

University of Sydney, Susan Wakil Health Building (Stage 1)  
Construction Environmental Management Plan

Indicative Construction Period: September 2018 to March 2020

## Document

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## Approved

Revision	Name	Role	Signature	Date
2	Tony Fletcher	Project Leader		
3	Tony Fletcher	Project Leader		
4	Chris Paul	Senior Project Engineer		
5	Chris Paul	Senior Project Engineer		
6	Sarah Blagrove	Senior Environment & Sustainability Advisor		23/9/19.

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5	13/04/2019	For internal review	J Ashelford
6	23/09/2019	Internal review	S Blagrove

## Management Reviews

Review Date	Details	Reviewed By	Approved By
13/04/2019	Update to ECM, Risk Assessment & some ERAPs to reflect current conditions on site	Jannaya Ashelford	Chris Paul
23/09/2019	Update to ECM and current construction progress to reflect conditions on site	S Blagrove	Chris Paul

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## Table of Contents

1.0	Terms and Definitions.....	6
2.0	Purpose.....	6
3.0	Scope .....	7
3.1	Life Cycle Perspective .....	7
4.0	Distribution Policy .....	7
4.1	Issue, Revision and Re-issue .....	8
5.0	Environmental Management System .....	8
6.0	References, Standards, Codes and Regulations .....	11
7.0	Policy.....	11
8.0	Objectives and Targets .....	13
9.0	Roles and Responsibilities .....	14
9.1	General Manager Operations .....	14
9.2	Project Director .....	14
9.3	Project Leader .....	14
9.4	Design Manager .....	14
9.5	Site Manager .....	14
9.6	Procurement Personnel .....	14
9.7	Project HSE Representative (Project Environmental Representative).....	14
9.8	Environmental Leader – Australia Hub .....	14
9.9	Sub-Contractors.....	15
9.10	All Personnel.....	15
10.0	Legal and Other Requirements.....	16
10.1	Project Planning Approval and Development Consent .....	16
10.2	Compliance Management – Tracking and Reporting.....	16
10.3	Non-Compliance Management .....	17
10.4	Environment Protection Authority / Licence .....	17
11.0	Environmental Risk Assessment and Control.....	18
11.1	Severe Environmental Risk Controls .....	18
12.0	Training, Awareness and Competence .....	20
13.0	Communication and Reporting .....	22
13.1	Internal.....	22
13.2	External .....	22
14.0	System Documentation .....	22
15.0	Document Control and Records .....	22
16.0	Operational Control.....	23
16.1	General.....	23
16.2	Design .....	23

16.3	Procurement .....	23
16.4	Handling, Storage, Packaging and Transport .....	24
16.5	Work Cover Requirements (Condition C23) .....	24
16.6	Hold Points .....	24
16.7	Environmental Control Plan .....	25
16.8	Working Hours (Condition C2) .....	26
16.9	24hr Contact Details .....	26
16.10	Approved Plans to be On-site (Condition C1) .....	27
16.11	Site Notice (Condition C22) .....	27
16.12	Protection of Public Infrastructure (Condition C31) .....	27
16.13	Manufacture, Construction and Fabrication Processes .....	27
16.13.1	Life cycle perspective .....	27
16.13.2	Planning for high environmental risk activities .....	27
16.14	Plant and Equipment .....	28
17.0	Emergency Preparedness and Response .....	28
17.1	Site Shutdown Planning .....	29
18.0	Monitoring and Measurement .....	29
18.1	Corrective Actions .....	29
18.2	Monthly Environmental Reporting .....	30
18.2.1	Monthly Project Environmental System Self-check .....	30
18.2.2	Supply Chain Environmental Compliance Obligations Review .....	30
19.0	Incidents, Corrective and Preventative Action .....	31
19.1	Incident Reporting .....	32
19.1.1	Senior Leaders Environmental incident review .....	32
19.2	External Incident Notification, Reporting and Response .....	33
19.2.1	Department of Planning and Environment – Incident Reporting Requirements .....	33
19.2.2	State Matters – NSW Environmental Protection Authority .....	33
19.2.3	Commonwealth Matters .....	34
19.3	Client Complaints .....	34
20.0	Community Relations .....	34
20.1	Complaints and Enquiries Procedure .....	34
20.2	Access to Information .....	35
21.0	Environmental Management System Audit .....	35
22.0	Management Review .....	35
APPENDIX 1 – Class 1 Incident Management Flow Chart .....		37
APPENDIX 2 – Legal and Other Requirements .....		38
APPENDIX 3 – Risk Assessment .....		44
APPENDIX 4 – Operational Control Procedures - Environmental Risk Action Plans .....		59

APPENDIX 5 – Progressive Environmental Control Plan (including Erosion and Sediment Controls) (note this is included as an example and is a progressive plan updated to reflect site changing conditions – refer to the Project Document System for the latest version). .....	73
APPENDIX 6 – Emergency Preparedness and Response .....	75
APPENDIX 7 – Project Waste Strategy.....	81
APPENDIX 8 – Project Permits and Licenses Register.....	82
APPENDIX 9 – Environmental Incident Investigation Guidelines .....	86
APPENDIX 10 – EMP Flow Chart .....	87
APPENDIX 11 – Forms (Resources).....	88
APPENDIX 12 – Staff Acknowledgement Register .....	89
APPENDIX 13 – Unexpected Finds Protocol .....	90

## 1.0 Terms and Definitions

The following terms, abbreviations and definitions are used in this plan:

Table 1. Terms and definitions

Terms	Explanation
CAR	Corrective Action Request
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CIS	Campus Infrastructure Services
CTPMP	Construction Traffic and Pedestrian Management Plan
CWMP	Construction Waste Management Plan
Core Process and Enabling Processes	Core Process (Governance) and Enabling Process (Detail) provide a coordinated overview of the processes and controls in Laing O'Rourke.
DPE	NSW Department of Planning and Environment
EIFR	Environmental Incident Frequency Rate
EMS	Environmental Management System
EPA	NSW Environment Protection Authority
ERAP	Environmental Risk Action Plan
ESCP	Erosion and Sediment Control Plan
HSEMS	Health, Safety and Environmental Management System
ISO	International Standards Organisation
LOR / LORAC	Laing O'Rourke / Laing O'Rourke Australia Construction Pty Limited
OEH	NSW Office of Environment and Heritage
PER	Project Environmental Representative
REF	Review of Environmental Factors
RPAH	Royal Prince Alfred Hospital
SCC	Sydney City Council
SDS	Safety Data Sheet
SSD	State Significant Development
SWHB	Susan Wakil Health Building
UoS	University of Sydney

## 2.0 Purpose

This Construction Environmental Management Plan (CEMP) and its associated management plans have been prepared to comply with the contract requirements for environmental management, relevant environmental legislation and other environmental obligations associated with the project.

This CEMP is also intended to ensure that positive and negative effects on the environment are assessed as they relate to organisational stakeholders including those described in the Laing O'Rourke (LOR) Environmental Management System (EMS).

This Environmental Plan has been developed to:

- ensure that the needs and expectations of the client are met;
- to provide guidelines to manage environmental matters on the project;
- ensure that the project meets contractual, legal and other environmental requirements;
- meet the requirements of ISO 14001:2015 including the need for continual improvement;
- provide a link between the corporate and project management system; and
- provide all LOR personnel with systems, procedures and documentation necessary to undertake the construction of this project with environmental requirements.

## 3.0 Scope

This plan applies to the construction phase of the Susan Wakil Health Building (SWHB) project, in particular, Stage 1 (see below in this section). The CEMP also applies to the commissioning phase of the project.

CEMP applies to the full scope of project activities described in the contract and relevant conditions of approval over which we have the ability to control or influence with due consideration to the life cycle perspective and stakeholder relationships. It has been developed to address the Client's specific requirements and LOR's EMS.

The Health Precinct site is located within the University of Sydney (UoS) grounds on the western end of the University's Camperdown campus and is directly adjacent to the RPA Hospital. Currently, the 13,000m<sup>2</sup> site is home to the Bosch 1A and 1B Buildings, and the Bosch Glasshouse.

Bordered to the East by Western Avenue, to the West by RPA Hospital and John Hopkins Drive, and to the South by Cadigal Lane, the site slopes steeply down to the North where it is bordered by the University Oval Number 01. The site is almost the lowest point on the campus and is affected by the requirement to manage overland flow of stormwater.

The University of Sydney is developing its Health Precinct to create a contemporary, collaborative and flexible teaching and learning environment for students and staff alike. The existing 13,000m<sup>2</sup> Health Precinct is situated in the University's Camperdown campus, in an area currently home to the Bosch Buildings 1A and 1B, the Bosch Glasshouse, and formerly, the Blackburn Building and a dangerous goods store. The precinct is bordered by Royal Prince Alfred Hospital (RPAH), St Andrew's Oval, University Oval No. 1 and grandstand, and Western Avenue.

The University has proposed three stages for the redevelopment of the health precinct:

- Stage 1 – 22,120m<sup>2</sup> of new facilities to be built in the area adjacent to RPA. The Bosch Glasshouse and Bosch Buildings 1A and 1B will remain operational during construction and operation of the Stage 1 works. Note: to facilitate Stage 1, demolition of the Blackburn Building and adjacent dangerous goods store was undertaken under a Review of Environmental Factors (REF) (dated April 2018). Stage 2 – 16,000m<sup>2</sup> of new facilities situated adjacent to Western Avenue, in the area occupied by Bosch Building 1A and the Bosch Glasshouse

Stage 3 – 14,950m<sup>2</sup> of new facilities to be built in the area currently occupied by Bosch Building 1B, adjacent to St Andrew's Oval. This CEMP is for Stage 1, the timing of Stages 2 and 3 are not finalised or known at this stage. This updated CEMP does not include demolition of the Blackburn Building and dangerous goods store (completed in August 2018).

## 3.1 Life Cycle Perspective

The life cycle perspective relates to the environmental aspects associated with each stage of LOR's project delivery. Project delivery can be divided into the following five broad categories:

- Work Winning (estimating & cost planning, business development, bids & proposals)
- Commercial (head & sub-contract formation)
- Engineering (feasibility studies, concept design, front-end engineering design, detailed design)
- Procurement (supply and delivery of goods and services)
- Delivery (construction, commissioning)

When applying a life cycle perspective LOR considers the:

- Stage in the life cycle of the product or service
- Degree of control the business has over the life cycle stages
- Degree of influence it has over the life cycle
- Life of the product
- Ability to influence on the supply chain

At each stage of project delivery LOR determines aspects and opportunities to influence lifecycle outcomes.

## 4.0 Distribution Policy

The master 'controlled' CEMP document will be held within the Project's document management system where it can be accessed by personnel as necessary.

All paper copies of this CEMP will be considered as 'uncontrolled'.

## 4.1 Issue, Revision and Re-issue

This plan has been reviewed by the HSE Leader or Environmental Leader to ensure it meets the requirements of the current Environmental Management System and policy, contract, specifications and standards. The plan is approved for use on the project by the Project Leader. Evidence of reviews and approval is by signatures on the cover sheet.

Revisions of this CEMP may be required throughout the duration of the project to reflect changing circumstances or identified deficiencies.

Revisions may result from:

- Management Review
- Audit (either internal or by external parties)
- Client complaints or non-conformance reports
- Changes to the Company's standard system
- Review/improvements requested by the Secretary as per Development Consent Conditions A18 and A19

Revisions shall be reviewed and approved by the Project Leader prior to issue. Updates to this plan are numbered consecutively and issued to holders of controlled copies.

## 5.0 Environmental Management System

Laing O'Rourke Australia Construction Pty Limited operates an environmental system compliant with AS/NZS ISO 14001. This system is integrated with the health and safety management system and is known as the Laing O'Rourke's HSEMS. The system can be accessed through this weblink [HSEMS – Environmental Requirements](#). The system includes 3 core components, System Requirements, Environmental Primary Standards and Severe Environmental Risk protocols.

The Company is currently certified (No. 4749) with SciQual.



Figure 1. Laing O'Rourke's EMS Certificate of Registration

All works carried out on the site will be in accordance with:

- Client requirements as detailed in the Contract
- Laing O'Rourke Australia Construction Pty Limited Environmental Management System as detailed on iGATE
- ISO 14001 Environmental Management System
- All legal requirements

This *Plan* references relevant parts of the Company's environmental management system and incorporates the additional elements necessary to satisfy the client's environmental system requirements. An outline of Laing O'Rourke's Environmental Management System is provided below.



Home
Safety
Environmental
Mental Health & Wellbeing
PII Lane
News & Resources
Support

## Environmental Requirements

Severe Environmental Risks (SERs)

Environmental Primary Standards

Environmental System Requirements

**Home - Environmental Requirements**

Environmental management is paramount to all our business activities and we are committed to the protection and enhancement of the environment. Our approach is driven by the commitment to our [Environmental Policy](#).

It is displayed in each workplace and personnel are made aware of the policy, commitments, associated roles and responsibilities, and their ability to influence environmental outcomes through their activities.

Our [Environmental Objectives](#) are linked to the Environmental Policy and have been developed to improve environmental performance. The key environmental issues considered include:

- Sustainable use of resources
- Minimising impacts to water, air and land from operations
- Meeting or exceeding the environmental performance objectives of clients
- Meeting or exceeding stakeholder expectations of our environmental performance
- Understanding and delivering on compliance obligations

The Environmental Management System applies to the full scope of business activities over which we have the ability to control or influence with due consideration to the life cycle perspective and stakeholder relationships. When considering the level of influence and potential environmental outcomes, the business ensures that positive and negative effects on the environment are assessed as they relate to organisational stakeholders which include:

- Our clients on construction projects undertaken by the business
- The communities in which we work
- Regulatory authorities relating to environmental management and environmental approvals and compliance
- Financiers
- Our supply chain partners
- Our construction industry peers and partners

The system is certified to ISO 14001 and addresses the environmental management activities associated with the project lifecycle. Refer to [SR Life Cycle Perspective](#) for more information. Responsibilities for implementing the environmental system are defined in organisation charts, job descriptions, Environmental Management Plans and other organisational procedures.





Figure 2. Laing O'Rourke's HSEMS

## 6.0 References, Standards, Codes and Regulations

The project will be constructed in accordance with relevant standards, codes, acts and regulations. Appendix 2 provides a register of applicable legislative instruments relevant to the project.

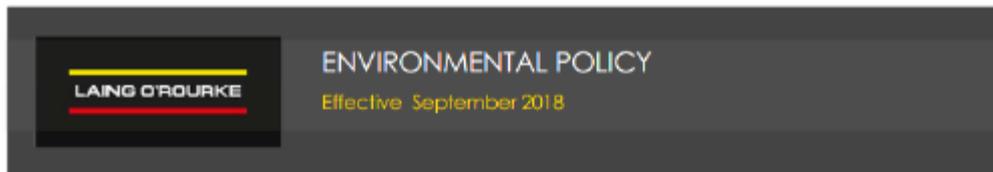
Access to the latest Australian standards is available via iGATE.

