

SYDNEY FOOTBALL STADIUM REDEVELOPMENT

Construction Soil and Water Management Plan

SFS-JHG-00-PLN-PM060003

SSD-9835

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1 Revisions and Distribution

1.1 Revisions

Draft issues of this document are identified as Revision 1, 2, 3, etc. Upon initial issue (generally Contract Award), this will be changed to an alphabetical revision. Revisions will continue at Revision A, B, C etc

Rev	Date	Prepared By [Name & Signature]	Reviewed By [Name & Signature]	Approved By	Remarks
1	16/12/2019	A. Fanning, C. Renshaw	H. Madden		
2	23/01/2020	A Thompson / H Madden	H. Madden		
A	29/01/2020	M. Turner	S. Maclaren		Initial issue
B	14/02/2020	M Turner	C. Newling		Updated following INSW review
C	12/4/2020	C Newling	S. Maclaren		Updated to address comments from Site Auditor (Old Doc No. SFS-JHG-PLN-CEMP-004)

Copy Holder Details		
Name	Position	Copy Number
Steve Maclaren	HSEQ Manager	1

1.2 Distribution List

Client's Representative	Via Aconex
Project Manager	Via Aconex
Project Site Manager	Via Aconex
HSEQ Manager	Via Aconex
Project Environment Representative	Via Aconex

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2 Introduction

Stage 2 of the Sydney Football Stadium (SFS) Redevelopment (SSD 9835) was approved by the Minister for Planning and Public Spaces on 6 December 2020.

In accordance with condition B25 of the consent, a Construction Soil and Water Management Plan (CCSWMSP) must be prepared by a suitably qualified and experienced person(s) and in consultation with City of Sydney Council prior to commencement of construction. The (CCSWMSP) must be endorsed by the Certifier and a copy submitted to Department of Planning and Council prior to the commencement of any works.

The purpose of this document is to address the requirements of Condition B25, B22(h), C27, C28 and C44 as they relate to the first stage of construction (refer to Section 2 for details). A cross reference to the relevant section of this document where aspects are addressed is found below.

2.1 Compliance Matrix

Construction Environmental Management Plan requirements		Reference
B25	The Construction Soil and Water Management Sub-Plan (CSWMSP) must address, but not be limited to, the following:	
a	Be prepared by a suitably qualified expert, in consultation with Council;	This Plan
b	Describe the details of all erosion and sediment controls to be implemented during construction;	Section 7 and Appendix A
c	Provide a plan of how all construction works will be managed in a wet-weather event (i.e. storage of equipment, stabilisation of the site);	Section 7
d	Provide a summary of any ground investigations completed to date;	Section 6.5.1
e	Details of all off-Site stormwater flows from the Site and methods to ensure that sediment is not mobilised in stormwater flows leaving the site;	Section 7 and Appendix A
f	Describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI;	Section 7 Appendix E
g	Detail the proposed stormwater disposal and drainage from the development, designed in accordance with: <ul style="list-style-type: none"> (i) Australian Rainfall and Runoff – A Guide to Flood Estimation, Volumes 1 and 2 (1987); (ii) SA/NZS 3500.3.2 National Plumbing and Drainage Part 3.2: Stormwater Drainage – Acceptable Solutions; and (iii) Managing Urban Stormwater – Soils and Construction Volume 1 (4th Edition March 2004) 	Section 67 Note: Diversion of key stormwater infrastructure was approved as part of a modification to the Stage 1 consent (SSD-9249) on 5 August 2019. Works have been undertaken by the Stage 1 contractor.
h	Details demonstrating that fine particulates from construction works would not be entrained in stormwater runoff and adversely impact on Kippax Lake, the underlying groundwater resources and other downstream properties;	Section 7
i	Monitoring techniques to ensure that the quality of water within the detention / settling ponds comply with the applicable	Section 7 Appendix B

Construction Environmental Management Plan requirements		Reference
	standards within the Managing Urban Stormwater – Soils and Construction Volume 1 (4 th Edition March 2004);	
j	Methods for testing of the water quality (suspended solids, turbidity and contaminants) prior to discharging from the site into the stormwater infrastructure on Driver Avenue, to ensure compliance with the applicable standards within the Managing Urban Stormwater – Soils and Construction Volume 1 (4 th Edition March 2004);	Appendix B and Appendix C
k	Methods for evaluating the water quality testing results by a suitably qualified water quality expert.	Appendix B
B22 h	A detailed unexpected finds protocol for contamination and associated communications procedure being consistent with the Unexpected Contamination Finds Protocol-V2.1 prepared by Lendlease dated June 2019 and including a chain of responsibilities for undertaking the unexpected finds protocol	Appendix D
C27	Erosion and Sediment Control All erosion and sediment control measures must be effectively implemented and maintained at or above design capacity for the duration of the construction in accordance with the CSWMSP.	Section 7 and Appendix A
C28	Imported Soil The Applicant must: (a) Ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site; (b) Ensure that imported topsoil for the playing field inside the stadium meets the Recreational / Recreational Open Space criteria defined in Schedule B1 of the National Environment Protection Measure, As Amended (NEPC, 2013); (c) Keep accurate records of the volume and type of material used; and (d) Make these records available to the Department and the Certifying Authority upon request.	Section 7
C44	Dewatering In the event that groundwater is intercepted during construction works and dewatering is required, written approval and relevant licences must be obtained from the relevant authorities (such as the Water Group within the Department or Council's Public Domain Unit) for any discharge of groundwater into Council's stormwater system)	Section 7 and Appendix C

3 Definitions

AEP – Annual Exceedance Probability

ARI – Average Recurrence Interval

AMS – Activity Method Statement

CAQMSP – Construction Air Quality Management Sub Plan

CEMP – Construction Environmental Management Plan

CPESC – Certified Professional in Erosion and Sediment Control

CSWMSP – Construction Soil and Water Management Plan

ECP – Environmental Control Plan

ENM – Excavated Natural Material

EPA – Environment Protection Authority

ERSED – Erosion and Sediment Control

ESCP – Erosion and Sediment Control Plan

FM – Foreman / Supervisor

INSW – Infrastructure NSW

JH – John Holland

JHET – John Holland Event Tracker

OEH – Office of Environment and Heritage

PE – Project Engineer

PD – Project Director

PER – Project Environmental Representative

SEP – Site Environmental Plan

SM – Site Manager

TRA – Task Risk Assessment

VENM – Virgin Excavated Natural Material

WQMSP – Water Quality Management Sub-Plan

WQO – Water Quality Objectives

WRA – Workplace Risk Assessment

4 Introduction

This Soil and Water Management Plan (CSWMSP) forms part of the Construction Environmental Management Plan (CEMP) for Stage 2 of the Sydney Football Stadium Redevelopment Project (the Project).

This CSWMSP has been developed by a suitably qualified and experienced expert (WSP) with the erosion and sediment control plan developed by soil conservationist, John Wright of T.R.E.E.S P/L, who is a recognised Soil Conservation Consultant.

An overview of the Project environmental management system is provided in the CEMP. Used together, the CEMP, issue specific environmental management plans, strategies, procedures and activity method statements (AMS) form management guides that clearly identify required environmental management actions for reference by John Holland's personnel and contractors.

4.1 Objectives

The objectives of this Construction Soil and Water Management Sub-Plan are to:

- Ensure appropriate measures are implemented to address the relevant Conditions of Approval (CoA) outlined in the State Significant Development Consent (SSD-9835)
- Ensure best management practice controls and procedures are implemented during the construction activities to avoid or minimise the risk of increased erosion and/or sediment deposition on the surrounding environment and prevent surface and groundwater degradation;
- Detail measures to manage construction activities during wet-weather events;
- Ensure that work activities are managed so as not to cause a flood risk;
- Ensure that Water Quality Objectives (WQOs) are met throughout all construction activities;
- Ensure compliance with all legislative water quality requirements; and
- Through implementation of the above, reduce the impact of construction activities on the environment.

4.2 Development Description

The Stage 2 redevelopment of the Sydney Football Stadium as approved under SSD 9835 provides consent for the following works:

- Construction of a new stadium with up to 45,000 seats (55,000 capacity in concert-mode), including playing pitch, grandstands, sports and stadium administration areas, food and drink kiosks, corporate facilities and all other aspects of a modern stadium;
- Operation and use of the stadium and surrounding site area for a range of sporting and entertainment events;
- Vehicular and pedestrian access and circulation arrangements, including excavation to deliver a partial basement level for storage, internal loading and servicing at the playing pitch level;
- Reinstatement of the MP1 car park following the completion of construction, including enhanced vehicle rejection facilities and direct vehicular connection to the new stadium basement level;
- Public domain improvements within the site boundary, including hard and soft landscaping, to deliver a range of publicly accessible, event and operational areas;
- Provision of new pedestrian and cycling facilities within the site;
- Signage, including building identification signage, business identification signage and a wayfinding signage strategy; and
- Extension and augmentation of physical infrastructure/ utilities for the development within the site.

The project is proposed to be delivered in five (5) stages set out below to respond to the proposed design milestones, construction program and the conditions of approval. Initially, piling and sub structure elements were included within CC1 and formed the basis of communication to stakeholders. Further analysis of the conditions has subsequently occurred, and it has been identified that a new stage (stadium sub-structure elements including pile, foundations and footing construction) is required.

CC No.	Proposed Works	Duration	Start Date	Finish Date
CC1	Bulk earthworks, retaining walls, enabling and temporary works (for example shoring) to facilitate future stages.	11 months	March 2020	February 2021
CC2	Stadium sub-structure elements including piles, foundations, footing construction and in-ground services	7 months	April 2020	October 2021
CC3	Structure - basement to concourse level construction.	9 months	July 2020	March 2021
CC4	Above concourse level works (structure – Level 1 to Level 5)	7 months	November 2020	May 2021
CC5	Roof, façade, fit-out and remaining elements.	18 months	February 2021	July 2022

This document has been prepared to facilitate the project noting the highest erosion and sediment risk is linked to CC1 (bulk earthworks and pile construction).

On this basis, the Construction Environmental Management Plan (including sub plans) have been developed to address impacts and detail mitigation and management measures for CC1 and CC2 and would be approved in line with the above.

It is envisaged that prior to CC3, this document will be reviewed and updated (if appropriate) to incorporate any applicable mitigation measures relevant to the works proposed to be covered by CC2. Subsequent updates will be made in due course as future stages are progressed.

4.3 Project Location

The Project as defined under the planning approval is located at 40-44 Driver Avenue, Moore Park within the Sydney Cricket Sports Ground Trust (SCSGT) Precinct bounded by Moore Park Road to the north, Paddington Lane to the east, the existing SCSGT stadium to the south, Driver Avenue to the west, and is located within the City of Sydney local government area. The site is legally described as Part Lots 1528 and 1530 in Deposited Plan 752011 and Lot 1 in Deposited Plan 205794 and is Crown Land.

The site is largely surrounded by Centennial and Moore Parks, the Fox Studios and Entertainment Quarter precincts and the residential suburb of Paddington. The site is approximately 3km from the Sydney CBD and approximately 2km from Central Station, is connected to Sydney's transport network through existing bus routes and will benefit from a dedicated stop on the Sydney CBD and South East Light Rail.



Figure 1: Site boundaries: 1: Allianz Stadium, 2: Sheridan Centre, 3: Sydney Roosters, 4: Cricket NSW, 5: MP1 Carpark

5 Performance

5.1 Objectives

The key objective of the CSWMSP is to ensure all EIS, Submissions Report safeguards and management measures and condition requirements relevant to soil and water quality are described, scheduled and assigned responsibility.

To achieve these objectives, John Holland will undertake the following:

- Installation and maintenance of erosion and sediment controls in accordance with this CSWMSP and supporting project documents, namely Appendix A – Sydney Football Stadium Erosion Sediment Control Plan (ESCP).
- Minimise the potential for soil erosion as a result of construction activities.
- Implementation of all reasonable and practicable measures to manage and mitigate the potential impacts of spoil removal, haulage and/or placement.
- No contamination or sedimentation of drainage lines or Kippax Lake (within 5 day/ 85 percentile rainfall event thresholds – 38.8mm) occur as a result of construction activities. It should be noted that no defined watercourses occur within the project footprint.
- No discharge of water outside of WQO's is to occur.
- De-watering shall not take place unless a Dewatering Permit has been obtained and completed to the satisfaction of the Project Environmental Representative (PER).
- No complaints relating to erosion or sedimentation.

