are listed below, in Table 7-4.

Parameter	Criteria	Sampling method	Frequency
рН	6.5 –8.5	Probe	Daily during any discharge
Total Suspended Solids*	50 mg/L	Grab Sample	Daily during any discharge
Turbidity	TBA following correlation with TSS results	Probe or Grab Sample	Likely to be required daily during any discharge
Oil and Grease*	No visible	Visual inspection	Daily during any discharge

Table 7-4 Discharge water quality criteria

Any other relevant licences or permits will be obtained in the lead up to and during construction as required.

7.5 Weather monitoring

A rain gauge to be installed in the main compound will be used in the monitoring of rainfall events. The Wet Weather Contingency Procedure is detailed in the Project ESCP at Annexure E.

7.6 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental mitigation and management measures, compliance with this plan and other relevant approvals, licences, and guidelines.

7.7 Reporting

Reporting requirements and responsibilities are documented in the ESCP at Annexure E.

8 REVIEW AND IMPROVEMENT

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any nonconformances 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.

8.2 SWMP update and amendment

Any revisions to the SWMP will be undertaken in response to a change in the Project scope or staging, or in the event of an unexpected soil or water hazard emerging.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with RCC document control procedures.

Appendix A Erosion and Sediment Control Plan