## 7.0 Policy

The Company maintains an Environmental Policy which will be typically:

- Displayed at prominent locations on the project site/offices
- Communicated to site personnel during induction and training
- Made accessible to clients and all relevant internal and external stakeholders

All personnel associated with the project including subcontractors must comply with the spirit and intent of the policy.



## ENVIRONMENTAL

Laing O'Rourke is an engineering enterprise, focused on major construction projects and strategic frameworks, delivering certainty for clients from the earliest engagement. Through a focus on certainty of delivery we will maintain an enduring and sustainable enterprise.

We are committed to the protection and enhancement of the environment. High environmental performance is an ongoing priority and is achieved by our actions in line with this policy. This policy sits alongside our Sustainability policy and Supply Chain policy as part of our global policy framework, underpinned by our Global Code of Conduct.

Our goal is to minimise the negative impacts of our operations and maximise the quality of the built environment for future generations. Through innovation and application of leading practice, we aim to steer the industry to design a sustainable and high-quality built environment with as little environmental impact as possible through the whole asset lifecycle.

Our goal will be realised by:

- Demonstrating leadership of our environmental agenda by senior leaders
- Complying with relevant legislation and other requirements specific to the context of our business and regularly evaluating and reporting on our compliance obligations
- Preventing polluting emissions or discharges to the environment
- Proactively minimising environmental impacts, including being industry leading in minimising direct and embodied carbon emissions, and providing energy-efficient/low-carbon assets for our clients
- Continually improving the environmental performance of our activities, products and services through clear objectives, targets and programmes
- Exploring opportunities in the sourcing and lifecycle aspects of our products, services and supply chain to reduce carbon emissions and demonstrate positive environmental outcomes
- Exploring opportunities for innovative technologies, products and processes that drive improved environmental outcomes/benefits throughout the delivery and operation of the assets we build
- Communicating and addressing the risks and opportunities associated with the impacts of our activities, products and services
- Improving resource efficiency by reducing the use of natural resources and reducing waste, maximising resource recovery and diverting the waste we do produce away from landfill sites
- Reducing our water consumption and improving water efficiency in all of our operations
- Engaging our supply chain partners to improve their environmental performance and responsible sourcing of their materials, products and services
- Proactively protecting, preserving and enhancing biodiversity and land quality
- Enhancing employee understanding of environmental sustainability by stimulating cultural change and providing clear direction
- Maintaining ISO 14001 certification for our principal businesses and progressing further certifications for our products and services as appropriate

The Board of Directors of Laing O'Rourke fully endorses this policy.

**Ray O'Rourke**  
Chief Executive

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Figure 3. Laing O'Rourke's environmental policy

## 8.0 Objectives and Targets

High level objectives and targets for this project are listed in Table 2.

Table 2. Objectives and targets

Objective	Target	Reporting / Monitoring
Effective site environmental controls	Set-up prior to starting work in the affected area; Maintain effective controls	Inspection checklists
Environmental performance	No breaches or environmental infringement notices  No Class 1 or Class 2 incidents  All incidents EIFR of 1 by 2020	Monthly reports
Environmental Lead Indicators	50% of project environmental inspections accompanied by supervisory or engineering personnel  Environmental Toolbox Talks – minimum 1 per month and Environmental Alerts (as issued across the LOR business)  100% of weekly environmental inspections signed off by the Project Leader	Monthly reports / Weekly Environmental Inspection checklists
Effective implementation of the environmental system	No level 1 Corrective Action Requests  <3 level 2 risks each report  <10 level 3 risks each report  Closure of CARs within the nominated timeframe.  Timely release of Environmental Hold Points	Audit reports
Community issues carefully managed	Complainant contacted within two hours  Matter closed out within one week	Complaints form / IMPACT / Project Complaints Register
Noise and Vibration Monitoring	As per the Construction Noise and Vibration Management Plan (refer Table 15):  <ul style="list-style-type: none"> <li>- Attended noise monitoring (frequency - monthly)</li> <li>- Spot checks on noisy plant to determine emission levels (as required)</li> <li>- In response to noise/vibration complaints (where monitoring is considered an appropriate response )</li> <li>- Vibration monitoring if working within safe working distances for damage to buildings</li> </ul> Implementation of any corrective actions or additional mitigation measures where monitoring results deem this necessary	Noise and Vibration Monitoring Reports or Records

Operational objectives and targets relating to significant environmental issues are contained within the operational control procedures provided in *Appendix 4*.

## 9.0 Roles and Responsibilities

The key environmental management roles and responsibilities are outlined below.

### 9.1 General Manager Operations

- Ensure that independent audits of the environmental management system are conducted
- Review audit outcomes and take action as necessary
- Review regional environmental performance through the monthly reporting cycle
- Authorise resourcing on environmental issues
- Resolve major issues which cannot be resolved by the Sector General Manager

### 9.2 Project Director

- Ensure that internal audits of the system are conducted
- Review audit corrective actions and take action as necessary to ensure timely close out of issues
- Authorise expenditure on environmental issues within limits of authority
- Resolve major issues which cannot be resolved by the Project Leader

### 9.3 Project Leader

- Ensure that project responsibilities and authorities are defined and communicated
- Provide adequate resources to meet environmental objectives
- Approve the CEMP
- Ensure that the CEMP is effectively implemented and maintained
- Appoint/nominate and provide support for the Project Environmental Representative (PER)
- Report to senior management on the performance of the system and environmental breaches
- Take action to resolve environmental non-conformances and incidents
- Ensure suppliers and subcontractors comply with requirements
- Report environmental incidents to the client / local authorities as required

### 9.4 Design Manager

Review Compliance Obligations Matrix/Register regularly for implementation of obligations along with PER.

### 9.5 Site Manager

- Supervise all site construction activities and personnel by ensuring that they meet environmental and other requirements
- Organise and manage site plant, labour and temporary materials
- Ensure that site environmental controls are properly maintained and provide support for the PER
- Report all environmental incidents
- Take action to resolve non-conformances and incidents

### 9.6 Procurement Personnel

- Carefully select suppliers and subcontractors based upon their ability to meet stated requirements
- Ensure that purchase orders and agreements include environmental requirements as necessary
- Where practical, select materials which are “environmentally friendly”

### 9.7 Project Environmental Representative

- Ensure that the CEMP is effectively established, implemented and maintained at the project level
- Ensure compliance with all relevant statutes, regulations, rules, procedures, standards and policies
- Liaise with the client’s Environmental Representative and/or Superintendent on environmental issues, including the written notification of non-conformances (incidents, emergencies or deviations from the CEMP)
- Ensure that all personnel on site receive appropriate environmental induction and training and are aware of their environmental responsibilities under relevant legislation and the contract
- Report to the Project Director on the performance of the environmental management system and improvement opportunities
- Provide support to the project team to enable them to meet their environmental commitments
- Ensure that environmental records and files are collected and maintained
- Regular compliance checking as required by this CEMP
- Ensure that non-conformances and environmental incidents are recorded and written reports provided to the Client’s Representative and Environmental Manager within 24-hours. Liaise with the required stakeholders to confirm the nature of the corrective action required and comply with the timeframe within which corrective actions must occur.
- Ensure that environmental controls, materials and equipment are maintained

### 9.8 Environmental Leader – Australia Hub

- Provide environmental support to the project team

- Coordinate internal audits

## 9.9 **Sub-Contractors**

- Comply with all legal and contractual requirements
- Comply with site environmental requirements
- Comply with management / supervisory directions
- Participate in induction and training as directed
- Report all incidents, participate in incident response/clean –up and contribute to investigations

## 9.10 **All Personnel**

- Comply with the relevant Acts, Regulations and Standards
- Comply with the Company's environmental policy and procedures
- Promptly report to management on any non-conformances, environmental incidents and/or breaches of the system
- Undergo induction and training in environmental awareness as directed by management
- Report all incidents, participate in incident response/clean –up and contribute to investigations
- Act in an environmentally responsible manner

## 10.0 Legal and Other Requirements

Mandatory compliance obligations and requirements relevant to the project are outlined below. Environmental System Requirement - Compliance Obligations outlines the process that the organisation uses to determine legal and other mandatory requirements.

All personnel associated with the project will comply with all relevant requirements including:

- Laws – Acts, regulations, policies, etc
- Environment Protection Licence and permits
- Development consents
- Relevant industry standards / codes
- Contract requirements
- Other compliance obligations outlined in this CEMP, including any voluntary compliance obligations.

An assessment of the relevant legislative instruments has been conducted and recorded in Appendix 2.

Licences, permits and approvals are outlined in Appendix 9 in the Project Permits and Approvals Register. The register is to be developed, at or prior to, the commencement of the project to outline the full scope of the project's requirements for Government authority approvals.

The register is to be reviewed in conjunction with the 6 monthly management review outlined in Section 21 or where there has been a change to relevant legislation.

The Register is to be reviewed and updated as the project progresses and compliance with the relevant conditions reported. Compliance conditions relating to items listed on the Permits and Licenses Register are incorporated into this Environmental Management Plan. Specific details and controls are included in the associated sub-plans and ERAPs.

A copy of any relevant Permits, Licences and any development consents relevant to Laing O'Rourke's activities will be kept on site.

### 10.1 Project Planning Approval and Development Consent

To establish the applicable approval pathway for UoS' CIP, the *Environmental Planning and Assessment Act 1979* (EPAA) has been interpreted. The works have been assessed for planning and environmental aspects under Part 4, Division 4.1 of the EPAA. The planning approval process required the preparation, submission and approval of an Environmental Impact Statement (EIS), which includes specific planning and environmental conditions and commitments that must be addressed in this CEMP and implemented during the project.

Clause 226(1) of the *Environmental Planning & Assessment Regulation 2000* (the Regulations) provides that a development carried out by an Australian University (under the meaning of the *Higher Education Act 2001*) is a Crown development. The University is listed as an Australian University under Schedule 1 of the *Higher Education Act 2001*. Consequently, the SWHB is a Crown development for the purposes of Division 4 of the EP&A Act.

Additionally, the proposal is categorised as a State Significant Development (SSD) because it is development for the purposes of an 'educational establishment' and will have a capital investment value of \$146,113,000 pursuant to clause 15 of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011.

### 10.2 Compliance Management – Tracking and Reporting

A Conditions of Approval Compliance Tracking Register / Matrix will be established upon commencement to ensure the approval conditions are captured, addressed and closed out. The Register/Matrix includes all conditions relevant to LOR's scope of work, will be updated as the works progress and **will be reviewed on a quarterly basis** to verify compliance with each condition. For the purpose of this Project, the Compliance Tracking Register / Matrix is a live document that is maintained on the Project Document System/Drive - N:\0700 Authorities & Community\0705 Statutory, Regulatory, Local Authorities, Council for each phase of construction e.g. CC1, CC2 etc.

Specific conditions of approval relevant to construction activities are included in the project's Operational Controls in the aspect specific management plans / ERAPs. The following Development Consent conditions and requirements in relation to compliance tracking and reporting will be implemented by the Project:

- Condition C28 – *“The Applicant must provide regular six monthly reporting of any environmental performance required by the development consent for the development on its Project website, in accordance with the reporting arrangements in any plans or other documents approved under the conditions of this consent.”*

- Condition C30 - *Construction Compliance Reports must be submitted to the Department at [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au) for information every six months from the date of the commencement of construction, for the duration of construction. The Construction Compliance Reports must provide details on the compliance performance of the development for the preceding six months and must be submitted within one month following the end of each six month period for the duration of the construction of the development, or such timeframe as required by the Planning Secretary.*
- Condition C31 - *The Construction Compliance Reports must include:*
  - a) *A results summary and analysis of environmental monitoring;*
  - b) *The number of any complaints received, including a summary of main areas of complaint, action taken, response given and proposed strategies for reducing the recurrence of such complaints;*
  - c) *Details of any review of the CEMP and associated sub-plans as a result of construction carried out during the reporting period;*
  - d) *A register of any modifications undertaken and their status;*
  - e) *Results of any independent audits and details of any actions taken in response to the recommendations of an audit*
  - f) *A summary of all incidents notified in accordance with this consent; and*
  - g) *Any other matter relating to compliance with the terms of this consent or as requested by the Planning Secretary”*

### 10.3 Non-Compliance Management

Non-compliances with the conditions will be documented and addressed by utilising the Assurance application in IMPACT. The following conditions of the Development Consent will be complied with:

- Condition A23 - *“The Department must be notified in writing to [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au) **within seven days** after the Applicant becomes aware of any non-compliance. The Certifying Authority must also notify the Department in writing to [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au) within seven days after they identify any non-compliance.*  
Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.
- Condition A24 - *“The notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.”*

### 10.4 Environment Protection Authority / Licence

No scheduled activities, as per the Protection of the Environment Operations Act, 1997, are required for the SWHB project and as such, an Environmental Protection Licence (EPL) does not apply to the Project.

## 11.0 Environmental Risk Assessment and Control

LOR has established a business wide Environmental Aspects and Impacts Register in accordance with System Requirement - Environmental Aspects and Impacts. The register outlines the environmental aspects that need to be assessed and effectively managed to meet the business's environmental obligations with respect to the context of the organisation and its projects.

System Requirement – Environmental Risk and Opportunity outlines the process by which environmental aspects and impacts are assessed at a project level. Project wide environmental risks and opportunities are assessed in the Project's Risk and Opportunity Register (C-T-3-0770). Site specific environmental aspects and impacts have been identified and assessed in Appendix 3 Risk and Opportunity Assessment of the management plan.

This assessment must consider the following as a minimum as outlined in System Requirement – Risk and Opportunity:

- Obligations and requirements associated with the environmental approval conditions
- Emissions to air
- Releases to water
- Releases to land
- Waste management
- Contamination
- Emission of noise including vibration
- Impact on the natural environment including wildlife, biodiversity and cultural heritage
- Resource efficiency and the use of materials
- Consumption of energy

The assessment for significant environmental aspects is based on risk and opportunity assessment matrix established in C-P-3-0770 and C-T-3-0770 Risk and Opportunity Assessment.

Project risk and opportunity assessments are to be reviewed and updated as the project progresses and as a minimum as part of the Environmental Management Plan Management Review. The Project's Risk and Opportunity Register (C-T-3-0770) is to be maintained on a monthly basis or as required and must include project wide environmental risks and opportunities.

By way of definition, the following applies to this environmental risk and opportunity assessment process and the associated matrix.

Green Risk – environmental impacts associated with the action are generally constrained to the project site and in accordance with the environmental assessment documentation. There is a low probability of occurrence.

Amber Risk – environmental impacts associated with the actions have the potential to result in offsite impacts, where the environment recovers over the medium term. There is reasonable probability that the impact would occur with the absence of suitable controls.