5.2 Targets

The following WQO will be used to establish the minimum standard any waters on site need to meet before they can be discharged:

Discharge to Stormwater / Watercourse			Dispersed Discharge to Land	
Water Parameter	Objective	Units	Objective	Units
pH	6.5 – 8.5	pH	6.5 – 8.5	pH
Total Suspended Solids (TSS)	<50	mg/L	N/A	N/A
Turbidity	*To be determined following commencement of works and verification through sampling as per Appendix B.	NTU		
Hydrocarbons / Grease	No hydrocarbon sheens observed	N/A	No hydrocarbon sheens or grease observed	N/A

Notes:

**Measurement of turbidity may only be used where a correlation between TSS (number and type of particles suspended in the water column) and Turbidity (NTU) (the ability of light to penetrate the water column) has been established through sampling and analysis at a NATA accredited laboratory has been established. Until this occurs, a test for TSS must be conducted as a minimum.*

#Dispersed Discharge to land must remain within the project footprint and not interfere or meet watercourses, stormwater or drainage lines leading to watercourses.

6 Legislation and Guidance Documentation

The project is subject to a number of regulatory requirements relevant to this CSWMSP which have been or will have been considered as part of via various approvals, licences and permits issued by external Agencies. In addition, the safeguards and management measures set out within the EIS, as amended by the Submissions Report, provide further requirements which are relevant to this CSWMSP.

6.1 Federal Legislation

- Environmental Protection and Biodiversity Conservation Act 1999
- National Environmental Protection (National Pollution Inventory Measure), 1998 (as amended)
- National Environmental Protection (Assessment of Site Contamination Measure), 1999 (as amended)

6.2 State legislation

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (General) Regulations 2008
- Environmentally Hazardous Chemicals Act 1985
- Water Act 1912
- Water Management Act 2000
- Water Management Amendment (Controlled Activities) Regulation 2008
- Soil Conservation Act 1938
- Environmental Planning and Assessment Act 1979
- Fisheries Management Act 1995
- Aquifer Interference Regulation 2011- including Aquifer Interference Policy

6.3 Standards / Codes

- Managing Urban Stormwater Soil and Construction (Landcom, 2004) ('Blue Book')
- Australia and New Zealand Guidelines for Fresh and Marine Water Quality (Australian and New Zealand Environment and Conservation Council, 2000)
- AS/NZS 5667.1.1998 – Water quality – sampling – Guidelines on the design of sampling programs, sampling techniques and the preservation and handling of samples
- AS/NZS 5667.12:1998 – Water quality – Guidance on sampling bottom sediments
- AS/NZS 5667.11.1998 – Water quality – sampling – Guidance of sampling of groundwaters
- EPA Storing and Handling Liquids: Environmental Protection Participants Manual 2007
- Environmental Compliance Report – Liquid Chemical Storage, Handling and Spill Management (DEC 2006)
- Environmental best practice management practice guideline for concreting contractors (DEC 2004)
- NSW Waste Classification Guidelines (NSW EPA, 2014)

6.4 Supporting Documentation

- Construction Environmental Management Plan (CEMP)
- Construction Air Quality Management Sub-Plan (CAQMSP)
- Site Environmental Plan (SEP)
- John Holland Hazardous Chemical Management Procedure
- JH Resource Use Reporting Procedure (JH-MPR-ENV-002)

- JH Incident and Event Management Procedure (JH-MPR-SQE-010)
- Unexpected Finds Protocol for contamination
- State Significant Development approval SSD-9835.
- Sydney Football Stadium Environmental Impact Assessment (Stage 2 Construction and Operation) prepared for INSW dated 12th June 2019.

6.5 Ground Investigations Completed to Date

The following investigations contributed to the summary provided regarding ground investigations completed to date:

- Douglas Partners (29 May 2019) Report of Geotechnical Investigation Sydney Football Stadium Redevelopment Moore Park, NSW (Project 86529.00. R.007, Rev0).
- Douglas Partners (18 May 2018) Report on Preliminary Site Investigation (Contamination), Sydney Football Stadium Redevelopment, Moore Park, NSW (86276.00.R.001. Rev0 Stage 1 ESA).
- Douglas Partners (15 May 2019) Report on Detailed Site Investigation (Contamination), Sydney Football Stadium Redevelopment, Moore Park, NSW (86529.00.R.006A. Rev0. DSI S96 Application).
- Douglas Partners (28 May 2019) Report on Detailed Site Investigation (Contamination), Sydney Football Stadium Redevelopment, Moore Park, NSW (86529.00.R.006B.Rev1.DSI).

Note – the above S96 DSI and DSI are not significantly different.

- Senversa (2019) – Site Auditor Statement (12 June 2019, S16877_LET01_12June2019)

6.5.1 Geotechnical, Groundwater and Contamination Investigations

The geotechnical investigation for the Project was undertaken by Douglas Partners over two separate periods in 2018 and 2019. Intrusive investigation for contamination assessment purposes was undertaken at the same time as the geotechnical investigation.

6.5.2 Regional Geology and Hydrology

The Sydney 1:100,000 Geological Series Sheet indicates that the Site is close to the boundary between Quaternary-aged marine sands and Hawkesbury Sandstone. The marine sands are transgressive dunes that comprise fine to medium-grained sand with podosols. Hawkesbury Sandstone typically comprises medium to coarse grained quartz sandstone with minor shale and laminate lenses.

The marine sands at Moore Park form the upstream end of the Botany Aquifer which is a considerable groundwater resource between Paddington and Botany Bay. Groundwater is understood to be in the order of 3m below the playing surface in the former stadium.

6.5.3 Sub-surface Condition

The geotechnical boreholes encountered the following materials:

- Filling – asphalt surface, sandy and gravelly filling with varying proportions of silt, clay, sandstone cobbles and boulders, concrete, brick, tile, timber and ash to depths of between 0.6m and 7.0m.
- Natural Sands – loose to very dense sand underlying the filling to depths of between 2.6m and 23.0m. It is noted that a second deeper sand layer was encountered in bore C37 between 26.7m and 30.5m.
- Natural Clays – loose to dense clayey sand and firm to very stiff sandy clay/silty clay underlying the sands to depths of between 3.5m and 31.2m. It is noted that a second deeper clayey layer was encountered in bore C37 between depths of 20.0m and 26.7m.
- Bedrock – sandstone from depths of between 1.9m and 31.2m, to the base of the core boreholes at depths of between 8.4m and 38.1m. The rock was typically weathered at its surface, increasing in strength to low, medium and high strength with depth.

The groundwater level varies across the Site. It was measured at RL 40.9m AHD in the north-eastern corner which is close to the bedrock surface. The measured groundwater level drops to RL 34.0m AHD in the south-eastern corner and RL 33.0m AHD in the south-western corner; both levels are within the natural sands profile.

6.5.4 Contamination

Soil/Fill

To determine soil conditions, Douglas Partners recently undertook a Detailed Site Investigation (DSI) on the stadium portion of the site to assess the contamination characteristics of the soil and groundwater (Ref. 86529.00.R.006B dated 28 May 2019).

The Douglas report identified the following based on the adopted criterion:

- One sample contained bonded fibre cement, which was the only asbestos-containing material on the Site. This suggests that asbestos containing materials may be encountered on the Site and should be dealt with via an Unexpected Finds Protocol.
- Samples of the site fill contained detectable concentrations of carcinogenic PAHs (reported as B(a)P.TEQ). The presence of this contaminant is likely from ash from historic on-site activities like incineration or importing fill from power stations. The concentration of this contaminant falls within the Health Impact Level D criteria and as such does not trigger the need for remediation. It is also noted that this form of contaminant is generally immobile and presents a low off-site mitigation risk.
- Benzo(a)pyrene was also found to be present on the Site. In accordance with the technical report No. 39 Risk based management and remediation guidance for Benzo(a)pyrene, (Cooperative Research Centre for Contamination Assessment and Remediation of the Environment, 2017) which suggests revised screening levels in Australia, Douglas Partners adopted a concentration of 20 mg/kg. Samples were below this concentration.

The DSI indicated that the site was suitable for redevelopment without the need for remediation.

However, during demolition works isolated pieces of asbestos-containing material (ACM) were encountered, and additional assessment by Douglas Partners (Ref. 99553.00.R.004) confirmed that remediation was required to manage the ACM risks on the site.

The scope of the Asbestos Assessment was as follows:

- Prepare a Sampling and Analysis Quality Plan (SAQP) for the investigation;
- Excavate test pits in 54 locations (TP401 to TP454) across the site to allow bulk soil samples to be collected;
- Undertake sieve analysis of the bulk samples collected from the pits to identify the presence of any potential ACM;
- Undertake laboratory analysis of material samples and 500 mL soil samples to check for the presence of asbestos; and
- Provide a summary report on the results of the Asbestos Assessment.

A RAP was prepared by Douglas Partners (99553.00.R.005).

The RAP concluded that Subject to proper implementation of the RAP and validation reporting, DP considers that the site can be made suitable for the proposed redevelopment. The short term exposure during remediation and construction works should not pose an unacceptable risk to workers provided adequate controls are in place. A long-term EMP will be required to manage the risks associated with the ACM-impacted soils that will be encapsulated on the site.

The following recommendations were made:

- Encapsulate the contaminated filling beneath the future stadium structure, public domain areas and playing surface, which would act as a physical barrier
- Off-site disposal to landfill would generally only be required in the event that excessive quantities of contaminated soil are encountered which cannot practically be encapsulated on the site
- The capping of ACM-impacted soil will also require an institutional control by way of the provision of a long-term environmental management plan (EMP) to manage residual contamination

Groundwater

Concentrations of copper and zinc were marginally above the adopted investigation levels as per the National Environmental Protection Measure (Assessment of Site Contamination) Schedule B1 - Guideline on investigation levels for Soil and Groundwater (NEPC, 2013) in one sample (C37 from 2018), however they were reported as being considered typical of background concentrations in Sydney and insignificant. Douglas Partners noted that groundwater is used to irrigate the grass at SFS and SCG which suggests that the groundwater is not significantly impacted by contamination.

The existing water extraction licence 24543 permits 20 ML of water to be extracted from the Botany Sands aquifer via a bore located within the SCG grounds for playing field irrigation across the SFS and SCG. It is not proposed at this stage that groundwater will need to be extracted.

6.5.5 Site Audit Statement

A Section B Site Audit Statement (S16877_SAS_JC-NSW27) was issued by the Site Auditor on the 15/3/2020 with the following conditions:

1. Preparation of a Sampling, and Analysis Quality Plan (SAQP) to confirm site suitability over the whole consented area for auditor approval within 2 months and prior to occupation.
2. Provision of all relevant construction environmental management plans for auditor approval within 2-months.
3. Progressive provision of export and import documentation, material tracking and commensurate testing for auditor information to ensure the Protection of Environment Operations Act 1997 and Regulations are complied with. Imported material requires auditor approval to ensure that site criteria are complied with.
4. Preparation of a Remedial Works Plan confirming specific capping details in accordance with the final development design for auditor approval prior to construction.
5. Successful implementation and verification of the remedial works, including material movements, must be documented in a Remediation and Validation report for auditor approval.
6. Preparation of a long-term environmental management plan by a suitably qualified consultant for auditor approval that can be made legally enforceable.
7. At the end of construction and prior to occupation the site auditor must provide a section A2 SAS and site audit report (SAR).