Red Risk – environmental impacts that have significant offsite impacts. The environment recovers over the long term, there is impacts to the local community. There is a high probability that the impact would occur. Environmental impacts occur offsite are considered major. Impacts have resulted in the destruction of protected species, sensitive habits or other impacts not envisaged as part of the environmental assessment process. The environment is not able to recover without substantial intervention.

Significant environmental issues will be controlled to a degree which is commensurate with the level of risk and the level of influence which the Company has over these issues.

An ERAP or environmental issue specific Sub-Plans must be developed for aspects or impacts representing an amber or red risk after the initial risk assessment. The ERAP or Sub-Plan must reference and address the strategic mitigation and control measures determined following the initial risk assessment and as outlined in the LOR Environmental Primary Standards. In addition, an ERAP is required to be developed and implemented where an environmental obligation, environmental mitigation requirement or legal requirement dictates issues specific controls are required even though there may be a low risk to the environment. Activities, aspects and potential impacts considered to represent an extreme risk following the application of the strategic mitigation and control measures must be redesigned or re-sequenced or have the approval of the relevant HSE Leader or delegate.

If additional risks are encountered on site during the delivery phase, these will be addressed either by updating this CEMP or by using separate ERAPs (E-T-8-1200).

An overview of this process is contained in Appendix 3.

### 11.1 Severe Environmental Risk Controls

The Severe Environmental Risks (SERs) Controls Standard describes the various minimum mandatory requirements which must be in place, demonstrated and working effectively with the intent of managing SERs on the project. SERs relevant to the project are outlined in Table 3 below.

SERs relate to environmental harm caused by site operations which can result in long term damage to the environment. The focus of these risks is on high consequence environmental harm risks rather than regulatory exposure.

The SERs Control Standard provides clear guidance on the required controls and expectations relating to preventing high consequence environmental impact. Additional SER controls have been included as necessary to address site specific conditions.

The applicable SERs on this project as determined by the risk assessment are as follows.

Table 3. Project specific series environmental risks

Standard SERs	Project specific SERs
Biodiversity	<p>Unauthorised removal of vegetation outside of work area, potential to remove threatened species.</p> <p>Removal of vegetation within site, potential for the wrong vegetation to be removed, uncontrolled run-off, build-up of sediment in surrounding vegetated areas and waterways, invasion of weeds, injury to native fauna.</p> <p>Disturbance of pests and rodents onsite, potential to relocate into residential areas, increased health risks associated with increased presence of rodents.</p>
Heritage (Aboriginal and European)	<p>Unexpected heritage items found, delayed work, additional studies, approvals required, damage to heritage item.</p>
Water Quality and Wastewater Storage	<p>Sediment laden runoff from works leaving site, potential for degradation of local watercourses, increased turbidity in local waterways with impact to aquatic life.</p> <p>Non-compliant water discharged from site, may lead to polluted water entering stormwater systems.</p> <p>Washout of concrete in undesignated areas, potential for sediment laden/alkaline water to pollute stormwater systems/waterways.</p> <p>Incorrect management of contaminated or untreated materials, could result in non-compliant material entering surrounding waterways with loss of ecosystem health.</p> <p>Storage of hazardous substances, leaking plant equipment and spillage from refuelling, could lead to pollution of stormwater systems/waterways.</p> <p>Fuel contaminated runoff from works leaves site, potential for contaminated runoff to enter stormwater systems/waterways.</p> <p>Disturbance of soils potentially containing acid sulphates, possibly leading to mobilisation of metals within runoff to levels toxic to natural systems, release of acidic runoff.</p>
Erosion and Sedimentation	<p>Removal of vegetation and large areas of exposed, non-vegetated ground associated with construction sites could lead to enhanced erosion of soils and build-up of sediments in run-off.</p> <p>Sediment tracked onto surrounding roadways by construction vehicles, affecting surrounding environment and possibly resulting in complaints from neighbours.</p> <p>Heavy rainfall events resulting in enhanced erosion and sediment-laden run-off demonstrate the site entering stormwater drains, with negative effects on surrounding waterways, water quality and aquatic life.</p>
Temporary Waterway Crossings	<p>Not relevant to site.</p>
Piling	<p>Incorrect storage of lime, leading to mobilisation of lime into waterways or dust generation, loss of ecosystem health and decreased air quality.</p> <p>Overfilling of hook lift bins resulting in spill of pile spoil, which could lead to contamination of soil and stormwater systems/neighbouring waterways.</p>

	<p>Incorrect storage and disposal of polymer products used in piling works, substances enter waterways with negative impacts on aquatic health.</p> <p>Inadequate or lack of monitoring/maintenance of acid sulphate treatment areas resulting in acid sulphate material, sediment or acidic runoff being discharged into stormwater systems/waterways.</p>
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The required elements for the successful completion of the monthly SER activities are described below.

- The monthly field check should be recorded on the SER Field Report and form part of evidence to meet the monthly SER review. The field check is to be completed by the Package Manager or delegate from the operational team.
- System-based controls are to be reviewed for application and effectiveness on a monthly basis with the bounds of the project's construction environmental management plan. System checks are assessed through the SER Planning and Control Report.
- The monitoring activity frequency will be dependent on occurrence of activities with the potential to cause high-consequence environmental impact on the project and reflect the current construction risk processes and methodologies.
- If all aspects of the performance criteria are working effectively in all areas where the risk applies, then the risk can be deemed to be managed and controlled.
- The SER Field Report and SER Planning and Control Report shall be completed on a monthly basis
- SER outcomes shall be monitored monthly during the Portion/Project Review
- Impact will be used to document the completed monitoring activities.

The SERs Control Adequacy Assessment Tool is to be used as guidance for the implementation of the standard.

The SERs Control Adequacy Assessment Work Instruction defines the procedural requirements for completing the monitoring activities.

## 12.0 Training, Awareness and Competence

Requirements for training, awareness and competence for environmental aspects and impacts are outlined in System Requirement Onboarding, Training, Induction and VOC and this management plan.

All employees will receive suitable environmental induction / training to ensure that they are aware of their responsibilities and are competent to carry out the work.

Environmental requirements will be explained to employees during site induction and on-going training via tool box meetings, briefings, notifications and the like.

All employees (including subcontractors) will receive induction/ training typically in the following:

- Environmental Policy
- Site environmental objectives and targets
- Understanding individual authorities and responsibilities
- Site environmental rules
- Potential consequences of departure from rules
- Emergency procedure and response (e.g. Spill clean-up)
- Basic understanding of their legal obligations

Personnel performing tasks which can cause significant environmental impacts will be competent on the basis of appropriate education, training and / or experience.

All LOR operational staff on this project will be provided with training in the requirements and implementation of this CEMP. CEMP training for new staff members shall be completed within 1 month of their commencement on the project.

Training in the operation and implementation of LOR's Environmental Management System shall be provided for all operational staff.

The Project Environmental Representative will establish a schedule of environmental training in conjunction with the development of this CEMP.

Training in high risk aspects shall be undertaken as the project progresses. An outline of typical proposed training is provided in Table 4. The training shall be scheduled to reflect the requirements of the construction program.

Table 4. Training requirements

Aspect	Training Inclusion	Personnel Required	Timing / Frequency/Means
Emergency Spill Response	<ul style="list-style-type: none"> <li>• Use and location of spill kits</li> <li>• Spill control</li> <li>• Emergency response procedures</li> <li>• Presentation and assessment</li> <li>• Spill response drill</li> <li>• Identification of hydraulic hose fatigue</li> </ul>	Operational personnel	Project Induction / Project Toolbox Talks / Internal LOR course run as required for site personnel
Erosion and Sediment Control	<ul style="list-style-type: none"> <li>• Standard erosion and sediment controls from the Landcom 'Blue Book'</li> <li>• Implementation of controls on site</li> <li>• Erosion and Sediment Control Plans</li> </ul>	Operational personnel	Project Induction/ Project Toolbox Talks/ Internal LOR course run as required for site personnel
Heritage Awareness	<ul style="list-style-type: none"> <li>• Stop works and reporting protocols for discovery of previously unknown heritage and archaeological items</li> </ul>	Operational personnel	Project Induction/ Project Toolbox Talks/ Protocol posted on message boards
Contamination Awareness	<ul style="list-style-type: none"> <li>• Contamination status of site</li> <li>• Stop works protocols for unidentified potential contamination (hydrocarbons, asbestos, etc)</li> </ul>	Operational personnel	Project Induction/ Project Toolbox Talks/ Protocol distributed to workers and posted on message boards
Environmental Legal Obligations	<ul style="list-style-type: none"> <li>• EP&amp;A Act, POEO Act and other project requirements</li> <li>• Applicable fines and prosecutions</li> </ul>	Operational personnel	Project Induction/ Project Toolbox Talks
Energy and Resource Usage	<ul style="list-style-type: none"> <li>• Awareness training of energy and resource efficiency in the workplace including office/compound and site initiatives such as harvesting rainwater for dust suppression instead of potable mains water and use of bio-fuels</li> </ul>	Operational personnel	Project Induction/ Project Toolbox Talks
Community / Stakeholder Awareness	<ul style="list-style-type: none"> <li>• Adjacent community and Project involvement</li> <li>• Relevant Project stakeholders</li> <li>• Accepted behaviours</li> <li>• Approved hours of work</li> </ul>	Operational personnel	Project Induction/ Project Toolbox Talks
Biodiversity	<ul style="list-style-type: none"> <li>• Approvals required for removal of vegetation</li> <li>• Wildlife status of project and surrounds</li> <li>• Stop work and reporting protocols for injured wildlife</li> </ul>	Operational personnel	Project Induction/ Project Toolbox Talks

Environmental content is to be included in Toolbox talks and pre-start briefings. All training and tool box meetings will be recorded.

LOR site staff are required to sign the CEMP acknowledgment form in Appendix 13.

## 13.0 Communication and Reporting

LOR's HSEMS includes specific organisational requirements related to communication and reporting within the System Requirement – Communication and Reporting. With respect to the functioning of the project's environmental system, Company employees, the client and other interested parties will be kept informed as necessary with requirements outlined in the section below.

### 13.1 Internal

Internal communication methods typically include:

- Digital Contract Reviews
- Management reports
- Site inspection reports
- Audit reports
- Incident reports
- Noticeboards
- Site meetings
- Employee induction, training and tool box sessions
- Briefings, notifications and alerts

### 13.2 External

External communication methods typically include:

- Site meetings with the Client
- All significant incidents notified to the client
- Project reports to client, e.g. Project Monthly Report
- Meetings and correspondence with interested authorities (e.g. Sydney Water) as necessary
- Discussions with adjoining land owners / neighbours and the community who may be affected by the project

## 14.0 System Documentation

LOR's integrated HSEMS is part of a business wide management system which is known as iGATE. The core elements of the project management system are described in this CEMP with reference to relevant HSEMS System Requirements, Primary Standards and SER Protocols.

## 15.0 Document Control and Records

Document control requirements associated with the LOR Health, Safety and Environmental Management System shall be implemented in accordance with E-P-8-0136 Document Control – Records and Filing.

The Project has established a record management system that allows for the ready access to HSE information – typically hard copy folders, server-based electronic systems or proprietary document management systems.

Individuals with responsibilities for work packages are responsible for the proper maintenance and upkeep of the workplace / project record management system to ensure:

- Files and records are kept up-to-date
- Records are not lost, damaged or inadvertently destroyed
- Records are maintained in accordance with the contractual, statutory requirements and timeframes
- Kept as objective evidence of compliance with environmental requirements
- Filed in accordance with -P-8-0136 Document Control – Records and Filing.

## 16.0 Operational Control

### 16.1 General

Activities and business processes that have the potential to significantly affect our environmental performance must be identified, planned, documented and controls measures implemented to ensure the Company's policy, objectives and compliance obligations are met.

Within LOR's HSEMS and with respect to the context of the business, operational controls are documented in Environmental Primary Standards. Environmental Primary Standards have been developed from aspects and impacts and compliance obligations. They provide the framework for eliminating or minimising risk of environmental harm as well as creating opportunity for innovation and enhancing environmental benefits.

At a Project level, specific operational controls to manage environmental issues are defined in either or all of the following:

- ERAPs contained in Appendix 4
- Sub-plans contained in Appendix 4 or standalone documents referenced below and in Appendix 4
- SWMS, EWMS, JSEA's, HAZID, CRAW, Inspection and Test Plans / checksheets (as appropriate)
- Work instructions (e.g. refuelling and servicing)

Significant environmental issues, as identified in the Risk and Opportunity assessment in Appendix 3, will be controlled ERAPs and complemented by issue specific Sub-plans as required.

Additional controls and criteria identified from the project's compliance obligations (conditions of approval, environmental mitigation measures and contract requirements) will be established and maintained where the absence of such could result in the environmental policy, objectives and targets not being met.

### 16.2 Design

Environmental design requirements are to be managed in accordance with System Requirement Environmental Design. Where Laing O'Rourke has the responsibility for the completion of design activities, design risk and compliance obligations are to be included in the project environmental risk assessment and the project's risk and opportunity assessment. The following environmental issues should be typically considered during the design phase:

- How to minimise any adverse impacts on the environment including energy efficient operation, incorporation of sustainable or recycled materials
- How to improve design efficiency to conserve natural resources
- Address the requirements of LOR's sustainability agenda
- How to meet environmental codes, regulations and other requirements
- Conditions of approval and development consent requirements
- Mitigation measures outlines in the environmental assessments
- Contractual environmental design requirements

These issues should be considered, while taking into account the environmental, economic and social aspects of the project.

The design process is controlled in accordance with the Project Design Management Plan and Client Design Brief/ PPR. Design risk and compliance obligations are included in the project environmental risk assessment and the project's risk and opportunity assessment, as applicable. Design Execution plans are to outline the environmental compliance requirements necessary for the project to meet its environmental obligations. In particular, the Design Execution Plan is to describe the project specific design approach to minimising impact of the works on the surrounding ecology, water, flora, fauna and atmosphere, as applicable.

Design Execution Plans are to outline the environmental design review process and nominate the environmental resources required to ensure environmental compliance obligations are addressed during the design phase. Environmental compliance obligations are to be reviewed and verified at each design stage.

### 16.3 Procurement

The supply of goods and/or services by suppliers and subcontractors will be managed in accordance with the System Requirement Procurement and Supply Chain and Core Process. In particular::

- During the tender phase, supply chain partners are to be evaluated for their ability to meet the project's environmental obligations. Environmental issues should be taken into account when selecting subcontractors and suppliers as provided in E-P-3-0410 Procure Evaluate Select and using ET-3-0461e ITT Part 3 Supply chain HSES Evaluation.

- Supply, subcontract and consultancy agreements must address the relevant environmental compliance obligations. Agreements will outline the contractual requirements to be delivered by the supply chain through their scope of works and as outlined in the System Requirement Procurement and Supply Chain.
- Supply chain partners are to be required to nominate relevant environmental risks and proposed mitigation measures associated with their scope of work within their project specific documentation. As a minimum subcontractors, SWMS must address the environmental risks associated with their site activities.
- Suppliers of chemicals and hazardous substances will be required to submit SDS's with delivery or prior to chemicals arriving at site. Prior approval to bring hazardous substances to site may need to be obtained from the client.
- Supply chain partners are to be required to nominate relevant environmental risks and proposed mitigation measures associated with their scope of work within their project specific documentation. As a minimum subcontractors, SWMS must address the environmental risks associated with their site activities.
- The environmental performance of subcontractors will be monitored during site inspections and in accordance with the obligations in their agreements and contracts.

#### 16.4 Handling, Storage, Packaging and Transport

The handling, storage, packaging and transport of goods will be controlled in accordance with [the Procurement Swim Lane in Enabling process and E-P-3-0410 Procure Evaluate Select](#).

Dangerous Goods/Hazardous materials will be stored and handled in accordance with Material Safety Data Sheets and the requirements of the Australian Dangerous Goods Code.

The Dangerous Goods (Road and Rail Transport) Act includes specific requirements in relation to the transport of dangerous goods. Where dangerous goods are to be transported as a result of the project, the requirements of the Act must be complied with by LOR and third parties.

In particular, regardless of the quantity, appropriate transport documentation must be included with each load unless a specific exemption exists.

Transport documentation must include the following:

- Project/workplace name, contact number
- Transporter name, contact number
- Transport date, origin and destination
- Product name, classification, container type, quantity

Form E-T-8-1232 Dangerous Goods Transport Note may be used.

These materials will be stored in a safe area (e.g. bunded and/or store) which will prevent or contain accidental spillage and harm to the environment. Further details are provided in Appendix 4 in the ERAP - Delivery and Storage of Chemicals, Fuels & Oils and including Dangerous Goods requirements.

SDS's must be stored along with or at the point of storage.

#### 16.5 Work Cover Requirements (Condition C23)

- The Subject Site must be adequately secured at all times to prevent access by unauthorised personnel.
- Work must be conducted at all times in accordance with relevant Work Cover requirements.

#### 16.6 Hold Points

The activities outlined in the table below are not to proceed without objective review and approval by the nominated authority. These activities below are considered hold points. These hold points should be incorporated into the working plans for the project, as applicable (SWMS, work instructions, construction methodologies, etc)

Table 5. Operational hold points

Item	Process Held	Acceptance Criteria	Approval Authority
Construction Environmental Management Plan	Construction activities	Site specific Construction Environmental Management Plan has been developed, reviewed and approved.	Project Leader

Item	Process Held	Acceptance Criteria	Approval Authority
Dewatering	Dewatering / pumping water off the site.	Verification that the water quality criteria have been met.	Site Manager (note - approval to be first obtained on the procedure /requirements for the site from the Environment Leader – Australia Hub)
Sediment and erosion control measures	Construction activities involving ground disturbance.	Sediment and Erosion Control Plan has been developed, reviewed, approved and implemented	Site Manager
Site clearing / vegetation removal	Commencement of site clearing or vegetation removal.	Clearing limits have been verified against the project approval environmental assessment, limits have been set-out and vegetation to be retained has been delineated and or protected.	Project Leader
Construction Methodologies – direct delivery and subcontract works.	Construction process representing potential medium or high impact to the environment.	Construction methodology / SWMS / JSEA have been reviewed by the PER and address the requirements of the CEMP ERAPs.	PER/Senior Project Engineer/ Project Engineer/ Site Engineer
Dangerous Goods	Transport of dangerous goods	Verification that transport vehicles meet the requirements.	Site Manager
Dangerous Goods	Storage of dangerous goods	Verification that bunded storage is provided and that offset distances are maintained for the storage area.	Site Manager
Controlled/ Hazardous Waste	Transport of Controlled / Hazardous waste from the site	Verification that the waste has been classified in accordance with the guidelines, transport licensing in place and landfill can lawfully receive the waste	Project Leader
Spoil Transport	Removal of spoil from site	Verification that the spoil has been classified and the disposal location can lawfully receive the waste.	Project Leader
Construction Traffic and Pedestrian Management Plan (CTPMP)	Works Certificate Issue Site Activities	A CTPMP must be prepared by an appropriately qualified person in consultation with RMS and TfNSW (Sydney Coordination Office) and approved by the Certifying Authority. Refer to Condition B26 for requirements that the plan must address.	Project Leader Certifying Authority
Construction Noise and Vibration management Plan (CNVMP)	Works Certificate Issue Site Activities	A CNVMP must be prepared by a suitably qualified person and approved by the Certifying Authority. Refer to Condition B22 for requirements that the plan must address.	Project Leader Certifying Authority
Construction Waste Management Plan (CWMP)	Works Certificate Issue Site Activities	A CWMP must be prepared and approved by the Certifying Authority. Refer to Condition B24 for requirements that the plan must address.	Project Leader Certifying Authority
Project Determination (Planning Approval for State Significant Development (SSD))	Any works associated with Packages 1B and 1C	Determination & development consent obtained prior to works associated with Packages 1B and 1C being undertaken.  CEMP updated to reflect Conditions of Approval and mitigations measures associated with the above determinations.	Project Leader Minister for Planning

**Proceeding past a specified Hold Point without authorisation is a system non-conformance.**

## 16.7 Environmental Control Plan

The project Environmental Control Plan(s) is prepared to assist in the planning and delivery of the project. It is specific to the site or work area and outlines the location of protection measures, monitoring requirements, conditions of approval and environmentally sensitive areas. It is the practical application of the proposed control measures.

The Environmental Control Plan is to be used in project inductions, work site set-up, reviewing ongoing environmental performance, included as information in tender documents to subcontractors were applicable and in support of ancillary environmental approvals.

The project Environmental Control Plan shall typically include (but not limited to):

- The worksite layout and boundary, including entry/exit points and internal roads and clearing limits
- Location of adjoining land-use and nearest noise sensitive receivers
- Location and type of sediment and erosion control measures, including size / capacity of detention basins and wheel wash facilities
- Location of site offices
- Location of spill containment and clean-up equipment
- Location of worksite waste management facilities
- Hours of work applicable to the worksite (including deliveries and any restrictions on high noise generating activities).
- Document control and approval details
- Location of environmentally sensitive areas (e.g. threatened species, critical habitat, contaminated areas, heritage zones, etc)
- Vegetation and trees to be protected
- Location of known heritage (indigenous and non-indigenous) items
- Location of stormwater drainage and watercourses leading to / from the worksite
- Specific environmental management requirements from licenses, approvals or permit conditions
- Key environmental risk issues and the specific mitigation measures

The plan includes erosion and sediment controls on site and is included in Appendix 5 of this CEMP (as a baseline and example within this CEMP). It should be noted that this plan is progressively updated to reflect site conditions and controls, as required and maintained on the Project Document System as subsequent revisions.

### 16.8 Working Hours (Condition C2)

- The hours of construction, including delivery of materials to and from site, may only be carried out between the following hours:
  - Between 7:00 am to 6:00 pm, Mondays to Fridays inclusive; and
  - 7:30 am to 3:30 pm Saturdays.
- No work may be carried out on Sundays or public holidays
- Activities may be undertaken outside of these hours:
  - If required by the Police or a public authority for the delivery of vehicles, plant or materials; or
  - If required in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or
  - Works are inaudible at the nearest sensitive receivers; or
  - If a variation is approved in advance in writing by the Planning Secretary or her nominee
- Notification of any activities undertaken outside of the approved working hours must be given to affected residents before undertaking the activities or as soon as is practical afterwards.
- Works shall be carried out in accordance with the UoS's - 'Campus Infrastructure and Services Contractor Handbook'

### 16.9 24hr Contact Details (Condition C20)

- 24hour Contact details during the construction phase of the project are as follows:

Table 6. Project 24 hr contact details

Contact	Role	Mobile	Email
Luke Allman	Site Manager	0439 203 340	LAallman@laingorourke.com.au
Chris Quinn	Project Leader	0409 289 682	ChrisQuinn@laingorourke.com.au
Ben Reyes	HSE Manager	0455 096 792	<a href="mailto:BReyes@laingorourke.com.au">BReyes@laingorourke.com.au</a>
Chris Paul	Senior Project Engineer	0448 241 416	<a href="mailto:Chrispaul@laingorourke.com.au">Chrispaul@laingorourke.com.au</a>
24 Hour Complaints Hotline & Enquiries Email		1800 951 161	susanwakilbuilding@laingorourke.com.au

## 16.10 Approved Plans to be On-site (Condition C1)

- A copy of all the approved and certified plans, specifications and documents must be kept on the Subject Site at all times and be readily available for perusal by any officer of the Department, Council or the Certifying Authority.

## 16.11 Site Notice (Condition C22)

- A site notice(s) must be displayed at the boundaries of the Subject Site for the purposes of informing the public of the project details and must include the details of the Builder, Certifying Authority and Structural Engineer.
- The notice must satisfy the following requirements:
  - a) The minimum dimensions of the notice are to measure 841mm x 594mm (A1) with text to be a minimum of 30 point type size.
  - b) The notice must be durable and weatherproof and is to be displayed throughout the entire works period.
  - c) Include the approved hours of work, the name of the site/project manager, the responsible company, its address and 25 hour contact phone number for any inquiries, including construction/noise complaint.
  - d) Must be mounted at eye level on the perimeter hoardings/fencing and is to state that unauthorised entry to the Subject Site is not permitted.

## 16.12 Protection of Public Infrastructure (Condition C31)

- The applicant must repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development unless the applicant and the applicable authority agree otherwise.
- The applicant must relocate, or pay the full costs associated with relocating, any infrastructure that needs to be relocated as a result of the develop, unless the applicant and the applicable authority agree otherwise.

## 16.13 Manufacture, Construction and Fabrication Processes

These processes will be controlled in accordance with the Project Team (Operations/Construction & HSEQ) Swim Lane and the procedures provided in 2237 Plan Workmanship, Quality Inspections and Commissioning.

Environmental requirements, relating to manufacture, construction and fabrication processes, are defined in:

- Construction methodologies, Safe Work Method Statements and JSEAs
- Inspection and Test Plans, Task Complete Checklists and associated documents
- Contract documents
- Environmental control procedures

### 16.13.1 Life cycle perspective

The life cycle approach (or life cycle perspective) means understanding the relevant stages of a product or service system, from raw material acquisition or generation from natural resources to final disposal. LOR's System Requirement Life Cycle Approach outlines the process for ensuing this approach is taken on our projects.

From a project perspective, the life cycle approach applies to the following:

- Work Winning (estimating & cost planning, business development, bids & proposals)
- Commercial (head & sub-contract formation)
- Engineering (feasibility studies, concept design, front-end engineering design, detailed design)
- Procurement (supply and delivery of goods and services)
- Delivery (construction, commissioning)

At each stage of project delivery LOR will determine the aspects and opportunities to influence lifecycle outcomes including but not limited to:

- Stage in the life cycle of the product or service
- Degree of control the business has over the life cycle stages
- Degree of influence it has over the life cycle
- Life of the product
- Ability to influence on the supply chain

### 16.13.2 Planning for high environmental risk activities

Works site planning processes for high environmental risk activities is outlined in the System Requirement Environmental Planning which forms part of the LOR HSEMS. Details of specific activities considered high risk are provided in the system requirement. Additional activities may be identified in the project environmental risk assessment.

For all activities that have the potential to cause high-risk environmental impacts or are nominated as high risk activities as determined by the project environment risk assessment activity specific method statements are to be developed and implemented.

The activity specific method statement to address environmental high risk activities may be combined with existing construction planning documentation. It is to be developed in consultation with the environmental team, engineering team and relevant workplace supervisors.

Prior to the commencement of the activity, the site team shall be instructed on the key environmental risks and the required mitigation measures provided in the activity specific work method statement to address high risk activities.

This also applies to supply chain partners operating on the site. Supply chain partners involved in activities that represent a high risk to the environment are to address the above requirements in their activity methodologies and method statements. Supply chain partners involved in these activities are to complete an environmental risk assessment workshop prior to the commencement of the activity.

## 16.14 Plant and Equipment

Primary Standard Spill Prevention includes requirements related to the fuelling and servicing of plant and equipment. These requirements represent the minimum requirements within LOR's HSEMS. Additional project specific requirements and specific controls are included in the issue specific sub-plans or ERAPs.

Plant and equipment owned by LOR will be maintained in a safe and serviceable manner in accordance with Project Team (Operations/Construction & HSEQ) Swim Lane and the procedures provided in 2113 Plant Operational Control. In particular the following requirements apply:

- Plant will be inspected prior to operation on site. In particular fuel lines, hydraulic hoses or other items with the potential to impact the environment are to be inspected. Items found to be worn, damaged or otherwise degraded are to be replaced prior to operation
- Plant will be serviced, re-fuelled and washed-down only in approved areas where hydrocarbons can be captured and then properly disposed
- Fuelling will be carried out in bunded areas when fuelling from bulk tanks
- Plant and equipment will be maintained to prevent / fix oil leaks
- Plant will be driven and operated only in approved areas
- Plant will have effective pollution control and sound attenuation devices fitted
- Site lighting to comply with AS4282: 1997 Control of the Obtrusive Effects of Outdoor Lighting (Condition B12).

Further information on environmental controls is contained in Appendix 4.

## 17.0 Emergency Preparedness and Response

The types of environmental emergencies which could occur on this site are shown in *Appendix 7*.

The client and relevant statutory and regulatory authorities (such as the EPA) will also be informed as necessary. Environmental emergencies will be handled as follows:

- Immediately report all incidents to the Project Leader and Site/Construction Manager who will assess the situation and manage the following steps:
- Immediately take all reasonable steps to contain further damage or danger to personnel, public, property and the environment
- Inform relevant authorities in accordance with the regulatory requirements provided in Section 19 below.
- Contact emergency service personnel as necessary (eg. fire dept., spill clean-up services, etc). Site emergency response team will also be contacted.
- Provide notification to the Environment Leader – Australia Hub, HSE General Manager and Head of Legal immediately via phone and email.
- Inform the Client's Representative as necessary and in accordance with contractual requirements (nominated in Section 19 below)
- Complete a detailed report of the incident using IMPACT.
- Liaise with the Client's Representative regarding corrective and preventive actions required and the timeframes within which these actions must occur.
- The designated personnel will undertake the corrective and preventive actions.

Information on the handling of hazardous materials is contained in the SDS file.

Emergency Services contact numbers are to be displayed in the main site office.

The emergency response process is to be periodically tested via an environmental emergency drill at intervals not exceeding 12 months.

Specific system requirements related to environmental emergencies are outlined in System Requirement Emergency Planning and Response.