7 Soil and Water Quality Action Planning

Design and Planning	Staff Responsible	When
Prior to works commencing, develop an initial Primary Erosion and Sediment Control Plan (ESCP) developed by the Site Soil Conservationist. The plan would consider topography, flow direction and stormwater infrastructure with site-wide erosion and sediment controls detailed to cater for site specific conditions - (See Appendix A)	PER	Prior to start of works
The risks associated with the management of erosion and sedimentation in relation to particular construction activities are to be identified, and mitigation controls elected in accordance with the JH Safety, Quality & Environment Risk Management Procedure.	SM / PER	Prior to start of each construction activity
As works proceed throughout construction staging, the ESCP is to be amended where necessary to be relevant and effective for site conditions and active work areas.	PER	At all times
<p>Design and installation of erosion and sediment control devices would be undertaken in accordance with the document Managing Urban Stormwater – Soils in Construction Volume 1 ‘Blue Book’ (2004, Landcom). Controls are to be downstream of exposed or disturbed areas and adjacent to the on-site stormwater drainage lines and located within the project footprint upstream of Kippax Lake. Erosion and sediment controls are to consider the management of stormwater and flood flows for small and large sized events, including, but not limited to a 1 in 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI</p> <p>Examples of erosions and sediment controls to be implemented may include, but are not limited to:</p> <ul style="list-style-type: none"> • Physical demarcation of ‘no-go’ zones in order to retain existing vegetation / groundcover; • Reinstating groundcover and progressively stabilising disturbed areas once works are complete in a zone or area; • Sediment basins; • On-site detention (OSD) structures such as Driver Avenue existing OSD and Fox Studio box culverts (via SG basement); • Clean and dirty water diversion drains; • Rock checks within diversion drains; • Sandbags, gravel socks and/or geo-fabric; • Sediment fences; and • Sterile straw bales and/or coir logs. <p><i>Note: The 5 day, 85 percentile rainfall limit under the ‘Blue Book’ is 38.8mm for the site</i></p>	PER	Prior to commencement of construction works, Site Establishment activities and maintained and at all times thereafter.
<p>Appropriate controls for erosion and sediment control should be determined by considering:</p> <ul style="list-style-type: none"> • Local climatic conditions and seasonal variations; • Soil types, particularly dispersive, sodic and saline soils; • Local hydrology affecting the construction zone; • Local drainage, including temporary and overland flow paths and quantities Availability of existing onsite structures (OSD) 	PER	At all times

Design and Planning	Staff Responsible	When
Construction stormwater diversion, disposal and drainage from the development are to be designed in the Erosion and Sediment Control Plan (ESCP) in accordance with Australian Rainfall and Runoff – A Guide to Flood Estimation, Volumes 1 and 2 (1987); SA/NZA 3500 3.2 National Plumbing and Drainage Part 3.2: Stormwater Drainage – Acceptable Solutions, and; Managing Urban Stormwater - Soils in Construction Volume 1 'Blue Book' (2004, Landcom).	PER	Undertaken as part of the Stage 1 contractors works.
Erosion and sediment controls should be designed to direct run-off away from the superstructure and direct flow towards Driver Avenue.	PER	Prior to start of works – Site Establishment activities
Following rain events, the effectiveness of erosion and sediment controls to be reviewed, controls adjusted accordingly, and plans updated as required.	PER	Throughout works
ESCP's would be periodically updated by the PER following significant change in site conditions during civil works. These would be reviewed in consultation with the Soil Conservationist.	PER	Civil works

Pre-construction	Staff Responsible	When
An initial ESCP developed by a recognised Soil Conservationist would be developed for the Project.	PER	Prior to commencement of construction
Erosion and sediment controls are to be installed in accordance with the approved ESCP(s).	PD / SM / PER	Prior to commencement of construction works and until site reaches stabilisation
A stabilised construction access / egress will be established where construction traffic enters or leave from a public road.	PD / SM	At start of works
Stabilised access would include wheel wash facilities for the duration of the civil works on-site.	CM	Civil works
Clearing of vegetation shall be planned in accordance with approved design documentation and undertaken in a staged manner to ensure a minimum amount of bare ground is exposed at any one time.	PD / SM	At start of works
Clearly mark out the development footprint including signage to ensure clearing and earthworks remain within these boundaries.	SM / PER	At start of works

Plant Movement and Access	Staff Responsible	When
Vehicles are to remain on the designated roadways and observe the speed limits.	All personnel	At all times
During civil and excavation works, plant will be required to park in designated lay-down zones when not in use, located in a central location on the site and beyond the 1% AEP (Annual Exceedance Probability) flood line where significant rain events are predicted.	FM / PER	At all times

Plant Movement and Access	Staff Responsible	When
During periods of wet or hot and dry conditions, construction activities and plant movements to be limited such as to minimise the movement of vehicles on site during these periods.	SM / FM	As required
Tracking of spoil, mud or the like will be required to be monitored daily, and if occurring, consider installation of additional controls such as rumble grids to reduce entrained material on tracks and tyres.	SM	Daily
Spoil, mud or the like spilt onto internal sealed roads to be removed within a reasonable timeframe through use of a street sweeper or other means.	SM / FM	At all times

General Requirements	Staff Responsible	When
Washout facilities must be in place and used for cleaning plant and equipment, concrete, paint, or other environmentally hazardous substances.	PER	At all times
Water diversion controls must be in place to prevent water entering the work area to minimise erosion and prevent pollution.	PER	At all times
Areas of exposed earth must have erosion and sediment controls designed, installed, maintained and continually monitored for effectiveness.	PER	At all times
The Erosion and Sediment Control Plan would be updated where required by the Environmental Team as the site changes through construction staging.	PER	As required during earthworks
All project personnel shall be made aware of erosion and sediment control devices and equipment at induction and the ESCP is to be displayed in prominent location at site sheds.	FM / PER	At induction and at all times
All project personnel to be made aware of the use of available spill kits in response to spills and/or leaks.	PER	At induction
Erosion and sediment controls shall be cleaned or replaced prior to accumulated sediments and obstructions reducing their effective operating capacity by 60%. Controls which are damaged or otherwise rendered ineffective shall be immediately replaced.	FM / PER	At all times
Prolonged open excavations shall have berms and/or diversion drains on their perimeter to divert overland storm water runoff away from the excavation. Where appropriate, utilise sandbags and/or geofabric to reduce flow velocity and minimise erosion within the drainage channel.	SM / FM / PER	At all times
Erosion and sediment control decisions shall be made to encompass reasonable and practical prevention, and will consider the receiving environment, water quality objectives, quality and quantity of water, location and accessibility, and other requirements.	SM / PER	At all times
All stormwater drainage inlets within the site and other discharge points where there is potential for sedimentation to occur as a result of construction activity shall be protected by geofabric and/or sandbags as appropriate in accordance with the ESCP.	FM / PER	At all times
The PER will provide direction for the location, installation, maintenance and removal of erosion control devices in accordance with the ESCP.	PER	At all times
Any trenches excavated will be backfilled as soon as practicable after services have been laid.	FM	At all times
Connect downpipes to the stormwater drainage system as soon as roofing is completed.	FM	Once roofing is completed

General Requirements	Staff Responsible	When
Concrete washout activities will be carried out within designated sealed bunded areas or carried out off-site. All construction water will either be treated to appropriate levels for reuse or be removed from site to an appropriately licensed facility.	PER/CM	During concrete works

Stockpiling, Stabilisation, Rehabilitation and De-mobilisation	Staff Responsible	When
Suppress earthworks, batters, access tracks and other exposed areas with a bonding agent or water on dry windy days to minimise soil erosion and dust in accordance with requirements in the Construction Air Quality Management Sub Plan.	SM / PER	At all times
Long term (greater than 28 days) non active stockpiles, batters and other erosion sensitive areas shall be adequately stabilised through velocity reduction covering, grassing, vegetation, soil binding, water diversion or other as appropriate.	SM / PER	At all times
Where suitable, sediment fencing shall be installed around the perimeter of exposed/disturbed soil stockpiles and at the toe of exposed batters.	SM / PER	As appropriate
Stockpiling locations will be outside the drip line of trees and will be kept on non-permeable surfaces.	SM	At all times
Stockpile locations will be in areas not prone to flash flooding and away from drainage lines and diversion drains as far as practicable.	SM	At all times
Imported materials, and excavated materials of different types must be separately stockpiled, stabilised and/or bunded, and clearly labelled with laminated sign on star picket.	SM / PER	At all times
All imported material will be sampled in accordance with section 12.1 of the RAP	PER Subcontractor	At all times
All imported material will be recorded on a truck running sheet that will record time, date, truck registration, truck size (volume), source site and visual description of material. The placement location on site will be recorded.	SM / PER / PE Subcontractor	At all times
All material for export is to be managed in accordance with NSW Waste Classification Guidelines (NSW EPA, 2014). All exported material will be sampled in accordance with section 12.1 of the RAP	PD / SM / PER	At start of works and throughout the works
Rehabilitate areas progressively throughout construction, as activities are complete in areas, and immediately on completion of works where practicable.	SM	Throughout the works and on completion of works

Imported Soil	Staff Responsible	When
Soil will be imported in accordance with the procedure in Appendix F.	PER/SM	At all times
Imported soil must be VENM, ENM, meet a current resource recovery exemption or other material approved in writing by EPA. All imported material must approved by the Site Auditor.	SM / PER	At all times
Imported material will be sampled in accordance with Section 12.1 of the RAP.	PER Subcontractor	At all times
Imported topsoil for the playing field inside the stadium must meet the Recreational / Recreational Open Space criteria defined in Schedule B1 of the National Environmental Protection Measure, As Amended (NEPC, 2013).	SM / PER	At all times
All imported material will be recorded on a truck running sheet that	SM / PER / PE	At all times

will record time, date, truck registration, truck size (volume), source site and visual description of material. The placement location on site will be recorded.	Subcontractor	
Maintain accurate records of the volume and type of material(s) imported to site. These records are to be made available to the Department and the Certifying Authority upon request.	SM / PER	At all times

Potential Acid Sulphate Soils (PASS)	Staff Responsible	When
The results of testing and the understanding of the history of the formation of these soils on site do not indicate the typical formation of Acid Sulphate Soils. This is because the soils do not contain sulphides and are non-estuarine in origin. The NSW Office of Environment and Heritage Acid Sulfate Soil Risk Map does not identify the site as being at risk of acid sulfate soils, or for these soils as being in vicinity of the site. The site is also not mapped as being at risk of soil salinity, and the data acquired from bores demonstrates that salinity levels are indicative of 'fresh' water quality. If Acid Sulphate Soils (ASS) or Potential Acid Sulphate Soils (PASS) are thought to be uncovered throughout construction, these will be dealt with under the unexpected finds protocol (Appendix D).	PD / PER	Prior to commencement of works.

Management and Removal of Excavated Materials	Staff Responsible	When
Excavated materials of different types must be segregated, stockpiled, stabilised and/or banded, and clearly labelled with laminated sign on star picket.	PER	At all times
Topsoil will be stockpiled separately from other materials on site.	SM / FM	At all times
Topsoil will be reinstated as soon as practicable.	SM / FM	At all times
Dispersive (sodic) soils to be treated and managed appropriately to address its stability, structure and potential mixing with adjacent materials.	SM / FM	At all times
All stockpiles to be inspected immediately following the cessation of rainfall to assess stability and remedial works undertaken as soon as safe to do so.	SM / FM	Post Rainfall
Replace soils in their original order if excavations are undertaken to ensure that materials are buried appropriately.	SM / FM	At all times
Re-direct water away from areas where dispersive (sodic) subsoils have been exposed or stockpiled.	SM / FM	At all times
Bulk earthworks on-site will not commence for Stage 2 activities until the erosion and sediment controls are in place as per the ESCP for the works.	SM / PER	At start of works
All contaminated and non-contaminated material to be excavated onsite shall be managed in the following manner: <ul style="list-style-type: none"> Where disposal is required off-site, material is to be managed in accordance with NSW Waste Classification Guidelines (NSW EPA, 2014). Re-use / Placement elsewhere on site, material is to be managed in accordance with NEPM (Assessment of Site Contamination) 1999. Any material that contains asbestos would be classified as Special Waste – Asbestos if being removed from site. Special Waste Asbestos is to be tracked with NSW EPA WasteLocate to comply 	PD / SM / PER	At start of works and throughout the works

Management and Removal of Excavated Materials	Staff Responsible	When
with clause 79 of the Protection of the Environment Operations (Waste) Regulation 2014.		
The widespread presence of ash in the filling allows the soil to be classified on the basis of the leachable concentrations of PAH and Benzo(a)pyrene in accordance with the General Approval of the Immobilisation of Contaminants in Waste 1999/05 issued under Clause 101 of the Protection of the Environment Operations (Waste) Regulation 2014.	PER	At all times
If excavations uncover or are suspected to have uncovered contaminated soils (including asbestos or ASS / PASS) due to staining/odours, works are to cease immediately in the area and the SM and PER contacted and the unexpected finds protocol (Appendix D) followed. Specialist advice may be required to test and classify soils.	PER / SM	At all times
Movement of material off-site would be undertaken as part of waste tracking procedures under the waste management plan and as the procedure in Appendix G	PER	At all times
All materials leaving the site will be recorded on a tracking sheet which will be reconciled with landfill dockets.		
All contaminated spoil and/or materials will be contained in appropriate contaminated waste containers or bins prior to remediation or offsite disposal at an appropriately licensed facility. If material is unable to be contained, it will be stockpiled on a bunded, impermeable surface and covered.	PER / SM	Where contamination is encountered
Implement any control measures required to divert surface water run-off away from contaminated materials onsite, and appropriately manage any surface run-off water exposed to contaminated material.	PER/SM	Where contamination is encountered