## 17.1 Site Shutdown Planning

Site shutdown periods must be planned and coordinated to ensure the risk of environmental impact is minimised. Shutdown periods are considered to be any period in which construction activities are not planned to take place on the site for more than 3 consecutive days. This includes public holiday and RDO periods. Site shutdown planning must be undertaken in accordance with System Requirement Environmental Planning. Planning activities must ensure that inspections, resources and contingency measures are agreed and implemented for the shutdown period. This is to be documented in a specific Shutdown Go Pack.

## 18.0 Monitoring and Measurement

Key characteristics of the project operations and activities which have a significant impact on the environment will be regularly monitored and measured.

This will include:

- recording of information to track performance
- monitoring operational controls
- level of conformance with objectives and targets

[E-T-8-1227 Environmental Inspection Report](#) will be used to monitor environmental issues on site and issued to the Project Leader. The report will be completed on a weekly basis.

A safety and environmental checklist [E-T-8-0905 Management H & S and Environmental Checklist](#) will be completed by the Project Supervisors weekly to monitor environmental issues on site and issued to the Project Leader/Site Manager for review and signing.

Issues identified during environmental inspection requiring further action beyond normal practice or maintenance and are to be logged into IMPACT via the Assurance Application or retained in Fieldview as defined in the project procedures.

Non-conformance to Operational Control procedures or to the Environmental Management System that cannot be rectified immediately shall be recorded and addressed by raising a [E-T-8-0113 Non-conformance Report](#) or logged into the Assurance application in IMPACT.

The following environmental issues / non-conformances are to be included within IMPACT as corrective actions.

- Internal inspection outcomes that cannot be rectified immediately – actions nominated on E-T-8-1227 / E-T-8-0905
- Incidents and associated corrective actions
- Internal audit observations/non-compliance
- Client audits or other notice of non-compliance
- Notices or action from regulatory authorities

Where environmental inspection or monitoring outcomes are required to be logged into IMPACT, a workplace visit is to be created and the associated actions generated.

Where deemed necessary by the Project Environmental Representative and as a result of revisions to project scope or changes to project risks, additional ERAPs to control potential impacts will be developed.

### 18.1 Corrective Actions

Corrective actions are differentiated by risk ranking. The nominated timeframes to resolve items on the CAR Register are listed in Table 7:

Table 7. Corrective action risk rankings

CAR Risk Ranking	Timeframe for resolution
1	Action needs to be commenced immediately to resolve the issue
2	Action needs to be resolved within 1 week.
3	Action needs to be resolved within 1 month.

Refer to [the Project Team \(Delivery\) Swim Lane in Core Process 66 Compliance](#) and [C-P-8-0107 Continual Improvement Corrective and Preventative Action](#) for further detail.

Further monitoring and reporting activities against operational objectives and targets are listed in Section 9 of this Plan. If monitoring and measuring equipment is required, then it will be calibrated, maintained and controlled in accordance with Project Team (Operations/Construction & HSEQ) Swim Lane and the procedures provided in 2237 Plan Workmanship, Quality Inspections and Commissioning. Records of calibration will be kept in the Contract Filing System.

## 18.2 Monthly Environmental Reporting

LOR approach to environmental reporting is outlined in System Requirement – Communication and Reporting. Monthly environmental reporting is to be completed through LOR’s Digital Contract Review process. The Project Leader or Workplace Leader is responsible for ensuring environmental performance information is included in each months Digital Contract Review such as the following as necessary:

- Summary discussion on project risks and opportunities – to be read in conjunction with the risk register
- Environmental performance outcomes, improvement initiatives or corrective measures
- Client and stakeholders engagement and interface. In particular, client feedback on project environmental performance.
- Environmental incident/non-compliance and event management including the outcomes from incident investigations and corrective actions
- Content for the environmental project dashboard

Client reporting requirements are to be included in this CEMP.

Subcontracts and supply chain agreements must include supply chain reporting requirements as necessary. This may include the following:

- Environmental management reporting requirements and key performance indicators
- Waste management reporting
- Project specific conditions of approval or environmental compliance reporting requirements
- Greenhouse gas and life cycle reporting
- Supply chain environmental performance reporting shall be used as necessary to inform project and workplace environmental reporting.

### 18.2.1 Monthly Project Environmental System Self-check

On a monthly basis, the project will assess the performance and implementation of the project environmental system through the project Environmental System Self-check. Outcomes of the project environmental system self-check are to be retained in the project records.

Table 8 below outlines the requirements and criteria to be revised and the relevant frequency.

Table 8. Monthly environmental system self-check

System Requirement	Criteria	Frequency
Severe Environmental Risk Program	Program implemented and actions complete.	Monthly
Site inspection implementation	Site inspections have been completed in accordance with the environmental management plan requirements.	Monthly
Event management	Environmental incidents have been reviewed, investigations completed and actions closed out.	Monthly
Environmental Monitoring Programme	Environmental monitoring has been completed and reviewed for compliance. Non-compliances have been actioned and closed out.	Monthly
Waste management	Project waste management register is up to date including spoil management and disposal.	Monthly
Conditions of Approval tracking	Conditions of approval compliance matrix has been reviewed and updated demonstrating compliance with conditions.	Quarterly

### 18.2.2 Supply Chain Environmental Compliance Obligations Review

Suppliers and subcontractors operating on the project will be subject to environmental performance requirements. Environmental performance requirements will apply to all suppliers and subcontractors in accordance with the supply or subcontract agreements.

To ensure supply chain environmental performance requirements are being met on the project the following will be implemented:

- Supply chain audits - audits of the implementation of supply chain environmental systems on projects will be undertaken. Supply chain audits will verify implementation of the environmental requirements from their respective agreements.
- Environmental inspections on the project will review supply chain performance.

- Monthly Environmental Reports - as required to report on environmental performance and as outlined in supply chain agreements
- Waste disposal reporting - all supply chain partners operating on site with obligations for waste disposal will maintain waste disposal records and provide reports on a monthly basis
- Environmental Monitoring - where required by their supply chain agreement environmental monitoring to verify environmental performance targets are being met is to be undertaken and reported.

If contractor work on the site is being performed contrary to the contractor's plan and / or applicable legislative requirements, action will be taken immediately. This may include a direction to stop work and issuing a relevant site instruction to address the non-compliance to works procedures and environmental controls.

## 19.0 Incidents, Corrective and Preventative Action

The management, investigation, reporting and notification process for environmental events, including any positive events is to be undertaken in accordance with the System Requirement Event Management and Reporting.

All incidents (including potential incidents) must be reported so that they can be investigated and prevented from recurring.

Form [E-T-8-1222 Environmental Incident and Complaint Report](#) shall be completed and issued to the Project Leader for all Potential or Actual Class 1 or Class 2 incidents. The completion of [E-T-8-1222 Environmental Incident and Complaint Report](#) for Class 3 incidents is at the discretion of the Project Leader. Notwithstanding Class 1, Class 2 and Class 3 incidents are to be recorded in IMPACT.

Incident Reporting & Investigation from the project sites is to be recorded in IMPACT, LORA's Online Incident Investigation Reporting Tool. IMPACT can be accessed from the LORA Intranet Home Page or remotely connected via the Internet where connection is possible and direct access to the LORA Intranet is not available. Incidents are to be logged in IMPACT within 48 hours of occurrence. For Class 1 and Class 2 incidents, an investigation must also be logged in IMPACT.

Incidents involving failures in hydraulic equipment shall have an [E-C-8-1426 Hydraulic Incident Notification](#) completed to identify the potential causal factors associated with the incident.

The Environment Leader – Australia Hub, HSE General Manager and Head of Legal shall be notified by telephone as soon as practicable after any Actual or Potential Class 1 & Class 2 Incidents with the potential to result in regulatory action.

Table 9. Classes of environmental incidents

Class One	Class Two (Including Potential)	Class Three
<p>Class One Environmental Incidents create permanent or long term damage to the environment. This damage will result in the environment taking 12 months or more to return to pre-existing conditions.</p> <p>Major environmental investigation and potential for large prosecution.</p>	<p>Class Two Environmental Incidents create short to medium term damage to the environment.</p> <p>This damage will result in the environment taking up to 12 months to return to pre-existing conditions            Potential for prosecution or infringement notice</p>	<p>Class Three Environmental Incidents typically cause short term or nuisance damage. The damage is easily rectified usually within one day. Class 3 incidents do not cause medium or long term damage.</p>

The classifications are explained in detail with examples in the LOR Environmental Incident Classification Guidelines which is available in the System Requirement Event Management and Reporting.

### Class 3 Incidents

Where a Class 3 incident has occurred, the LOR Site Manager or immediate supervisor is to be informed. Class 3 incidents must be logged directly into IMPACT.

### Actual or Potential Class 2 Incidents

Where an actual or potential Class 2 incident has occurred, Group Management is to be informed via the Project Leader. Class 2 incidents are to be investigated using a recognised investigation protocol.

### Class 1 Incidents

Where a Class 1 incident occurs the Environment Leader, HSE General Manager and the Head of Legal are to be informed immediately. The requirements of the flow chart in Appendix 1 are to be applied to all actual or potential Class 1 environmental incidents.

Class 1 incidents shall be subject to an ICAM or Tap Root investigation.

Where complaints are received at project sites or workplaces involving the media or where the company image is likely to be affected, they shall be documented on the [E-T-8-0951A HSE Internal Incident Notification](#) form as provided below.

All Class 1 & Class 2 incidents will be reported to the relevant State & Federal Authorities as required under relevant Acts & Regulations. Further details are provided in the section External Incident Reporting below.

Complaints will be reported to external authorities in accordance with specific licence/permit or approval requirements.

Refer to the iGATE Environmental [External Websites](#) or [Legal Compliance Service](#) for the applicable legislation.

[E-T-8-0951A HSE Internal Incident Notification](#) shall be completed for all Actual & Potential Class 1 & Class 2 Incidents within 24 hours of the incident occurring and sent (email/fax) to the Distribution List as below:

- Project Environmental Representative
- Project Leader
- Environmental Leader – Australia Hub
- Area Manager
- HSE General Manager
- Head of Legal

### 19.1 Incident Reporting

Environmental incidents and complaints are to be investigated, documented, actioned and closed out as per the details provided in the investigation process above.

The form [E-T-8-1222 Environmental Incident and Complaint Report](#) shall be completed for all Potential or Actual Class 1 or Class 2 environmental incidents and complaints within 2 working days of the incident and forwarded to the Project Leader. The completion of [E-T-8-1222 Environmental Incident and Complaint Report](#) for Class 3 incidents is at the discretion of the Project Leader.

LOR will provide notification of the incident to the Client’s Representative as required and in accordance with the contract. On this project and in accordance with the contract requirements, the Client is to be notified as described in Table 9.

Table 10. Incident notification requirements

Notification Type	Contract Requirement
Initial verbal notification	Immediately for actual or potential
Environmental Incident Report requirements	Within 24 hours

Class 1 & Class 2 reportable incidents shall be reviewed by the Environmental Leader – Australia Hub, HSE General Manager and Head of Legal prior to the issue of formal correspondence to external parties or regulatory authorities.

Management system non-conformances and recurring environmental incidents will be handled in accordance with [the Project Team \(Delivery\) Swim Lane in Core Process 66 Compliance and C-P-8-0107 Continual Improvement Corrective and Preventative Action](#).

Where an environmental non-conformance or incident is identified, Corrective and preventive actions shall be developed and may include:

- Review and improve existing environmental controls and job safety analyses/ work method statements
- Site rehabilitation
- Increased site inspections and monitoring
- Modify construction or installation methods
- Increase environmental awareness including re-training and tool-box meetings

Each incident shall be sufficiently investigated to allow specific and detailed corrective and preventative actions to be identified, actioned and closed out as outlined on Form [E-T-8-1222 Environmental Incident and Complaint Report](#) or suitable alternative (ICAM, etc).

**Note:** where a Class 1 Incident has occurred the HSE General Manager will initiate the investigation and allocate responsibilities, an external consultant may be engaged. Authorities are to be notified in accordance with the legislative time frames in the applicable state.

#### 19.1.1 Senior Leaders Environmental incident review

For all Class 1 & Class 2 incidents, within 3 days the Project Leader will convene a briefing with the relevant Senior Business Leader/Area/Operations Manager to provide an update on the incident investigation and to allow the Area/Operations Manager to be actively involved in the investigation process. The briefing will include discussion on the progress of the investigation and any specific initial findings. A status report on any rectification work or maintenance activities to the relevant environmental controls will also be provided.

The following information relating to the incident investigation shall be forwarded to the Senior Business Leader/Area/Operations Manager and HSE General Manager.

- The condition of the environment and the status of any rectification or remediation works,
- The completed incident investigation report, including appropriate causal analysis and corrective actions,
- Program for the implementation of the corrective actions and any maintenance activities,
- A completed HSE Learning Bulletin template to be included in the monthly Learning Bulletin,
- Any other relevant information.

## 19.2 External Incident Notification, Reporting and Response

### 19.2.1 Department of Planning and Environment – Incident Reporting Requirements

**Condition A20** requires that: *“the Department must be notified in writing to [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au) immediately after the Applicant becomes aware of an incident (that causes or may cause significant harm to the environment). The notification must identify the development (including the development application number and the name of the development) and set out the location and nature of the incident.*

**Condition C26** requires that: *“Immediately after the Applicant becomes aware of the occurrence of an incident that causes (or may cause) significant harm to the environment, the Applicant must notify the Planning Secretary and any other relevant agencies of the incident in accordance with condition A20.*

Condition A21 requires that

- a) *“A written incident notification must also be emailed to the DP&E at the following address: [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au) within seven days after Applicant becomes aware of an incident. Notification is required to be given even if the Applicant forms the view that an incident has not occurred.*
- b) *Written notification of an incident must:*
  - i) *identify the development and application number*
  - ii) *provide details of the incident (date, time, location, a brief description of what occurred and why it’s classified as an incident)*
  - iii) *identify how the incident was detected*
  - iv) *identify when the Applicant became aware of the incident*
  - v) *identify any actual or potential non-compliance with conditions of consent*
  - vi) *describe what immediate steps were taken in relation to the incident*
  - vii) *identify further actions that will be taken in relation to the incident; and*
  - viii) *Contact details of a project contact for further communication regarding the incident.”*

**Condition C27** requires that: *“ Within seven days of the detection of the incident, the Applicant must provide the Planning Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested in accordance with condition A21.*

Condition A22 requires that

- a) *“Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report of the incident, addressing all requirements for such reporting set out in the SSD Development Consent 7974, and such further reports as maybe requested.*
- b) *The incident report must include:*
  - i) *A summary of the incident*
  - ii) *Outcomes of an incident investigation (including identification of incident causation)*
  - iii) *Details of the corrective and preventative actions that have been or will be implemented to address the incident and prevent recurrence*
  - iv) *Details of any communications with other stakeholders regarding the incident.”*

**Note:** Refer to the Development Consent Conditions for further definitions of incident and material harm. The Project Leader is to immediately notify and consult with the Environment Leader – Australia Hub. The Project will use the definition of **“Material Harm”** as a trigger to report incidents in line with requirements of above consent conditions.