Materials Handling and Storage	Staff Responsible	When
When planning the location of facilities, plant laydown areas, refueling areas, stockpiles, or chemical storage areas that drain towards surface water (i.e. Kippax Lake) or stormwater systems must be avoided in order to minimise risk of pollution. Any higher risk items (i.e. Generators) must be in a bunded location.	SM / PER	At all times
All fuels, chemicals, and liquids will be stored at least 20 meters away from waterways (including existing stormwater drainage system) and will be stored in a sealed bunded area.	SM/PER	At all times
Chemicals and fuel must be labelled and stored in accordance with the safety data sheets (SDS) requirements and JH Hazardous Substances and Dangerous Goods Procedure.	SM / FM / PER	At all times
Spill kits and fire response equipment must be located where chemicals and fueled plant or equipment is being stored, operated or maintained.	FM	At all times
No refuelling, stockpiling or chemical storage to occur near stormwater drainage pits.		At all times
Refuelling activities would be conducted in accordance with an approved TRA.	FM	At all times
The location of spill kits will be provided on the Site Environmental Plan.	PER	At all times
Spill kits (site kits or plant kits) to be located in close proximity to machines refuelling or chemical storage locations.	FM	At all times
A copy of the EPA Storing and Handling Liquids: Environmental Protection Participants Manual will be kept onsite for the duration of the	PER	At all times

project (this document supersedes EPA Bunding and Spill Management Guidelines).		
A site-specific Emergency Response Plan will be developed for the project, with consideration of spill response management.	PER / PM	Prior to works commencing

Dewatering and Discharge	Staff Responsible	When
In the event that groundwater is intercepted during construction works and dewatering is required, written approval and relevant licences must be obtained from the relevant authorities (such as the Water Group within the Department (i.e. DPIE) or Council's Public Domain Unit for any discharge of groundwater into Council's stormwater system)	PER	If dewatering of groundwater requires discharge from site and prior to discharge
All dewatering systems must be planned and monitored to avoid spills, overflows and pollution.	PER / SM	Prior to works commencing and throughout the works
All run off emanating from the site must be effectively filtered or otherwise treated so that the water quality meets water discharge limits specified in Section 4.2.	PER	At all times
No discharge of surface or groundwater is to occur unless the water quality is within project Water Quality limits set out in Section 4.2. Where compliance with Water Quality limits is not met, water shall be treated as per corrective actions in Section 10. Field testing by the PER shall record compliance with project WQOs prior to discharge.	FM / PER	At all times
Dewatering activities shall not take place unless a Dewatering Permit (Appendix C) has been obtained and completed to the satisfaction of the PER.	PER	At all times
All personnel involved in discharge of water from site would be appropriately trained including in monitoring, treatment and discharge requirements. All dewatering will be as per Dewatering Permit (Appendix C).	PER	At all times
Wet Weather Events (Stormwater & Flooding)	Staff Responsible	When
Daily monitoring and long-term forecasting of activities referencing Bureau of Meteorology forecasts and NSW rain and river data and flood warnings. Relevant information is to be conveyed in toolbox talks and on-site notice boards and construction activities re-scheduled where necessary.	SM	At start and throughout the works, daily.
Where practically possible, working and storage areas and any proposed stockpile sites would be located above the 100-year ARI peak flood level.	SM / FM / PER	At all times
Temporary works such as hardstand areas and access tracks are to be designed, constructed and maintained to withstand flooding.	SM	Prior to works commencing and throughout the works
Erosion and Sediment control measures are implemented as per Appendix A – Site Specific ESCP.	SM	Prior to works commencing and throughout the works
Ensure constructed access tracks are free draining from crown of track, to shoulder edge to decrease delays from re-access following wet-weather events and carry out temporary repairs to access tracks to reduce long term damage where possible.	SM	Prior to works commencing and throughout the works

Dewatering and Discharge	Staff Responsible	When
<p>Implement non-structural measures to wet-weather response onsite. These measures do not change flooding behaviour but alter how people and property are affected by wet-weather events. The following mitigation measures would be implemented:</p> <ul style="list-style-type: none"> a) Wet-weather and flood awareness training b) Pre-start briefings / toolbox talks held daily and summarising the forecast predictions provided by Site Manager c) Daily monitoring of weather conditions and long-term forecasting of construction activities. 	PER / SM / PD	Prior to works commencing and throughout the works
Work should not take place during or after heavy rain when doing so is likely to cause soil erosion or soil structural damage or result in indirect impacts to any neighboring vegetation or riparian corridors.	SM	At all times
Following rain events (+20mm over 24hrs), the effectiveness of erosion and sediment controls to be reviewed, controls adjusted accordingly, and plans updated if required.	PER	Following rainfall event
<p>Specific measures to manage flood flows for small and large sized events, including, but not limited to 1 in 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI include:</p> <ul style="list-style-type: none"> a) storage of hazardous materials away from flow paths and known drainage channel b) layout of site compound facilities to take into consideration of the flow paths c) ensure evacuation routes are kept clear during high risk periods d) ensure loose materials, fuel, chemicals and equipment can either be secured or removed during a flood event if required. e) Refer also to Appendix E for further measures. 	FM /CM	As required

Management of Fine Particulates to sensitive areas (Stormwater Entrainment)	Staff Responsible	When
Implementation of the mitigation, management and monitoring measures as detailed in the Construction Air Quality Management Sub Plan (CAQMSP) will support the effort to ensure fine particulates (and dust in general) is not deposited in areas where it can be entrained in stormwater runoff.	SM / FM / PER	Prior to works commencing and throughout the works
In terms of soil and water management, temporary swale drains and temporary sediment basins will be designed in accordance with applicable guidelines e.g. Blue Book (Landcom, 2004). Basins and temporary swale drains will be appropriately lined to prevent infiltration of fines to groundwater or impacts on downstream sensitive areas.	SM /FM / PER	Prior to works commencing and throughout the works
<p>Where feasible and reasonable, catchment areas outside the main civil footprint may be broken up into catchment areas (and within work zones where appropriate) to reduce the risk of fine particulates leaving site and impacting on Kippax Lake, downstream properties and groundwater resources. Measures employed may include but not limited to:</p> <ul style="list-style-type: none"> • Temporary stabilisation or revegetation/management works to reduce the extent of disturbed surfaces • Application of temporary surface treatments or blanketing on exposed earth surfaces • Sediment barriers 	SM/FM/PER	During earthworks

Management of Fine Particulates to sensitive areas (Stormwater Entrainment)	Staff Responsible	When
<ul style="list-style-type: none"> Stabilised drainage lines incorporating rock check dams at regular intervals Multiple temporary sediment sumps will be created within boxed out/disused (cricket nets) areas to minimise the risk of all onsite dirty water running to live stormwater pits during rainfall. <p>Measures would be detailed in the ESCP for the works.</p>		
Sediment controls will be de-silted (cleaned out) as required within 5 days following rainfall to ensure they have adequate capacity and are ready for the next rainfall. Material removed from sediment controls will be placed on a stockpile or into general fill.	SM / FM / PER	During works
The existing site infrastructure (former swimming pool) would be utilised as a temporary basin during earthworks. Where the pool is decommissioned or unable to be utilised, appropriate basin storage would be employed to meet the 5 day, 85 percentile event (38.8mm).	SM/FM/PER	During earthworks
All stormwater drainage inlets and other discharge points where there is potential for sedimentation to occur as a result of construction activity shall be protected by geofabric and/or sandbags as appropriate.	SM / FM / PER	Prior to works commencing and throughout the works
Sediment controls such as sediment fences, check dams, inlet protection, mulch bunds, coir logs or sediment traps will be installed around the lower perimeter of work areas where dirty onsite water could run off.	SM / FM / PER	Prior to works commencing and throughout the works
Use geotextile linings, black plastic, organic fibre matting, rock or similar to provide temporary surface protection in areas of concentrated flows (e.g. working platforms).	SM / FM / PER	During works
As much as possible, separate 'clean' (offsite) run-on water from 'dirty' (onsite) construction area runoff. All dirty water must be graded to or directed to sediment controls.	SM / FM / PER	Prior to works commencing and throughout the works
Construction Activities would be staged and managed to ensure no sediment is transferred to the adjacent streets or introduced into the existing stormwater drainage lines which could impact on Kippax Lake.	SM / FM / PER	Prior to works commencing and throughout the works
Other sediment control measures to be implemented (as appropriate) include sediment fences, straw bales, coir logs, fabric stocking sediment traps around existing pit/drain inlets, diversion banks and truck shaker grids at points of exit.	SM / FM / PER	Prior to works commencing and throughout the works
John Holland has engaged a Certified Professional in Erosion and Sediment Control (CPESC) to support its development of an overarching Erosion and Sediment Control Plan (ESCP). The preliminary ESCP is provided in Appendix A.	PER	Prior to works commencing and as required throughout the works.

8 Monitoring

Monitoring Required	Staff Responsible	When
General observations for the daily management of erosion and sediment controls shall be documented in site dairies.	FM	Daily as required
Regular visual water quality checks in stormwater pits on-site and Kippax Lake (for turbid plumes and hydrocarbon spills or) will be carried out on a weekly basis and post rainfall event during civil construction activities. If a plume or spill is detected, it would be investigated to determine the source and if attributable to the Project.	FM	As required
Regular inspection of erosion and sediment controls shall be undertaken using the Weekly Environmental Management Inspection Checklist and uploaded to Project Pack Web.	PER	Weekly and during and after storm events >10mm in 24 hours
Effectiveness of erosion and sediment controls shall be regularly reviewed for adequacy having regard for changing circumstances.	PER	Throughout works
The project specific Discharge Checklist is to be used prior to discharge of water from site where and records to be kept in Project Pack Web. Monitoring of water quality is to be undertaken in accordance with Appendix B – Water Quality Management Sub-Plan (WQMP).	FM / PER	Prior to discharge
Prior to any off-site discharge, water to be tested and adjusted as appropriate to meet WQO limits as specified in Section 1.4.3 of the water quality management Appendix.	FM / PER	Prior to discharge
Water quality monitoring results to be maintained in John Holland document management system (Project Pack Web) and made available to agencies upon request.	PER	As required

9 Reporting

Reporting Required	Staff Responsible	When
Details of field observations shall be reported via the Enviro Inspection Checklist, and communicated to all staff during pre-starts, toolbox and/or team meetings.	PER / SM	All times
All complaints / incidents regarding soil & water shall be reported immediately to the PER.	All staff	Following receipt of incident/ complaint
The Project Director shall be notified immediately of all incidents and valid complaints. Relevant JH procedures for incidents and complaints handling reporting shall be followed.	PER	Following receipt of incident/ complaint
JH Operations HSE Team is to be immediately informed of any incident that has caused or is likely to cause material harm to the environment and will advise on the notification of relevant regulators and stakeholders (As required by the Protection of the Environment Operations Act 1997).	PD / PER	Following incident
The JH Project Director shall notify the client of all significant incidents and valid complaints, verbally within 2 hours, and in writing within 24 hours.	PD	Verbally within 2 hours, and in writing within 24 hours
All monitoring results are to be recorded on the John Holland internal record system (Project Pack Web). Agencies will be provided results if requested,	PER	Throughout works
A summary of soil and water management to be included in the project monthly environmental report and issued to the Project Director.	PD / PER	Monthly
A summary of incidents, valid complaints and monitoring results (if any) shall be provided monthly to the client and include the actions that were taken to address the incident/complaint.	PD / PER	Monthly

10 Corrective Action Plan

Problem	Suggested Corrective Action
Contamination of surface water identified.	<ul style="list-style-type: none"> Associated construction activities to cease immediately upon becoming aware of an environmental incident. Manage the incident in accordance with JH Incident Management and Investigation Procedure and comply with Conditions of Consent. Revision of construction activities and further mitigation measures to be considered and implemented as appropriate to prevent further environmental harm from occurring.
Sustained exceedance of water quality criteria	<ul style="list-style-type: none"> Investigate and identify potential sources causing the exceedance. Control the source. Clean up or rehabilitate any impacts. Implement appropriate controls. Review construction methods, control effectiveness and device design. Report exceedance to Client.
Poor quality of erosion and sediment controls	<ul style="list-style-type: none"> Repair/reinstate controls. Review maintenance, staff responsible and resources.
Spills or leaks of chemicals or hydrocarbons	<ul style="list-style-type: none"> Spills/leaks to be contained, cleaned up and reported. Spill kits to be used as appropriate. Review refuelling/plant maintenance practices and modify if appropriate.
Failure of erosion and sediment controls	<ul style="list-style-type: none"> Repair or replace controls. Clean up or rehabilitate any impacts. Evaluate failure, investigate alternative controls, site, soils and required water quality levels.
pH levels outside WQO	<ul style="list-style-type: none"> <i>pH under WQO</i>: increase the pH by adding a base such as agricultural lime. Note. Aglime can take time to become soluble. Other, more soluble products may be available. <i>pH over WQO</i>, lower the pH by adding hydrochloric acid. As a guide, 500mL hydrochloric acid lowers 7000L of water by a pH of approximately 1.5pH. To apply the acid safely all safety requirements specified in SDS and Safety Plans must be followed. When adjusting water levels any additive should be evenly dispersed throughout. Limit the amount of adjustments done as this may affect other water qualities. Determine the correct adjustment amounts first and apply accordingly and sparingly.
Turbidity outside WQO	<ul style="list-style-type: none"> Either wait for the water to settle naturally or floc the water to speed up the process. Treating water with flocculent (e.g. gypsum, liquid alum or flocculent blocks) will make the sediments drop to the bottom. Where possible, follow manufacturer's instructions in the first instance. Gypsum: Can take 48hrs+ to act, should be dissolved into a slurry before dispersed into a holding tank/pond to increase its absorption/solubility. Dosing rates of 30kg per 100m³ (100,000L) can be used as a guide. Quantities should be tested prior in a sample bucket or drum.








Problem	Suggested Corrective Action
	<ul style="list-style-type: none"> ▪ Floc blocks: Can be situated in flow paths to ensure incoming water is dosed with flocculent as it enters holding pond/tank, fine tuning of flocculent can then be completed on the pond/tank. Floc blocks should not be left permanently in a pond/tank, instead they should be in a flow path leading to the pond/tank that is dry when no water is flowing into the system. ▪ Liquid alum: Only to be used in accordance with manufacturer's specifications, or residual alums test conducted prior to discharge. ▪ Synthetic flocculants: Many products are available for flocking purposes, when using other products, ensure they are environmentally friendly and suitable for your application. ▪ Always re-test pH levels after you have allowed the flocculent to work and adjust accordingly. Most flocculants will lower the pH level and lime may be required. Avoid over-flocking. ▪ Remaining flocked sediment can turn into a thick jelly consistency over time. If pH levels are acceptable and no visible hydrocarbons, this sediment may be thinly dispersed somewhere on-site and seeded.
Contaminated soils (if identified)	<ul style="list-style-type: none"> ▪ Associated construction activities to cease immediately upon becoming aware of contamination. ▪ Notify the Site Auditor. ▪ Manage the removal of contaminated soils from site in accordance with regulatory approvals. ▪ Revision of construction activities and further mitigation measures to be considered and implemented as appropriate to prevent further environmental harm from occurring.


Appendix A - Sydney Football Stadium Erosion Sediment Control Plan (ESCP)

John Holland Group (JHG)
PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN
Sydney Football Stadium Redevelopment (SFSR)

GENERAL NOTES:

1. THIS PLAN TO BE READ TOGETHER WITH RELEVANT ENVIRONMENTAL DOCUMENTATION (eg SWMP).
2. WEATHER FORECASTS TO BE REGULARLY MONITORED.
3. PRIORITY TO BE PLACED ON THE CONSTRUCTION OF PERMANENT DRAINAGE WORKS FOR 'CLEAN' WATER MANAGEMENT
4. 'CLEAN' AND 'DIRTY' OR CONSTRUCTION RUNOFF TO BE SEPARATED WHERE POSSIBLE.
5. SEDIMENT BASIN AND 'CLEAN' AND 'DIRTY' WATER DRAINS TO BE CONSTRUCTED IMMEDIATELY AS PERMITTED
6. TEMPORARY EROSION AND SEDIMENT CONTROLS TO BE INSTALLED PRIOR TO SITE DISTURBANCE WHERE REASONABLE AND FEASIBLE.
7. STOCKPILE LOCATIONS ARE INDICATED ON THE PLAN WHERE RELEVANT WITH TEMPORARY CONTROLS AS NECESSARY (eg SEDIMENT FENCES)
8. THE DIVERSION OF 'DIRTY' RUNOFF TO THE SEDIMENT BASIN AND TRAPS IS TO BE MAXIMISED.
9. THE SEDIMENT BASIN TO BE MANAGED IN ACCORDANCE WITH THE SWMP (eg FLOCCULATION, TESTING & DISCHARGE OR REUSE).
10. PIPELINE INLET AND OUTLET PROTECTION TO BE CONSTRUCTED IMMEDIATELY AFTER PIPE OR BOX UNIT INSTALLATION (eg. HEAD & WING WALLS, DISSIPATORS).
11. THE LOCATIONS OF TEMPORARY CONTROLS ON THIS PLAN ARE INDICATIVE ONLY WITH ACTUAL SITES TO BE DETERMINED DURING WORKS.
12. TEMPORARY CONTROLS IN ADDITION TO THOSE SHOWN ON THE DRAWINGS TO BE CONSTRUCTED AT 'KEY' LOCATIONS AS REQUIRED AND CONSIST OF:
: EROSION CONTROLS (eg WINDROWS ON CONTOURS TO REDUCE SLOPE LENGTH AND SURFACE FLOW VELOCITIES); and
: SEDIMENT CONTROLS (eg SEDIMENT FENCE).
13. DISTURBED AREAS ARE TO BE PROGRESSIVELY STABILISED.
14. CONTROLS REMOVED OR DISTURBED DURING WORKS TO BE REINSTATED PRIOR TO FORECAST RAIN AS PER MANAGEMENT PLANS.
15. ADEQUATE TIME TO BE PERMITTED TO 'SECURE' THE PROJECT PRIOR TO FORECAST RAIN.
16. DEWATERING OF EXCAVATIONS TO BE CONDUCTED AS PER THE REQUIREMENTS OF THE SWMP.
17. DUST TO BE CONTROLLED ON SITE WITH CONTROLS SUCH AS WATER CARTS AND OR LIMITING VEHICLE SPEEDS.
18. TEMPORARY CONTROLS TO BE INSPECTED REGULARLY WITH MAINTENANCE/REPAIRS UNDERTAKEN AS REQUIRED.
19. THIS PLAN HAS BEEN PREPARED AS PER 'BLUE BOOK' GUIDELINES AND STANDARD DRAWINGS – VOLUME 1.
20. THIS PLAN IS TO BE REVISED WHEN REQUIRED (CHANGE IN CONSTRUCTION METHODS AND / OR SITE CONDITIONS)

LEGEND	
Clean water flow arrow	
Dirty water flow arrow	
Sediment fence	
Sediment Basin	
Construction entry / exit	
Sediment trap (coir logs)	
Clean water pits	
Stormwater pits	

PLAN NO	PREPARED BY	DATE	COMMENTS	DATE	REVIEWED BY	DATE
1	G Fletcher (TREES P/L) CPESC 7556	14.1.2020 	PLAN PREPARED FROM INSPECTION WITH JHG AND LENDLEASE	14.1.2020	Matthew Stephenson	
2	J Wright (TREES PL)	30.3.2020	PLAN PREPARED FROM INSPECTION ONSITE WITH JHG	11.3.2020		

SPECIFIC NOTES:

1. THIS PLAN IS PREPARED FOR JHG FOR EARTHWORKS OF THE SFSR.
2. THE PRIMARY CONTROL OF 'CLEAN' & 'DIRTY' RUNOFF SEPARATION TO BE IMPLEMENTED.
3. SECONDARY CONTROLS TO BE PUT IN PLACE FOR TREATMENT OF DIRTY WATER THAT ENTERS LIVE PITS / PIPELINES.
4. MAINTAIN / REPLACE COIR LOGS AROUND THE BOUNDARY AS REQUIRED.

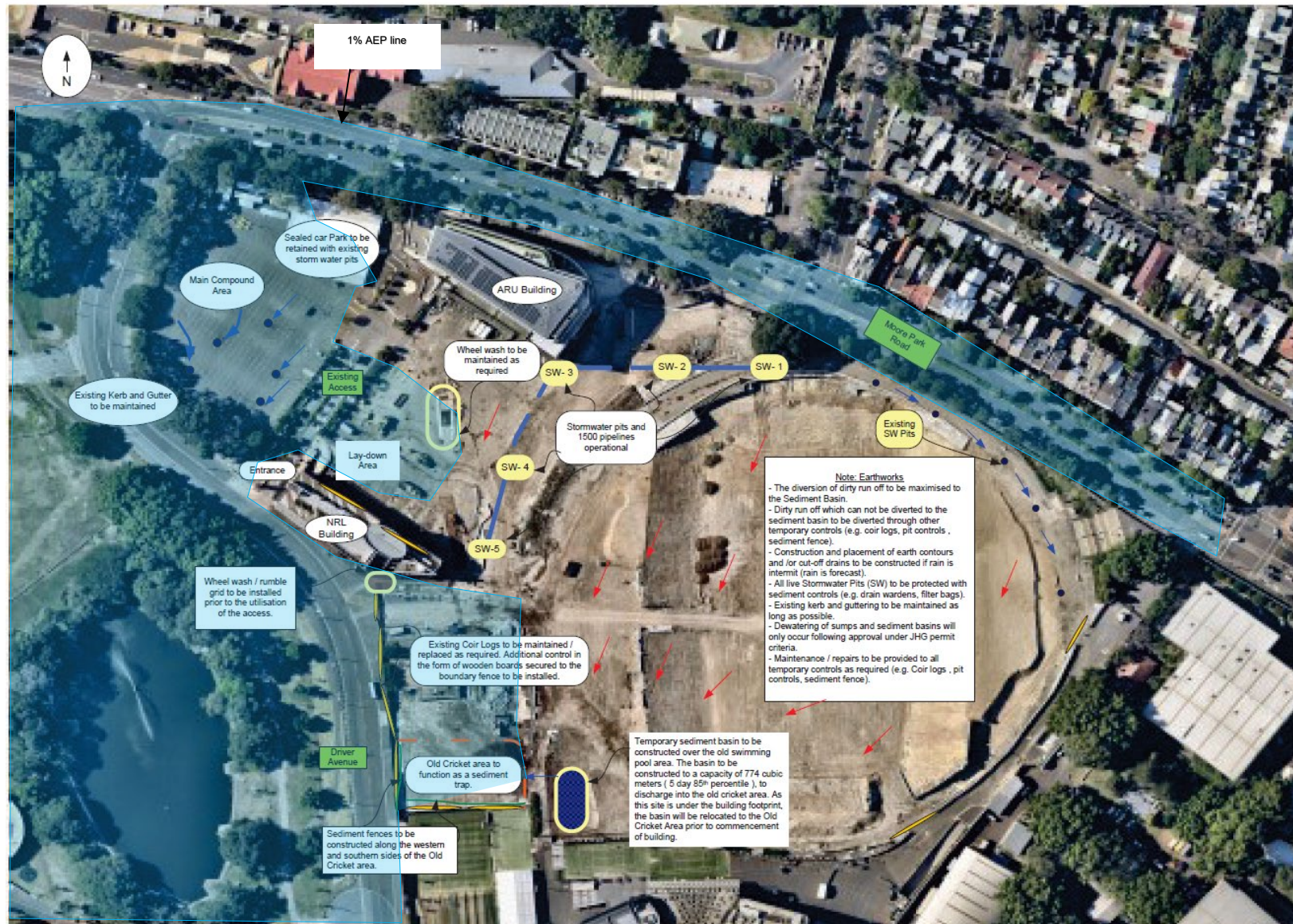
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Issue Date: 12/04/2020

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Appendix B – Water Quality Management

1.1 Scope

This Construction Soil and Water Management Plan (CSWMSP) Water Quality Management Sub-Plan is applicable to all construction phase works associated with the Sydney Football Stadium (John Holland and subcontractors). The Water Quality Management Sub-Plan (WQMSP) forms an appendix to the Construction Soil and Water Management Plan (CSWMSP).

1.2 Objectives

The objectives of this Water Quality Management Sub-Plan are to:

- Provide a summary of the surface and groundwater investigations completed to date;
- Provide monitoring techniques to ensure that the quality of water within the detention / settling ponds complies with the applicable standards within the Managing Urban Stormwater – Soils and Construction Volume 1 (4th Edition March 2004) – “The Blue Book”
- Provide methods for testing the water quality (suspended solids, turbidity and contaminants) prior to discharging from the site into the stormwater infrastructure on Driver Avenue, to ensure compliance with the applicable standards within the Managing Urban Stormwater – Soils and Construction Volume 1 (4th Edition March 2004) – “The Blue Book”, and;
- Provide methods of evaluating the water quality testing results by a suitably qualified water quality expert.
- Through implementation of the above, manage and reduce the impact of construction activities on the environment in accordance with the site-specific Construction Environment Management Plan (CEMP) and Construction Soil and Water Management Plan (CSWMSP).
- Address parts B25(i)-(k) of SSD 9835.

1.3 Existing Environment

1.3.1 Surface Water

The site is largely surrounded by Centennial and Moore Parks, the Fox Studios and Entertainment Quarter precincts and the residential suburb of Paddington. Located approximately 3km from the Sydney CBD and approximately 2km from Central Station, the site is connected to Sydney’s transport network through existing bus routes and will benefit from a dedicated stop on the soon to be completed Sydney CBD and South East Light Rail.

There are no rivers, streams or estuaries within the development footprint. However, Rushcutters Creek is present at the outer northern edge of the 1500 metre landscape buffer which drains to the harbour at Rushcutters Bay. Lake Kippax is present to the west of Driver Avenue and there are several lakes present within the 1500 metre buffer in the Centennial Parklands including Busbys Pond, Randwick Pond, and Duck Pond. Lake Kippax is shown in relation to the project footprint in Figure 1 below.