### 19.2.2 State Matters – NSW Environmental Protection Authority

The EPA must be notified immediately of all pollution incidents that cause or threaten material harm to the environment.

Harm to the environment is “material” if the effect (or potential effect) from an incident on the health or safety of humans or ecosystems is not trivial and or results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000.

Incidents requiring notification to the EPA must also be immediately notified to the Environmental Leader – Australia Hub and the Head of Legal.

If an incident presents an immediate threat to human health or property, 000 is to be called in accordance with the procedures outlined in the Construction Health and Safety Management Plan.

The EPA Environment Line is to be contacted on 131555.

The notification will need to include information on:

- The time, date, nature, duration and location of the incident
- The location of the place where pollution is occurring or is likely to occur
- The nature, the estimated quantity or volume and the concentration of any pollutants involved
- The circumstances in which the incident occurred (including the cause of the incident, if known)
- The action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution
- Other information prescribed by the regulations

In addition to notifying the EPA of pollution incidents other authorities as outlined below must also be notified immediately:

- The Ministry of Health (via the local Public Health Unit - 02 9391 9000)
- SafeWork NSW (13 10 50)
- The local council – Sydney City - (02) 9265 9333
- Fire and Rescue NSW on 000

Regardless of the actual or potential impact, these authorities must be notified under the amended legislation for all notifiable pollution incidents.

Further information in relation to the incident must be provided immediately if it becomes available after the initial notification. Records of contact with and details of the information provided to external authorities must be maintained in the project records. The LOR form E-T-8-0161 Record of Conversation may be used to record contact with the regulatory authorities.

### 19.2.3 Commonwealth Matters

Environmental incidents relating to the Environmental Protection and Biodiversity Conservation Act must be notified to the Secretary of the Department within 7 days of the event.

These types of incidents include the death or injury to the following:

- Migratory bird species
- Listed marine species
- Threatened species or listed ecological community (includes taking)

### 19.3 Client Complaints

All communications from the Client (including CAR's and Audit reports) expressing concern or dissatisfaction with the implementation or operation of the CEMP shall be documented in the Assurance application in IMPACT. Client complaints cannot be rated risk ranking 3.

Public Complaints shall be handled as outlined in Clause 19 above using Form [E-T-8-1222 Environmental Incident and Complaint Report](#) / logged into IMPACT or the Projects Complaint Management System or Register.

Management system non-conformances and recurring environmental incidents will be handled in accordance with the Environmental Management System – [Corrective and Preventative Action](#).

Corrective and preventive actions may include:

- Site remediation and rehabilitation
- Increased site inspections and monitoring
- Increase environmental awareness (re-training, tool-box meetings)
- Review and improve existing environmental controls and job safety analyses/ work method statements

## 20.0 Community Relations

### 20.1 Complaints and Enquiries Procedure

Under Condition B30 “Prior to the commencement of construction works, the following must be made for community enquiries and complaints for the duration of construction:

- A toll-free 24 hour telephone number on which complaints and enquiries may be sent
- A postal address to which written complaints and enquiries may be sent
- An email address to which electronic complaints and enquiries may be transmitted

Condition B31 requires that a Complaints Management System be established prior to the commencement of construction works and implemented and maintained for the duration of these works. This Complaints Management System must include a Complaints Register to record all complaints received about the development and must include:

- Number of complaints received
- Number of people affected in relation to a complaint
- Nature of the complaint and means by which the complaint was addressed and whether resolution was reached, with or without mediation.

This complaints register must be provided to the Planning Secretary upon request.

For further details regarding complaints and enquiries procedures refer to the Community Relations Management Plan (CRMP).

## 20.2 Access to Information

In order to satisfy the requirements of condition C25 the following information and documents must be provided to the UoS and to be made available for public access on the UoS’s website at least 48 hours prior to the commencement of construction until the completion of all works:

- a) The Environmental Impact Statement and Response To Submissions
- b) All current statutory approvals for the development
- c) All approved strategies, plans and programs required under the conditions of this consent
- d) Regular reporting on the environmental performance of the development
- e) A comprehensive summary of the monitoring results of the development
- f) A summary of the current stage and progress of the development
- g) Contact details to enquire about the development or to make a complaint
- h) A complaints register that is updated monthly
- i) Audit reports prepared as part of any independent environmental audit of the development and the response to any recommendations in any audit report

## 21.0 Environmental Management System Audit

Auditing of the project Environmental Management System will be carried out in accordance with the System Requirement Compliance, Review and Assurance. The audit will evaluate compliance with this CEMP and associated documentation including legal, contractual and other requirements.

It is expected that the project will be audited in accordance with the Independent Environmental Audit Program (refer to the Independent Environmental Audit Program schedule (indicative) submitted to the Department under Condition B37).

Under condition B38 “All independent environmental audits of the development must be conducted by a suitably qualified, experienced and independent team of experts and be documented in an audit report which:

- a) assesses the environmental performance of the development, and its effects on the surrounding environment including the community;
- b) assesses whether the development is complying with the terms of the consent.
- c) reviews the adequacy of any document required under this consent; and
- d) recommends measures or actions to improve the environmental performance of the development, and improvements to any document required under this consent.”

Under condition B39 “Within three months of commencing an Independent Environmental Audit, or within another timeframe agreed by the Planning Secretary, and any other NSW agency that requests it, together with a response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.”

The Environment Leader – Australia Hub, in consultation with the project leadership team, will decide on the frequency, scope and timing of any other internal audits (i.e. if deemed necessary in addition to the Independent Audits) and in accordance with the LOR Internal Audit Schedule. An audit report will be issued to management for action. Actions will be followed up for close-out of actions within 1 month of the issue of the audit report.

Audits shall be captured within the Assurance application in IMPACT. Actions associated with audits shall also be logged in the Assurance application in IMPACT.

## 22.0 Management Review

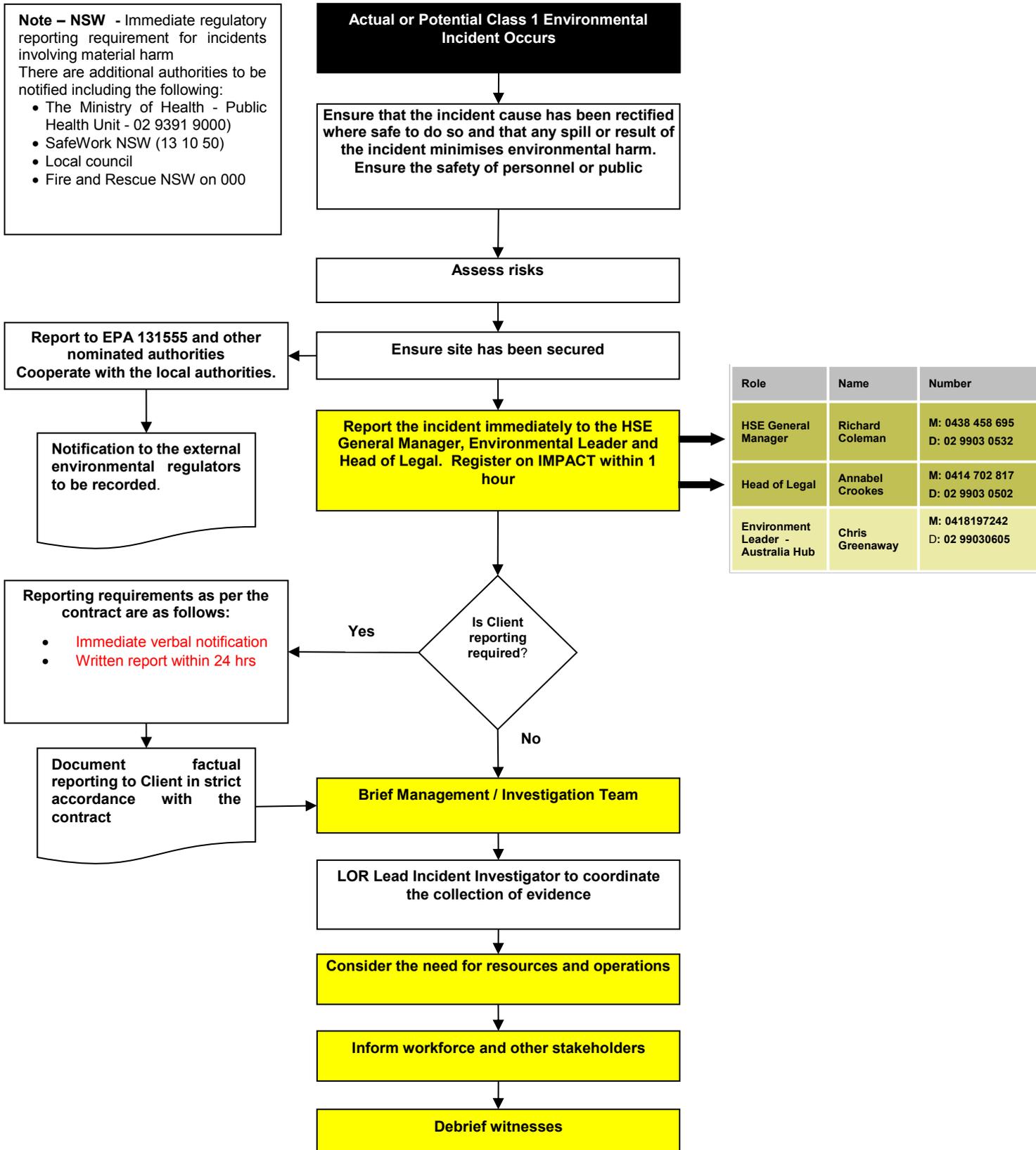
Project Management, will check the status and adequacy of the CEMP to ensure that it meets current client and Company requirements as well as relevant environmental standards.

The Plan will be reviewed as and when required during the course of the contract when the following situations arise:

- Client recommendations for changes (particularly following initial review)
- Changes to the Company's standard system
- Opportunities for improvement or deficiencies in the project system are identified.
- Following an audit of the system or the occurrence of significant incidents and non-conformances

The management review is to be undertaken 6 monthly or at intervals commensurate with the Project risk and scope; and as agreed with the Project Leader.

## APPENDIX 1 – Class 1 Incident Management Flow Chart



# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

## APPENDIX 2 – Legal and Other Requirements

The relevant legal and other requirements are shown in the table below. Access to this legislation is available on iGATE at [LEGAL COMPLIANCE SERVICE](#)

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
<b>Environmental Planning Legislation</b>		
<i>Environmental Planning and Assessment Act 1979</i>	This Act establishes a system of environmental planning and assessment of development proposals for the State.	<b>High Relevance</b> The DA conditions and obligations are incorporated into the specification documents and LOR's CEMP.
<i>Local Government Act 1993</i> <i>Local Government (General) Regulation 2005</i>	The Local Government Act and Local Government (General) Regulation provide a legal framework for an environmentally responsible system of Local Government including the responsibility to administer various regulatory systems (e.g. Environmental Planning, Development Consents and Conditions of Approval).	<b>High Relevance</b> The local Council (the Local Government body for this area) has number powers to control local issues including Development Applications (other than state significant development).
<i>Roads Act 1993</i> <i>Roads (General) Regulation 2000</i>	This Act and Regulation primarily provide for such things as the opening and closing of public roads, identification of road boundaries and road widening, road levels, classification of public roads, road work, protection of public road and regulation of traffic, regulation of work, structures and activities.	<b>No Relevance</b> This Act is mostly an administrative Act for RMS and has minor relevance to carrying out the works.
<i>Soil Conservation Act 1938</i>	This Act makes provision for the conservation of soil resources, farm water resources and the mitigation of erosion. The Act is binding on the Crown, however the Crown is not liable for prosecution. The Act provides for notification in the government gazette catchments where erosion is liable to cause degradation of rivers, lakes etc (i.e. protected land).	<b>No Relevance</b> This Act has low relevance as the site is not located within "protected land". Further, such notification has not been given to the owner of the land.
<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwth)</i>	The main purpose of this Act is to provide for the protection of the environment especially those aspects that are of national environmental importance and to promote ecological sustainable development. The Act binds the Crown. Do not take, use, keep or interfere with "nationally significant" cultural and natural resources, protected wildlife and protected plants without Approval.	<b>No Relevance</b> This Act is of little relevance to the contractor on this project as it has been determined not to trigger the provisions of the act.

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
<p><i>Native Vegetation Act 2003</i> <i>Native Vegetation Regulation 2013</i></p>	<p>This Act and Regulation provide for the conservation and management of Native Vegetation by requiring Development Consent to be obtained for the clearing of Native vegetation. Section 12 of the <i>Native Vegetation Act 2003</i> excludes the clearing of land carried out in accordance with consent under Division 3 of Part 9 of the <i>Roads Act 1993</i>. Clearing of native vegetation required for construction of the work under the contract would be covered by such consent.</p> <p>The Native Vegetation Regulation 2013 allows for the development of self-assessable codes for clearing of feral species, clearing of invasive species, environmental works, thinning native vegetation, clearing of paddock trees, and clearing of mulga.</p>	<p><b>Medium Relevance</b> Prior approval to be sought from DP&amp;E / client for removal of any vegetation on-site</p>
<p><i>Land and Environment Court Act 1979</i></p>	<p>The Land and Environment Court is constituted under this Act. The jurisdiction of the Court is divided into numerous classes. The relevant classes for the project covers matter such as the prosecution for offences under various environmental legislation and to appeal against conditions of approvals, permits or orders.</p>	<p><b>Low Relevance</b> The relevance of this Act would only apply to work under the contract if LOR were prosecuted for an Environmental Offence.</p>
<p><i>Greenhouse Gas (GHG) Emissions National Greenhouse and Energy Reporting Act 2007</i></p>	<p>Corporations emitting more than 50kT of carbon dioxide equivalent units are required to register and report their Scope 1 and Scope 2 emissions for all Facilities in which they have Operational Control.</p> <p>Facilities emitting more than 25kT of carbon dioxide equivalent units must register and report Scope 1 and Scope 2 emissions.</p>	<p><b>High Relevance</b> LORA is a registered entity under this act. As such, where LOR has Operational Control, the Scope 1 and Scope 2 emissions associated with the project must be reported. This includes the collation and reporting of subcontractors site emissions. LOR <b>does/does not</b> have Operational Control of this facility.</p>
<p><b>Contaminated Land Legislation</b></p>		
<p><i>Contaminated Land Management Act 1997</i></p>	<p>This Act provides for a process to investigate and remediate land that has been contaminated and presents a significant risk of harm to human health. Section 60 of the Act is a "Duty to Report Contamination". This duty applies to owners of land and persons who become aware their activities have contaminated the land.</p>	<p><b>No Relevance</b> The site is not listed on the register of contaminated sites within the Contaminated Land management Act 1997.</p>
<p><b>Fire Control Legislation</b></p>		
<p><i>Rural Fires Act 1997</i></p>	<p>This Act is intended to prevent, mitigate and suppress bush and other fires. It places a duty on LOR as the occupier of the site to extinguish fires during bush fire danger periods or if unable to do so notify appropriate firefighting authorities of the existence of the fire and its location.</p>	<p><b>No Relevance</b> This project site and surrounding areas are not prone to bush fires.</p>
<p><b>Hazardous Substances Legislation</b></p>		