There are no important wetlands (SEPP44 or RAMSAR sites) present in the development footprint, 1500 metre buffer or downstream of the project.

1.3.2 Flooding

The site is located within the Centennial Park catchment area in the City of Sydney Council Centennial Park Flood Study (April 2016) as being subject to flooding in each instance from a 2-year Average Recurrence Interval (ARI) up to a 100-year ARI event with significantly deeper and more widespread flooding occurring during the Probable Maximum Flood (PMF) event.

1.3.3 Groundwater

Natural ground levels in the area slope downwards to the south-west. Surface levels vary from about RL 52 m AHD in the north-eastern corner of the site to RL 40 m AHD along the western boundary (Douglas Partners, 2019). The landform has been altered and retaining walls have been constructed in and around the Site. The Site is close to a boundary between Quaternary-aged marine sands and Hawkesbury Sandstone. The marine sands are transgressive dunes that comprise fine to medium-grained sand with podsols. Hawkesbury Sandstone typically comprises medium to coarse-grained quartz sandstone with minor shale and laminite lenses.

The marine sands at Moore Park form the upstream end of the Botany Aquifer which is a considerable groundwater resource between Paddington and Botany Bay.

Groundwater level varies across the Site. It was measured at RL 40.9 m AHD in the north-eastern corner which is close to the bedrock surface. The measured groundwater level drops to RL 34.0 AHD in the south-eastern corner and RL 33.0 m AHD in the south-western corner. Both levels are within the natural sand profile (Douglas Partners, 2019).

The project footprint will be slightly larger than the existing stadium as the footprint extends westwards to accommodate a larger area however the size of the new playing surface (grassed area) is similar to the existing facility. The design level of the field is RL 40.3 m AHD. The north-eastern area of the new stadium has its lowest slab level (L1) at RL 46.5 m AHD, dropping down to pitch level 50 m inside the Stage 1 SSDA Planning Envelope along the eastern side and 35 m along the northern side (Douglas Partners, 2019).

The levels are highest in the north-eastern portion of the Site where sandstone bedrock is shallowest. The inferred groundwater flow direction is towards the south-west, and groundwater is likely to flow along the bedrock surface until the rock level drops and an aquifer within the overlying soils is formed (Douglas Partners, 2019). Based on this information, it is anticipated that the groundwater table will be at least 5 m beneath both the proposed field level and L1 at its shallowest point (Douglas Partners, 2019).

Dewatering during construction of the new facility and in the long term is unlikely to be required as the groundwater is 5m or more beneath the new structures (Douglas Partners, 2019). A Dewatering Management Plan and extraction licence under the NSW Aquifer Interference Policy (2012) was therefore considered unnecessary in the ground water assessment (Douglas Partners, 2019).

Groundwater samples indicate concentrations of Copper and Zinc marginally above the adopted investigation levels, however, are considered typical of background concentrations in Sydney and are considered insignificant (Douglas Partners, 2019(a)).

Both the original and future Sydney Football Stadium (the project), and the Sydney Cricket Ground (SCG) extract bore water from the subsurface aquifer to irrigate playing fields. No change is proposed to the existing water extraction licence 24543 which permits 20 ML of water to be extracted from the Botany Sands aquifer, per water year, via a bore located within the SCG grounds for playing field irrigation (Ethos, 2019).

Note: A water year is 1 July to 30 June.

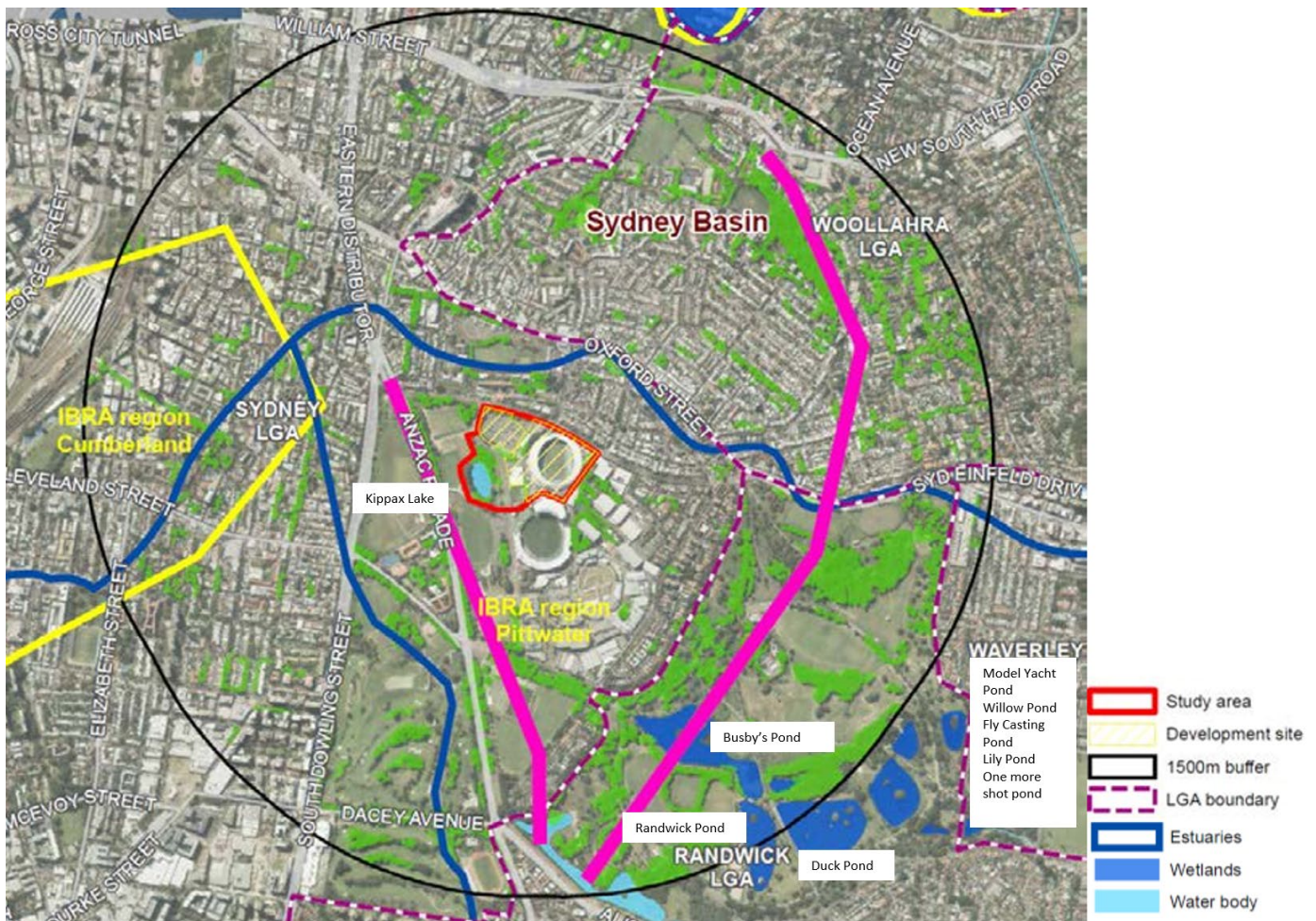


Figure 1.1 Aerial photo of the site including site boundaries and former stadium identifying surface water bodies (Source: Jacobs)

1.4 Water Quality Monitoring Methodology

1.4.1 Monitoring Scope

Water quality monitoring comprises the following components:

- a) Monitoring water quality within water storages onsite (Onsite Detention Storages);
- b) Rainfall monitoring;
- c) Monitoring of water quality within the receiving environment

All water quality monitoring is to be conducted in accordance with AS/NZS 5667.1-1998. The procedure for collecting water quality samples is presented in Section 1.4.5.

1.4.2 Discharge Monitoring

Water storages (sediment dams, turkey nests, water tanks, dust suppression carts, on-site detention basins etc.) are required to be tested in the field appropriately in accordance with the proposed receiving environment (i.e. off-site, such as discharge to watercourse / drainage line leading to watercourse, or on-site, such as dispersed discharge to land for dust suppression) prior to any necessary release.

Necessary on-site discharges may include, but are not limited to the following:

- Following heavy rainfall whereby onsite water storages are at capacity (approximately 70% filled to allow for future rainfall); and
- Dewatering of trenches or excavations that fill with rainfall.

Groundwater dewatering is not expected to be required during the project (see EIS Appendix GG – Ground Water Assessment, Douglas Partners, 2019). It is anticipated that the groundwater table will be at least 5 metres beneath both the proposed field level and L1 at its shallowest point (EIS Appendix GG – Ground Water Assessment, Douglas Partners, 2019).

To ensure water quality meets the discharge limits outlined in section 1.4.3 below, water should not be released from any source or storages to Site where these limits are exceeded.

Monitoring of water quality within storages prior to any necessary on-site release will be conducted using a hand-held multiprobe water quality meter to assess necessary parameters outlined in section 1.4.3. Oil and grease will be assessed visually for evidence of films. If oil and/or grease is identified, then this will be managed by ceasing all works generating the impacted water, containing the impacted water with a hydro-spill kit or use of a hydrocarbon sock (if necessary) and collecting a sample for required analytes as advised by the PER. Any required chemical analysis would be required to be sampled in accordance with the relevant and current national and state-based guidelines and submitted to a NATA-accredited laboratory.

The trigger levels provided below are consistent with the national framework for assessing water quality set out in the ANZG (2018) Guidelines. These Guidelines provide an agreed framework to assess water quality in terms of whether the water is suitable for a range of environmental values and are outlined below in Section 1.4.3.

1.4.3 Discharge Trigger Levels

Discharge to Watercourse / Drainage line leading to watercourse			Dispersed Discharge to Land [#]	
Water Parameter	Objective	Units	Objective	Units
pH	6.5 – 8.5	pH	6.5 – 8.5	pH
Total Suspended Solids (TSS)	<50	TSS	N/A	N/A
Turbidity	*To be determined following commencement of works and verification through sampling.	NTU		
Hydrocarbons	No hydrocarbon sheens observed	N/A	No hydrocarbon sheens observed	N/A

*Measurement of turbidity may only be used where a correlation between TSS (number and type of particles suspended in the water column) and Turbidity (NTU) (the ability of light to penetrate the water column) has been established through sampling and analysis at a NATA accredited laboratory has been established. Until this occurs, a test for TSS must be conducted as a minimum.

[#]Dispersed Discharge to land must remain within the project footprint and not interfere or meet watercourses, stormwater or drainage lines leading to watercourses.

1.4.4 Rainfall Monitoring

Rainfall will be recorded from the nearest BOM weather station and downloaded onto the project drive.

1.4.5 Water quality within the receiving environment

The following protocol would apply to all probe water quality monitoring undertaken as part of the project.

- Water quality monitoring will be undertaken in Kippax Lake on a quarterly basis. No other locations are suitable due to the lack of open water bodies and the inability to complete up and downstream monitoring. Ensure appropriate PPE is worn in accordance with the SWMS / risk-based assessment and remove any caps from the multi-probe.
- Check the calibration records for the hand-held water quality multiprobe. The meter must be calibrated before use.
- Use the handheld water quality probe to measure pH, TSS and where required, Electrical Conductivity (EC), Dissolved oxygen (DO mg/L and %) and temperature.
- Observe for sheens of oils and / or hydrocarbons and note any scents / odours. If any of these are detected or noticed, contact the PER and arrange for laboratory analysis to be carried out as outlined in Section 1.4.2 – Discharge Monitoring.
- All information is to be recorded on the form in Appendix C and transferred to an electronic register for the site to log all water quality results and dewatering / pumping of water on and offsite.

The following protocols would apply to all water quality laboratory testing undertaken as part of the project.

- Ensure appropriate PPE is worn in accordance with the SWMS / risk-based assessment and remove sample containers from transportation containers.
- Collect water samples directly into the sample bottles by hand or by means of a sampling rod where needed. If this is not possible, collect the sample using a sampling beaker, and transfer promptly to a sample container. Samples should be taken from as close as possible to the centre of a waterbody / water storage / excavation with the mouth of the samples facing upstream, where applicable.
- Sample bottles already containing a preservative should not be rinsed, reused or over filled. The bottle should always be stored in an upright position.

- Any sampling exercise should seek to avoid causing any turbulence. This may cause suspension of sediment in the water column resulting in a non-representative sample. Avoid scraping sample containers on the bed of water bodies or other structures or obstacles proximal to the sampling site.
- All containers are required to be clearly labelled with:
 - Client
 - Sampled by
 - Sample ID and Site
 - Date and Time

The same information is to be documented on field record sheets with a photo of the site taken.

- Sample containers should have caps properly secured and be labelled and packed in a suitable carrier container for transport to the analytical laboratory.
- Ensure details on the sample label and chain of custody form are complete and legible and have been recorded on a field sheet. Pack sample container in sample carrier for transport to the laboratory.
- Store samples in esky or fridge until dispatch to the laboratory. Do not exceed sample holding times, as advised by the laboratory.

1.4.6 Quality Assurance

All water quality meters should be calibrated before any field-sampling program is undertaken, or as recommended by the manufacturer. Records of calibrations during the project are to be logged by the PER. Meters that are not calibrated should not be used.

Samples of water collected are to be placed immediately in chilled containers and transported to a NATA accredited laboratory as determined by the PER under documented chain-of-custody protocols. The chain-of-custody record is to be provided with the laboratory results and kept on file.

1.4.7 Reporting and Recording of Monitoring

Where exceedances are identified, the results should be provided as soon as practicable to the SM and PER. Incident notifications and associated investigations are to be recorded in accordance with the Incident Response Management Plan and JHET (John Holland Event Tracker).

Records of monitoring events and sampling results will be coordinated by the PER and communicated to the PM. Documentation associated with water quality monitoring and recording will be managed through the project quality management system.

Appendix C – Discharge Permit

Section 1: Permit Details		Permit Number:
External Permit Required? Yes / No	If yes, specify external permit number:	
Location (Sediment Basin No. / Chainage / GPS Coordinates):	Site Environmental Plan (SEP) number:	
Proposed Start Date / Time: _____	Proposed Completion Date / Time: _____	
Receiving Water Body:		

Section 2: Water Quality Record (to be completed by authorised water quality monitoring personnel only)		
Parameter	Water to be Discharged	Receiving Water
Turbidity: (Site specific correlation to be developed if NTU used)		
Total Suspended Solids (TSS <50)		
pH: (6.5-8.5)		
Oil and Grease (nonvisible)		
Comments:		

Section 3: Permit Conditions / Approval

Mandatory Permit Conditions:

- Float the foot valve to ensure it does not sit in mud at the base of the sediment basin.
- Ensure that the water discharge point is located so that it will not cause erosion and re-suspension of sediment.
- Check the discharge regularly to ensure it remains clear of visible sediment and appears clean. The person issuing this permit must test water quality in the receiving water on an hourly basis
- Cease dewatering immediately if water quality in the receiving waterway is adversely affected or if a turbidity plume is visible.

(Hand write any additional conditions / instructions below)

I understand and accept the permit conditions detailed above.

Supervisor / Engineer / Subcontractor

Name: Signature:

Permit Issuer / Project Environment Representative:

Issue Date: __/__/__

Name:

Signature:

Expiry Date: __/__/__

Note: This permit is no longer valid after a rain event following the issue date and time.

Section 4: Permit Closure

I confirm all work for which this permit was issued has been completed.

Supervisor / Engineer / Subcontractor:

Name: Signature: Date:

I confirm all work for which this permit was issued has been completed and verified.

Permit Issuer / Project Environment Representative:

Name: Signature: Date:

Appendix D – Unexpected Finds Protocol

This Unexpected Contamination Finds Protocol (the Protocol) outlines the work requirements in the event of unexpected finds occurring during construction at the Sydney Football Stadium.

The aim of this Protocol is to manage the risk of potential exposure to asbestos/hazardous materials and limit disturbance from unexpected finds. All subcontractors are to adopt this protocol into their own site-specific SWMS based on individual tasks and associated risks where needed.

This Protocol has been prepared to satisfy Condition B22(h) in the Sydney Football Stadium Stage 2 development consent (SSD 9835), which requires that:

A detailed unexpected finds protocol for contamination and associated communications procedure being consistent with the Unexpected Contamination Finds Protocol-V2.1 prepared by Lendlease dated June 2019 and including a chain of responsibilities for undertaking the unexpected finds protocol.

Potential Unexpected Finds

Based on findings of site history and site contamination investigation works undertaken at the site, unexpected finds which could reasonably occur within the site are summarised below.

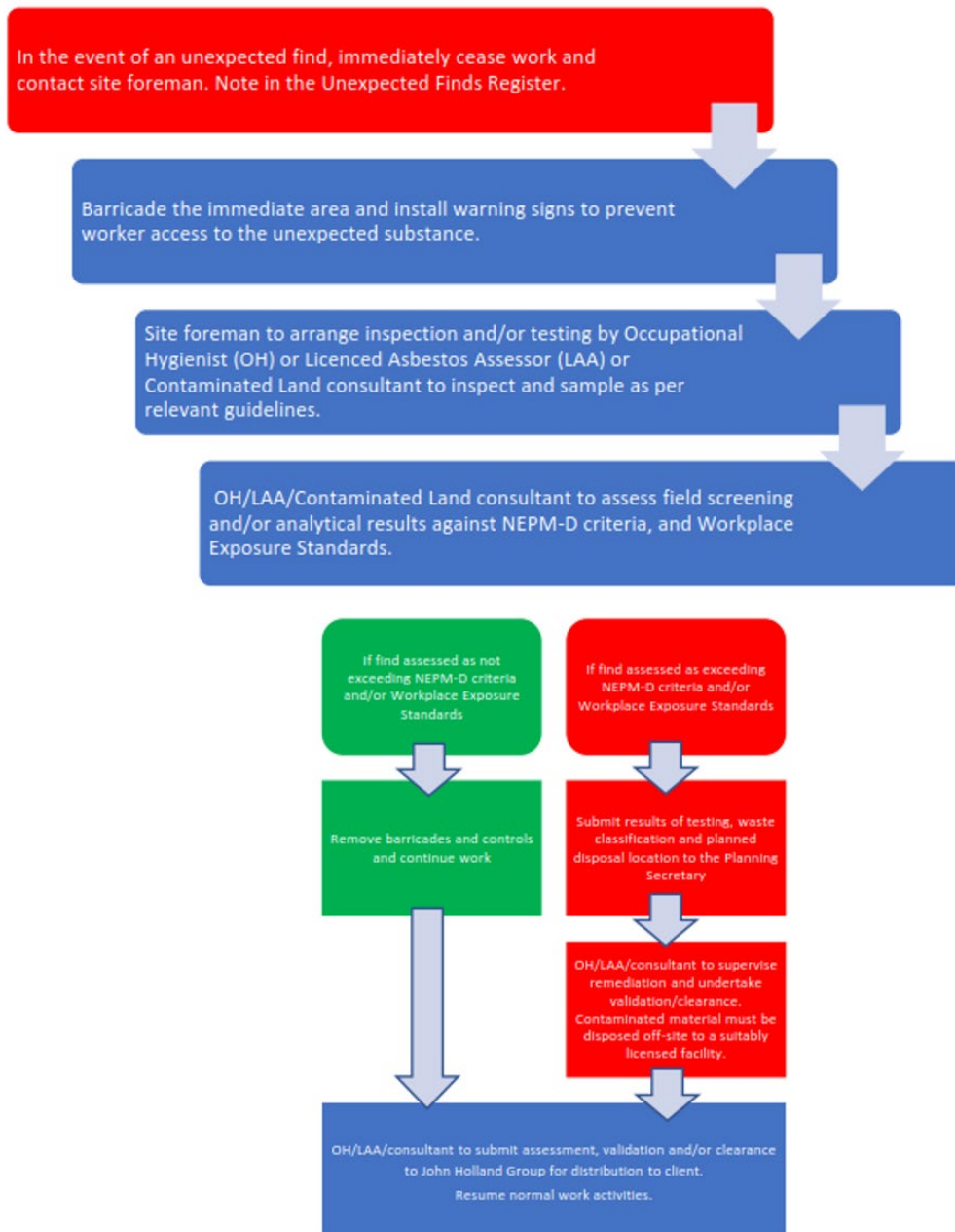
Potential Unexpected Find	Observed Characteristic
Buried dry waste materials including asbestos	May include a variety of waste materials including wood, plastic, metal fragments, building rubble (e.g. concrete, brick, asphalt, forms of asbestos etc.).
Buried putrescible wastes	Putrescible waste materials typically comprise decomposed organic waste materials intermixed within the fill materials on site, with an associated characteristic rotten egg type odour. Such materials should not be confused with decomposed plant matter and/or marine sediments found within the natural sandy soils.
Structures or conduits containing deleterious materials	<ul style="list-style-type: none"> • A buried tank or former process pipelines; • Deeper sand fill sometimes with visual/olfactory indications of contamination • Presence of small concrete footings surrounding by odorous or visually impacted soils and/or groundwater.
Ash or slag deposits	Ash materials typically light weight, black, grey and/or white and generally gravel sized (1mm to 10mm) particles. Slag materials can be varied in consistency and colour and may comprise pale grey to blue/green/grey/black and be loose or cemented. Slag gravels can be very angular and appear to have a 'honeycomb' texture.
Hydrocarbon Compounds	May be identified by a hydrocarbon odour which may vary in strength from weak (just detectable) to very strong (easily detectable at a distance from the source). The odour may or may not be accompanied by specific areas of dark staining (black-grey) or larger scale discolouration of strata from a previously identified 'natural colour' e.g. staining of orange and brown clay to dark grey and green. May also be visible as a distinct coloured sheen on water within an excavation.
Other unusual odours	<ul style="list-style-type: none"> • Solvent/acetone odour • Alcohol odour • Caustic odour • Acidic (Acetic/Formic/Citric) odour • Ammonia odour • Sulphur (rotten egg) odour

Douglas Partners undertook a Detailed Site Investigation (DSI) in 2019 (Ref. 86529.00.R.006B) to further assess the contamination characteristics of the soils and groundwater in accessible areas of the Stadium site. Douglas Partners also undertook an Asbestos Assessment in 2020 to assess the contamination characteristics of the soils in relation to asbestos on the Stadium site (Ref. 99553.00.R.004).

A Remediation Action Plan was prepared by Douglas Partners (99553.00.R.005). The RAP concluded that Subject to proper implementation of the RAP and validation reporting, DP considers that the site can be made suitable for the proposed redevelopment. The short term exposure during remediation and construction works should not pose an unacceptable risk to workers provided adequate controls are in place. A long-term EMP will be required to manage the risks associated with the ACM-impacted soils that will be encapsulated on the site.

Unexpected Finds Process

The following process outlines the requirements in the event of unexpected finds occurring on site. The aim of the procedure is to minimise the risk of potential exposure to hazardous substances and limit the disturbance of such substances. Workers should be inducted into the unexpected finds procedure and encouraged to notify the John Holland Group project manager or site foreman in the event that unexpected finds are encountered.



The Site Auditor would be notified in the event that any unexpected finds do not meet the site criteria once the assessment has been completed.

Appendix E – Stormwater and Flooding Management

The following mitigation measures will be implemented for the following scenarios

General Management

- storage of hazardous materials away from flow paths and known drainage channel
- layout of site compound facilities to take into consideration of the flow paths
- ensure evacuation routes are kept clear during high risk periods
- ensure loose materials, fuel, chemicals and equipment can either be secured or removed during a flood event if required

1-year ARI

- Brief personnel at prestart
- Review of all current Erosion and Sediment (ERSED) controls and ensure ESCP is still current
- Stormwater would be managed using the following controls
 - Sediment fencing
 - Diversion bunds / swales
 - Coir logs/ sandbags/ silt socks
- Stormwater is expected to be contained on site and be diverted to the sediment basin and discharged in accordance with the permit in Appendix D

5 Year ARI

- Implement as above for the 1-year ARI event
- Ensure all plant and equipment are removed from areas of concentrated flow
- Sedimentation basins maximum capacities will be maintained where practically possible

100 Year ARI

- Implement as above for the 1-year ARI event
- Remove all plant and equipment from site areas where there is potential for inundation – see Figure 2 below
- Perimeter controls are expected to be breached and sediment basin likely to overtop
- Flow will be directed away from the SCG and past the Kippax Lake so that any sediment-laden run-off does not impact on either the SCG or Kippax Lake