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
<i>Environmentally Hazardous Chemicals Act 1985</i>	This Act prohibits the manufacturing, processing, keeping, distributing, conveying, using, selling or disposing of an environmental hazardous chemical or waste (prescribed activity) except under the provisions of a chemical control or a licence. The EPA is required to prepare inventories of environmentally hazardous chemicals and declared chemical wastes.	<b>Low Relevance</b> It is not anticipated any environmentally hazardous chemicals or declared chemical waste will be used or stored on the site. The Act therefore has little relevance to the site other than being aware of the existence of registers of declared chemical wastes and environmentally hazardous chemicals.
<i>Dangerous Goods (Road and Rail Transport) Act 2008</i>	The purpose of this Act is to regulate the transport of Dangerous Goods by road and rail in order to promote public safety and protect property and the environment. The transport of Dangerous Goods is required to be appropriately licensed (both vehicle and driver). Depending on the quantities being transported, the Act outlines specific requirements for including appropriate placards on the transport vehicle, emergency procedures, PPE, manifest documentation and fire extinguishers.	<b>Medium Relevance</b> The relevance of the Act is in respect to the transport of dangerous good to & from the site. The project will require the use of a variety of dangerous goods. LOR will need to review and ensure Dangerous Goods requirements are addressed where transported by its vehicles, plant and equipment.
<i>Water Management Act 2000</i> <i>Water Management (General) Regulation 2004</i>	This Act repeals the Rivers and Foreshores Improvement Act, 1948 and the Water Act, 1912. The provisions of both the aforesaid Acts are progressively rescinded as Water Management Plans are prepared and gazetted for catchment areas within the state. This Act and Regulation provide for the protection, conservation and ecologically sustainable development of water sources of the State and in particular to protect, enhance and restore water sources and their associated ecosystems.	<b>No Relevance</b> This Act has no direct relevance at this time to the construction work under this contract. The project approval does not trigger the provisions of this Act.
<i>Dams Safety Act 1978</i>	This Act constitutes the Dams Safety Committee and confers and imposes on the Committee functions relating to the safety of certain prescribed dams.	<b>No Relevance</b> It is unlikely any action in respect to this project will endanger the safety of any prescribed dam
<i>Coastal Protection Act 1979</i>	This Act requires public authorities to notify the Coastal Council of NSW of any information, proposed activity or work that in the opinion of the public authority is relevant to the exercise of the function of the Coastal Council. It further empowers the Minister for the Department of Commerce to require public authorities to obtain consent prior to carrying out development in the coastal zone or giving consent to a person to occupy or carry out development in the coastal zone.	<b>No Relevance</b> The project is not located in areas associated with this act.
<i>National Parks and Wildlife Act 1974</i>	The relevance of this Act is firstly in respect to the protection and preservation of aboriginal artefacts. Discovery of material on site suspected as being of aboriginal origin must be reported and protected pending assessment and direction by the Client's Representative. Secondly it is an offence under Part 8A of this Act to pick or harm threatened species. (Refer to the notes under the Threatened Species Conservation Act for more information)	<b>No Relevance</b> No identified aboriginal artefacts have been identified within the construction area. The only relevance would be if new previous unknown artefacts were discovered during construction

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
<p><i>Threatened Species Conservation Act 1995</i> <i>Threatened Species Conservation Regulation 2002</i> <i>Threatened Species Conservation (Savings and Transitional) Regulation 1996</i></p>	<p>This Act and Regulations provide for obtaining licenses to harm or pick threatened species populations or ecological communities whether plant or animal or to damage any critical habitat. The offence of picking or harming any threatened species is covered under the National Parks &amp; Wildlife Act Part 8A. It is a defence under Part 8A of that Act if the offence was essential to carrying out development that is in accordance with a Development Consent within the meaning of the EP&amp;A Act or an approval within the meaning of Part 5 of the EP&amp;A Act.</p>	<p><b>No Relevance</b> No threatened species of flora or fauna listed in the schedules of this Act have been identified within the area of the proposed work.</p>
<p><i>Fisheries Management Act 1994</i></p>	<p>This Act is applicable to all waters within the state including private and public waters and all permanent and intermittent waters. The Act is most relevant in respect to maintaining water quality and ensuring no polluted water from site works enters streams, creeks and waterways. In addition this Act also has relevance for the removal of marine vegetation.</p>	<p><b>Low Relevance</b> Along with the POEO Act water discharging from the site must not pollute the adjacent streams or watercourses.</p>
<p><i>Marine Pollution Act 1987</i></p>	<p>This Act creates offences for discharges of oil, oily mixtures and noxious liquid substances from ships into State waters.</p>	<p><b>No Relevance</b> The site is not located in the proximity of any state waters and will not involve the use of marine vessels at any stage.</p>
<p><i>Noxious Weeds Act 1993</i></p>	<p>This Act provides for the classification and control of noxious weeds. Declared noxious weeds are classified as Class 1, State Prohibited Weeds; Class 2, Regionally prohibited Weeds, Class 3 Regionally Controlled Weeds, Locally Controlled Weeds and Class 5 Restricted Plants. The characteristics of each class is given in Section 8 (2) of the Noxious Weeds Amendment Act 2005. Class 1, 2 &amp; 5 weeds are referred to in the Act as "Notifiable Weeds".</p>	<p><b>Low Relevance</b> The Act applies to owners or occupiers of land including public authorities and thus does not apply to LOR.</p>
<p><i>Water Act 1912</i></p>	<p>This Act provides for licences to extract water for construction purposes either from surface or artesian sources. Should construction water be extracted from surface (other than sedimentation ponds) or artesian sources a licence will be required.</p>	<p><b>No Relevance</b> It is not proposed that construction water will be obtained from surface (eg creeks, lakes etc) or artesian sources.</p>
<p><i>Heritage Act 1977</i></p>	<p>This Act provides for the preservation and conservation of heritage items such as building, works, relic, places of historic interest, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance.</p> <p>Under this Act a relic means any deposit, object or material evidence which is 50 or more years old and relates to the settlement of the area (not being an aboriginal settlement). It is an offence under this Act to wilfully and knowingly damage or destroy items of heritage value.</p> <p>Do not demolish damage, move or develop around any place, building, work, relic, moveable object, precinct, or land that is the subject of an interim heritage order or listing on the State Heritage Register or heritage listing in a Local Environmental Plan without an approval from the Heritage Council (NSW) or local council.</p>	<p><b>Low Relevance</b> At present the only nearby State heritage sites are not located in the immediate proximity of the project site. However, it is expected that much of the University will eventually be added onto the State Heritage List.</p>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
<i>Wilderness Act 1987</i>	An Act to provide for the permanent protection of and proper management of Wilderness Areas and to promote the education of the public in the appreciation, protection and management of wilderness. The Act and associated Regulations provides a mechanism for the identification and declaration of Wilderness areas.	<b>No Relevance</b> This project is not within or immediately adjacent to a declared Wilderness area. This Act has little or no relevance to the project.
<i>Plantations and Re-forestation Act 1999</i>	This Act is intended to facilitate the reforestation of land and development of timber plantations. It provides codified environmental standards together with a streamlined integrated scheme for the establishment and management and harvesting of timber and other forest plantation products.	<b>No Relevance</b> The location of work under this contract is not located within or adjacent to reforested or plantation forest land.
<i>Australian Heritage Council (Consequential &amp; Transitional Provisions) Act 2003</i> <i>Australian Heritage Council Act 2003 (Cwth)</i>	The Australian Heritage Council (Consequential and Transitional Provisions) Act 2003 repealed the Australian Heritage Commission Act 1975. The Australian Heritage Council Act 2003 establishes the Australian Heritage Council. The Council is required to identify places to be included in the National Estate and to maintain a Register of the National Estate of places.	<b>No Relevance</b> The site is not on Register of the National Estate of places.
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwth)</i>	This Act provides for the preservation and protection from injury or desecration to areas and objects of particular significance to Aboriginals. Areas and objects can be protected by Ministerial Declaration and it is then an offence to contravene such a declaration.	<b>No Relevance</b> No areas or objects within the works site have been identified as being subject to such a declaration and this Act is of little relevance to the project.
<i>Ozone Protection Act 1989</i>	This Act provides for a system of controls and to regulate and prohibit the manufacture, sale, distribution, use, emission, re-cycling & disposal of stratospheric ozone depleting substances and articles that contain these substances. The impact is that appropriately qualified people in accordance with this Act must undertake all servicing and maintenance of this type of equipment.	<b>Low Relevance</b> The relevance of this Act will relate to the use of refrigerators and air conditioning units in site buildings and vehicles which still contain CFCs. Such items are unlikely to be found on site.
<i>Protection of the Environment Operations Act 1997</i>	This Act is of most relevance to work being carried out under this contract. It integrates into one Act all the controls necessary to regulate pollution and reduce degradation of the environment, provides for licensing of scheduled development work, scheduled activities and for offences and prosecution under this Act.	<b>High Relevance</b> The Act provides for the issuing of environmental protection notices to control work and activities not covered by licences. Section 148 of the Act requires a pollution incident causing or threatening material harm to the environment to be notified to the EPA and other authorities immediately.
<i>Sydney Water Act 1994</i>	This Act establishes the Sydney Water Corporation as a statutory State owned corporation. The functions of the Sydney Water Corporation is to supply and store water, provide sewerage services, provide stormwater drainage and dispose of waste water within its area of operations.	<b>Low Relevance</b> Coordination may be required with Sydney Water during the works

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
<i>Sydney Water Catchment Management Act 1999</i>	This Act establishes the Sydney Catchment Authority as a statutory corporation representing the Crown. The role of the Sydney Catchment Authority is to manage and protect the catchment areas and catchment infrastructure works, be a bulk water supplier and to regulate activities within or affecting the catchment areas	<b>Low Relevance</b> This project will not impact on areas regulated by the Sydney Catchment Authority.
<i>Pesticides Act 1999</i> <i>Pesticides Regulation 1995</i>	This Act and Regulation establish a legislative framework to regulate the use of pesticides. They have the objective to promote the protection of human health, the environment, property and trade in relation to pesticides. It is an offence under this Act and Regulation to wilfully or negligently misuse pesticides.	<b>Low Relevance</b> It is not envisaged that pesticides will be used on the project by LOR.
<i>Waste Avoidance and Resource Recovery Act 2001</i>	This Act repeals the Waste Minimisation and Management Act, 1995. The purpose of the Act is to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecological sustainable development. The Act provides for the making of policies and strategies to achieve these ends. It is an offence under the Protection of the Environment Operations Act to wilfully or negligently dispose of waste in a manner that harms or is likely to harm the environment.	<b>Medium Relevance</b> The relevance of the Act to this project is to implement the strategies by adopting the hierarchy of avoidance; avoidance of unnecessary resource consumption; resource recovery (including reuse, reprocessing, recycling and energy recovery), disposal (as a last resort).

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

## APPENDIX 3 – Risk Assessment

All environmental issues have been assessed in accordance with the table below:

**Risk Assessment Rankings:** >17 = Extreme 10 - 16 = High 5 - 9 = Medium 1 - 4 = Low

Environmental issues which have an initial risk ranking of Medium or High will require the development and implementation of ERAPs.

Issues which have an initial Extreme risk will require the development and implementation of an issue specific sub-plan.

The risks must be reassessed following the consideration of control measures. An owner for the implementation of the management measures must be nominated.

Issues or activities that represent an Extreme risk after the application of control measures are not to be undertaken.

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
<b>Approvals and Licensing</b>									
Not identifying appropriate approvals / licenses required or proceeding without them.	Works delayed, infringements, poor client relations, and reputational loss.	4	3	12	Check Environmental Assessment / REF / EIS and statutory documentation. Check contract documentation. Document requirement in CEMP Establish a register of approvals, licenses, permits.	3	3	9	Project Leader/ HSE Manager
<b>Noise</b>									
Noise from general demolition and construction activities resulting in impact to residents.	Disturbance to residents or neighbouring businesses. Potential for complaints.	4	4	16	Develop and implement a Construction Noise and Vibration Management Plan. Consult with the community in relation to upcoming activities that may result in concern. Monitor noise for compliance as the works progress at receiver locations (as per CNVMP requirements).	3	3	9	Contractor/LOR  LOR  LOR

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
					Provide periods of respite for high noise generating activities. Apply noise mitigation measures during entire project. Noise efficient equipment to be used on site.				
Noise during works required to be undertaken out of standard construction hours.	Disturbance to residents of the university	4	3	12	Gain approvals required to work outside standard approved hours from regulatory authority and client  Implement noise mitigation strategies for out of standard hours work.  Monitor noise for compliance to project goals.	3	3	9	LOR
<b>Vibration</b>									
Vibration intensive activities undertaken on the site such as impact piling, vibratory rolling, demolition, etc	Disruption, annoyance and nuisance to residents. Potential damage to university or hospital structures.  Disruption to students during classes or exams as a result of vibration nuisance  Effect on animal breeding in Bosch 1A building	3	3	9	Develop and implement a Construction Noise and Vibration Management Plan.  Determine vibration limits and structure/receiver offset distances.  Consult with potentially affected parties prior to commencement of works on their upcoming activities that may be impacted by construction vibration.  Ongoing vibration monitoring during vibration intensive works (as per CNVMP).  Works to cease and work methods reassessed if vibration limits are exceeded	2	3	6	Contractor  LOR
<b>Water Quality, Erosion &amp; Sedimentation</b>									

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
Sediment laden runoff from construction works leaving site.	Degradation of local watercourses. Increased turbidity in local water ways resulting in impact on aquatic life. Fines for sediment escaping site.	4	3	12	Divert clean water away from site Develop and implement sediment and erosion control measures in line with the "Blue Book" Ensure measures are inspected and maintained as the works progress and also prior to and post-rainfall events. Provide training and awareness on the need to prevent pollution. Relevant people to undertake Erosion and Sediment Control training.	3	3	9	LOR/Contractors
Non-compliant water from construction works discharged from site	Non-compliant water entering stormwater system waterways (i.e. polluting - not compliant with discharge criteria).	4	3	12	Induction and toolbox talks Toolbox training on site procedures for water discharge Educate site staff on licence conditions and consequences of prosecution Environmental Manager/representative to approve all water discharges from site	3	3	9	LOR
<b>Waste</b>									
Waste /spoil disposal during construction /earthworks and demolition works.	Incorrect classification, disposal of waste resulting in incorrect/ illegal disposal/re-use. Further costs incurred for classifications and disposal fines may be issued.	3	4	12	Develop a Construction Waste Management Plan. Identify opportunities to incorporate recovered materials into the permanent works. Provide facilities on site for source separation and recycling.	2	2	4	LOR /Contractor