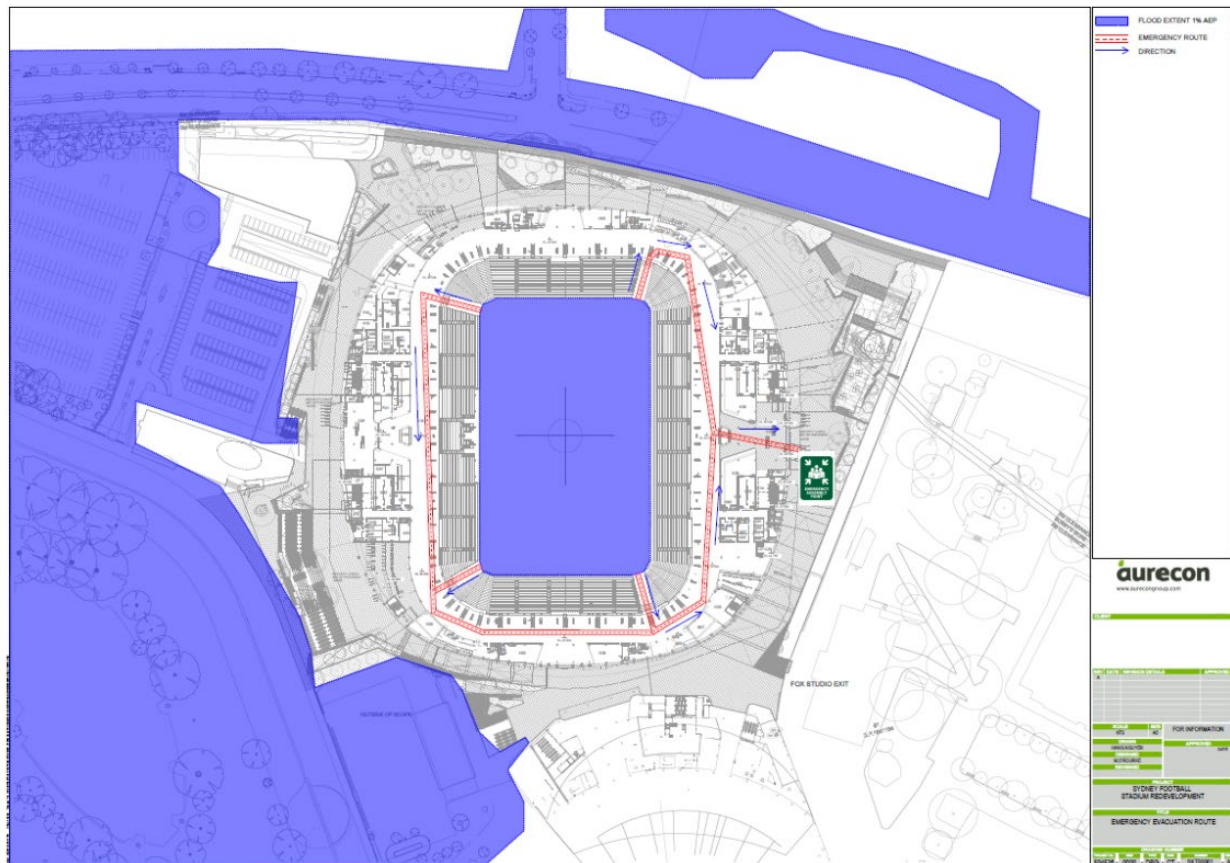
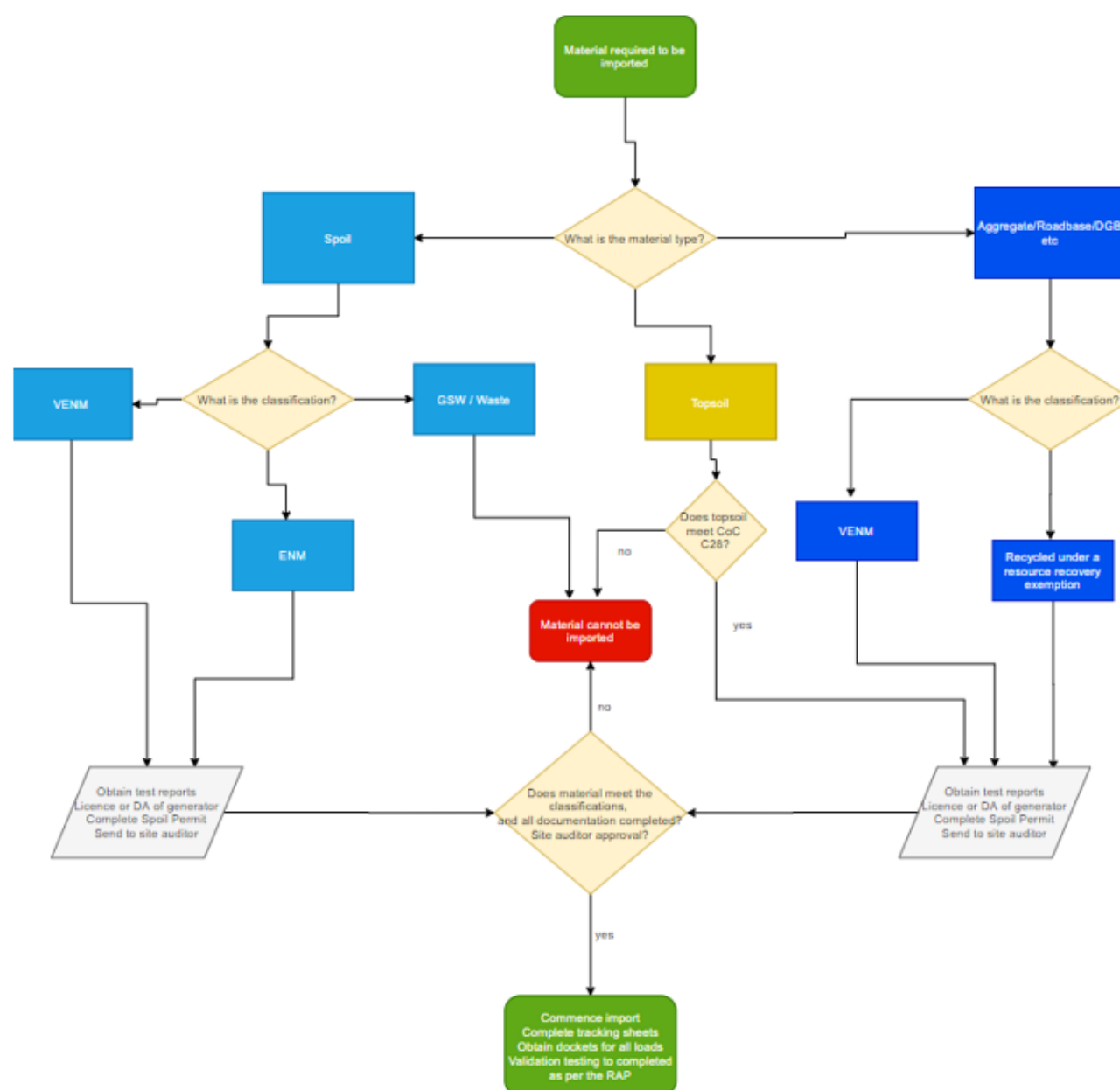


Figure 2 – 1% AEP

Appendix F – Spoil Import Procedure

SPOIL IMPORT PROCEDURE

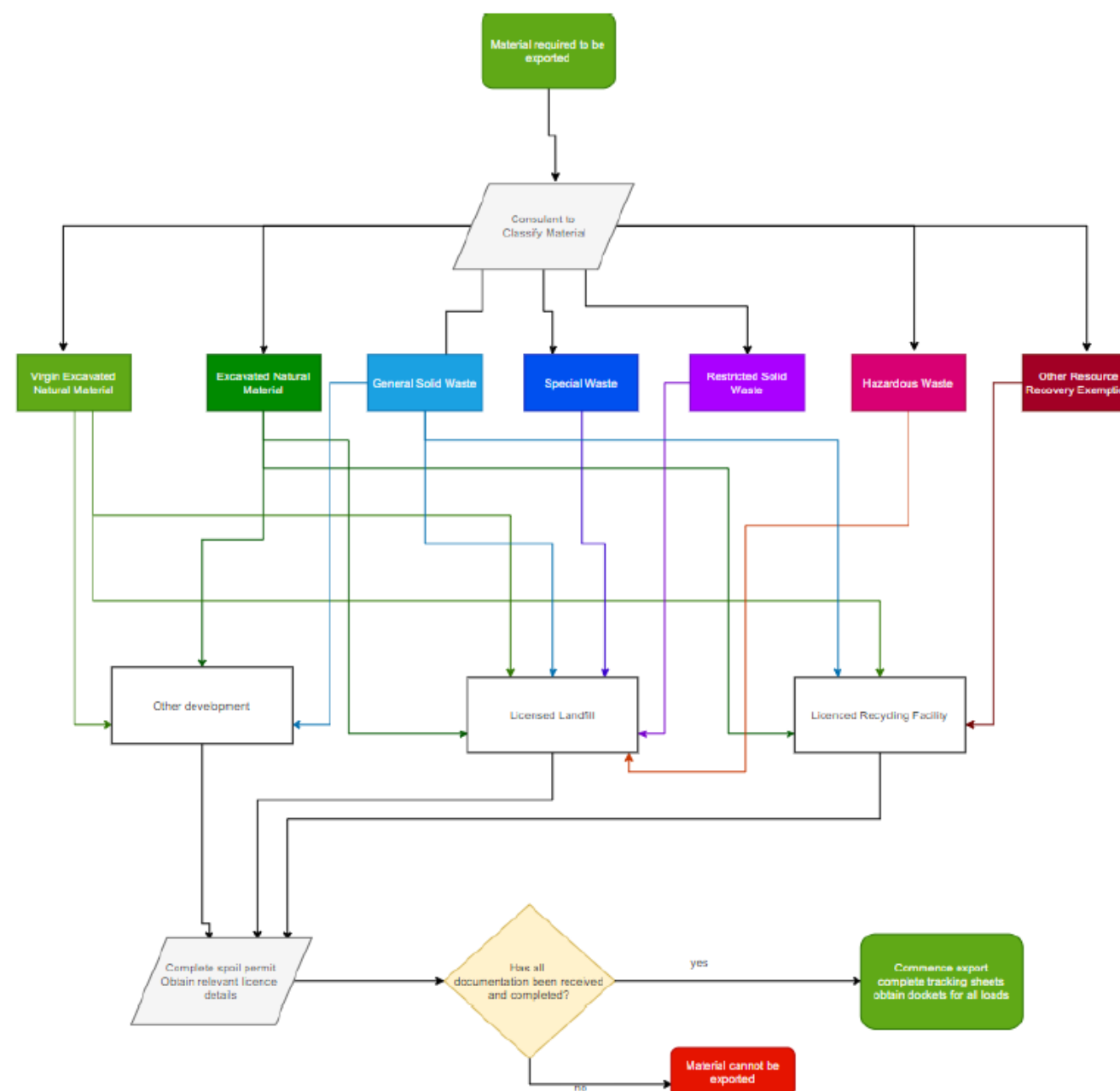


RESPONSIBILITIES	PROCEDURE
Environment Manager <ul style="list-style-type: none"> - Review all documentation and sign off permits - Conduct site inspections 	This is to be carried out in accordance with the following relevant plans <ul style="list-style-type: none"> - Construction Environmental Management Plan - Construction Soil and Water Management Plan - Construction Air Quality Management Plan - Waste Management Plan VENM must have a VENM certificate
Project Engineer <ul style="list-style-type: none"> - Communicate requirements to subcontractor - 	ENM must have testing completed demonstrating compliance with the Resource Recovering Exemption
Site Manager <ul style="list-style-type: none"> - Ensure tracking requirements on site are being conducted - Monitor material coming in and inspect stockpiles 	Any topsoil must meet condition C28 of the development consent <i>"ensure that imported topsoil for the playing field inside the stadium meets the Recreational / Recreational Open Space criteria defined in Schedule B1 of the National Environment Protection Measure, As Amended (NEPM, 2013)"</i>
Subcontractor <ul style="list-style-type: none"> - Provide all relevant test reports, tracking sheets and dockets - Comply with the permit 	Soil permit to be completed and approved prior to importing any material
Site Auditor <ul style="list-style-type: none"> - Review and approve imported material 	In the event of any unexpected finds, implement the contamination unexpected finds procedure.

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Appendix G – Spoil Export Procedure

SPOIL EXPORT PROCEDURE



RESPONSIBILITIES

Environment Manager

- Review all documentation and sign off permits

Project Engineer

- Communicate requirements to subcontractor

Site Manager

- Ensure tracking requirements on site are being conducted
- Monitor material going out and inspect stockpiles

Subcontractor

- Provide all relevant test reports, tracking sheets and dockets
- Comply with the permit

Environmental Consultant

- Classify Material

PROCEDURE

This is to be carried out in accordance with the following relevant plans

- Construction Environmental Management Plan
- Construction Soil and Water Management Plan
- Construction Air Quality Management Plan
- Waste Management Plan

VENM must have a VENM certificate and should not go to landfill if it can be beneficially reused

ENM must be tested in accordance with the resource recovery exemption

Any material going to another development must have a Section 143 Certificate. The DA conditions must allow the site to receive the material.

GSW can only go to another development site if the site has a DA condition that allows it, and a current EPA exemption

GSW (recyclable) can only go to a recycling facility if it meets the licence criteria of that facility

Hazardous waste may need to be treated on site first

Soil permit to be completed and approved prior to importing any material

In the event of any unexpected finds, implement the contamination unexpected finds procedure.