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
					<p>Ensure accurate waste records are retained.</p> <p>Removal of wastes from the site would only be undertaken by a licensed contractor to licensed waste facilities as required by the POEO Act and with appropriate approvals, if required, for contaminated materials, etc.</p> <p>All material that requires off-site disposal to be appropriately tested and classified against the Waste Classification Guidelines (EPA, 2014).</p> <p>Inductions, toolbox talks and training on recycling facilities and waste segregation practices.</p> <p>Separation of waste on site.</p> <p>Tracking of disposal processes.</p>				
Washout of concrete in undesignated areas.	Sediment laden/alkaline water polluting surrounding stormwater system / watercourses.	4	4	16	<p>Designated Concrete washout areas/mobile trays (lined/contained) installed onsite.</p> <p>Clearly marked on Environmental Control Maps and delineated.</p> <p>Inductions on designated concrete washout areas.</p> <p>Subcontractors agreements to include project compliant waste management principles.</p>	3	2	6	LOR
<b>Contamination</b>									

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
Management of contaminated or untreated materials	Land pollution/ Non-compliant material and contaminated water entering surrounding waterways. Decrease in health of nearby ecosystems.	3	3	12	Develop contamination management procedures and protocols. Identify any contamination hotspots and incorporate procedures for these locations into construction documentation. All contamination hotspots would be clearly marked in the field (where applicable). Develop unexpected finds procedures.	2	3	6	LOR
Potential for discovery of unexpected /unknown contamination (e.g. asbestos, contaminated spoil, hydrocarbons etc) during construction and demolition.	Exposure/ Health effects resulting from airborne contamination, e.g. asbestos. Complaints received from odours released. Inappropriate and incorrect waste classification and disposal Costs/fines Transfer of material into previously uncontaminated area (outside work site) causing new contamination.	3	4	8	Develop / follow unexpected finds procedure If unexpected contamination is discovered - works to stop immediately, appropriate Project personnel, client / relevant authorities to be notified, delineate work area. Conduct necessary investigations /assessments and obtain all necessary approvals/permits and comply with conditions imposed. Report all finds and provide information to USYD. Appropriately licenced Asbestos Removalists, Occupational Hygienists and Consultants to be engaged depending on contamination encountered on-site Ensure no cross contamination of work areas. Processes implemented to manage the disposal of contaminated materials. Refer	2	3	6	LOR/Contractor

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
					'Waste' for waste management and appropriate disposal controls Inspections of excavated and filled surfaces would be made during construction to determine the presence of visible asbestos. Contaminated soils would not be stockpiled on the structural fill layer or formation layers to avoid cross contamination. Refer to Appendix 14 – Unexpected Finds Protocol Inductions, toolbox training on contamination management protocols - stop work immediately, notification Personnel to be informed of location, type, nature, concentration of contaminants Dust				
<b>Hazardous Materials</b>									
Storage of hazardous substances, leaking plant and equipment and spillage from refuelling.	Localised ground contamination / pollution of stormwater and requiring clean-up and/or receiving fines. Risk of igniting volatile substances.  Unauthorised access to site / potential vandalism/damage leading to pollution.	4	3	12	Induction, toolbox talks and training on appropriate handling and storage of liquids. All storm water drains should be identified prior to works. Storage areas to be away from sensitive areas and appropriately banded. SDS approved prior to bringing hazardous substances on site including risk assessment. Plans showing storage locations and associated controls e.g. spill	3	3	9	LOR/Contractor

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
					kits, etc. (Environmental Control Maps). Training in use of spill kits Contingency plans would be developed to deal with any spills which might occur during construction. Clearly label containers. Regular auditing and inspection of storage areas and materials. Make storage areas restricted access areas. Reduce/eliminate need for hazardous substances. Ensure all work sites are secure before leaving the site. All liquids i.e. fuels, paint etc are to be securely locked away at the end of each day.				
Fuel contaminated runoff from construction works leaving site	Fuel contaminated runoff entering stormwater or waterways (i.e. polluting - not compliant with discharge criteria).	4	4	16	All storm water drains should be identified prior to works and controls implemented. Refuelling of vehicles away from stormwater drains, culverts, water courses. Appropriate bunding/storage of substances. Toolbox on site procedures for sediment controls and chemical storage. Educate site staff on project conditions and consequences of prosecution.	3	3	9	LOR/Contractor
<b>Biodiversity</b>									

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
Vegetation trimming / clearing required outside approved work area.	Unauthorised works / removal of vegetation outside defined work area, possibility of removing threatened species, fines incurred. Relevant authority not notified	2	5	10	<p>Prior approval to be sought from DP&amp;E/Client before conducting any vegetation trimming or removal works</p> <p>Induction and tool box training on clearance zones and required protection measures</p> <p>Inspections during clearing activities</p> <p>Fencing in place/ clear marking of trees to be retained and cleared / demarcation areas / plans showing clearing areas.</p> <p>Pre clearing checklist to be completed before any clearing of vegetation.</p>	2	3	6	LOR
Clearing and grubbing of vegetation within work site.	Erosion of soils, uncontrolled runoff, sediment deposited into surrounding vegetated areas and water courses, and invasion of weeds. Wrong vegetation removed. Potential for injury to native fauna.	2	5	10	<p>Inductions and toolbox training on erosion and sediment controls.</p> <p>Where possible works to be staged so environmental controls can be implemented prior to and after clearance works.</p> <p>Approved Erosion and Sediment Control Plans in place prior to starting works.</p> <p>Where applicable, mature trees and other native vegetation to be retained would be clearly delineated, with all construction activities excluded from these areas.</p> <p>Pre clearing checklist to be completed before any clearing of vegetation.</p>	2	3	6	LOR/Contractor

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
Pest / rodent disturbance from site establishment	Potential to relocate into residential areas / cause of community complaint.  Health associated risks with increased rodents.	3	3	9	Ensure site establishment has pest controls such as wire mesh around building bases to ensure pests do not use them for shelter.  If issue is problematic during construction activities, pest control services to be implemented as soon as possible	2	3	6	LOR/Contractor
<b>Dust &amp; Air Quality</b>									
General construction works; site establishment, earthworks, piling, drilling, etc	High dust activity in close proximity to residential and commercial premises, dust deposition at sensitive receivers, repairs and clean up needed, complaints received.	4	3	12	Develop Air Quality Management ERAP  Inductions and toolbox training on Dust and Air Quality Management.  Include provision for visual monitoring during the works.  Provide dust mitigation measures through water sprays/misting.  Use of water carts during dry weather on haulage roads and excavations/batters/stockpiles.  Install dust controls immediately and continually through the project.  Erosion and Sediment Control Plans approved and implemented before works commence. Controls are then reviewed for maintenance.	3	3	9	LOR/Contractor

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

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		P x	C =	Risk		P X	C =	Risk	
Exhaust from plant and equipment.	Emissions resulting in air pollution.	3	2	6	Inductions and toolbox training on Dust and Air Quality Management. Well maintained plant/ equipment and pre-start checks and servicing. Non-complaint vehicles removed from site / repaired.	2	2	4	Contractor
<b>Heritage</b>									
Unexpected heritage items encountered.	Work delays, additional studies, approvals required, damage to heritage item.	2	4	8	General inductions toolbox training on heritage management protocols. Label any known heritage items on Environmental Control Maps. If suspected heritage item encountered. Works to stop immediately and Site Manager contacted. Heritage salvageable items list established and communicated	2	4	8	LOR/Contractor
<b>Acid Sulphate Soils (where applicable)</b>									
Disturbance of Potential Acid Sulphate soils and Actual Acid Sulphate Soils during excavations.	Mobilisation of metals within runoff to levels toxic to natural systems. Release of acidic runoff.	2	4	8	Develop and implement Acid Sulphate Soils Management Plan (if applicable). Awareness training in the identification and management of ASS. Provide containment and treatment facility on site. Ensure ASS material is left underwater, disposed off-site or appropriately treated in a bunded area with sump.	2	2	5	LOR
<b>Traffic</b>									

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
Loss of on-street car parking in adjacent residential streets and commercial areas during construction.	Loss of parking availability to adjacent residential and commercial properties could result in community complaints.	2	2	4	Community notifications. Develop Construction Traffic and Pedestrian Management Plan / Traffic control procedures.	2	2	4	LOR/Contractor
General construction traffic disturbing public access between local roads.	Disturbance to local residents resulting in complaints being made, limited access, potential for delays at local road access points resulting in complaints.	2	2	4	Approved Construction Traffic and Pedestrian Management Plans in consultation with relevant authorities. Detour routes to be advertised/ notified. Approved access routes, detailed Traffic Control Plans. Clear notifications / signage.	2	2	4	LOR/Contractor
Management of heavy vehicles / haulage routes.	Complaints from sensitive receivers due to increased level and frequency of noise.	3	2	6	Designated haulage routes. Approved Construction Traffic and Pedestrian Management Plans. Community Notifications. Pedestrian management with traffic controller in place where required.	2	2	4	LOR/Contractor

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
Truck deliveries out of normal working hours (un-approved).	Non-conformance with project requirements. Noise impact to community / potential complaints.	3	3	9	<p>Personnel training of noise awareness to community included in induction and toolboxes.</p> <p>Induction on Construction Hours for deliveries.</p> <p>Communication of delivery times to suppliers.</p> <p>Community Notifications on project activities occurring locally.</p> <p>Code of conduct / selection criteria in place for subcontractors.</p> <p>Out of hours works approval where required sought from relevant authorities (Planning)</p> <p>Approved traffic/haulage routes.</p> <p>Planning and staging of works in approved hours as much as practical.</p>	2	3	6	LOR
<b>Resources and Energy Use</b>									
Energy consumption by construction plant & operation of site compound facilities.	Inappropriate energy use, waste of energy recourses, energy wastage costs, increased greenhouse gas emissions.	3	3	9	<p>Inductions and toolbox training on waste management and energy saving practices in construction plant and equipment and during office work.</p> <p>No idling of plant equipment where possible onsite.</p> <p>Equipment / plant equipment inspections must be undertaken prior to use on site.</p>	3	2	6	LOR

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Responsible Person
		P x	C =	Risk		P X	C =	Risk	
Water usage during construction activities.	Excess usage of potable water for construction activities leading to a decline in the amount of potable water for residents.	3	2	6	Include water conservation measures and verifiable targets. Capture and reuse rainfall and runoff for site activities, where practicable.	2	2	4	LOR/Contractor
Resource usage (e.g. building materials, water, fuels, packaging), waste generation and disposal.	Depletion of resources due to wastage (e.g. wastage of water / no recycling, poor management of procurement, ineffective removal of off-cuts, waste, i.e. no recycling).	2	4	8	Inductions and toolbox talks on recycling facilities and waste segregation, training/education on how to recycle. Procurement of materials (selection of materials) to be considered. Subcontractor's agreements to include project compliant waste management principles. Waste management undertaken in accordance with the Waste Avoidance and Resource Recovery Act 2001.	2	2	4	LOR

## Environmental Risk Assessment Rankings

This table may be used as a guide in determining the level of risk for each environmental issue.

For each identified issue, consider the 'maximum credible' (not absolute worst case) risk that could result with **minimal or no controls** other than existing and using normal construction practices.

Note: Any one of the listed consequences must result in the use of the applicable consequence grading.

<b>Probability:</b>		<b>Consequence:</b>	
5 = Certain	4 = Likely	3 = Possible	2 = Unlikely
1 = Rare			
		5 = Severe	4 = Major
		3 = Moderate	2 = Minor
		1 = Incidental	
<b>1 - 4 Acceptable</b>	<b>5 - 9 Acceptable with control measures</b>	<b>10 - 16 Requires the implementation of best practice</b>	<b>17 and Above = UNACCEPTABLE</b>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

5	Certain	<ul style="list-style-type: none"> <li>Common or repeating occurrence</li> <li>Consequence can reasonably be expected to occur in life of Project.</li> </ul>	5	Severe	<ul style="list-style-type: none"> <li>Major pollution incident causing significant and widespread damage or potential to health or the environment</li> <li>Persistent reduction in ecosystem function and value.</li> <li>Ongoing disruption and loss of protected species.</li> <li>Major prosecution likely, outcome in excess of \$500,000</li> </ul>
4	Likely	<ul style="list-style-type: none"> <li>Known to have occurred / "has happened"</li> <li>Conditions may allow the consequence to occur on the Project during its lifetime</li> <li>The event has occurred within the Business Unit within the previous 5 years.</li> </ul>	4	Major	<ul style="list-style-type: none"> <li>Significant widespread and persistent changes to habitat, species or environmental media</li> <li>Significant pollution incident causing damage or potential damage to health or the environment external to the site.</li> <li>Potential for prosecution. Potential outcome between \$50,000 - \$500,000</li> <li>Numerous substantial complaints</li> <li>Actual material environmental harm</li> </ul>
3	Possible	<ul style="list-style-type: none"> <li>Could occur / "heard of it happening"</li> <li>Exceptional conditions may allow consequences to occur on the Project, or has occurred nationally within the Australian Business.</li> </ul>	3	Moderate	<ul style="list-style-type: none"> <li>Localised irreversible habitat loss or effects on habitat, species or environmental media</li> <li>Reportable incident to the relevant environmental regulator or other authority.</li> <li>Demonstrated breach of legislative, licence or guideline requirements.</li> <li>Likely infringement notice or fine, potential for prosecution up to \$50,000.</li> <li>Will cause complaints.</li> </ul>
2	Unlikely	<ul style="list-style-type: none"> <li>Not likely to occur</li> <li>Reasonable to expect that the consequence will not occur on the Project.</li> <li>Has occurred in industry but not in Business Unit.</li> </ul>	2	Minor	<ul style="list-style-type: none"> <li>Localised degradation of habitat or short term impacts to habitat, species or environmental media.</li> <li>Pollution incident that marginally exceeds licence conditions or guidelines for acceptable pollution.</li> <li>Fine unlikely.</li> <li>Potential for complaints.</li> </ul>
1	Rare	<ul style="list-style-type: none"> <li>Practically impossible</li> <li>Not known to have occurred in industry or unheard of.</li> </ul>	1	Incidental	<ul style="list-style-type: none"> <li>Localised or short term effects on habitat, species or environmental media.</li> <li>Fully contained on site and can be fully remediated. Little potential for fine or complaints.</li> <li>Insignificant or trivial incident</li> </ul>

Probability ►	CERTAIN	LIKELY	POSSIBLE	UNLIKELY	RARE
▼Consequence	5	4	3	2	1
5 – Severe	25	20	15	10	5
4 – Major	20	16	12	8	4
3 – Moderate	15	12	9	6	3

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Probability ►	CERTAIN 5		LIKELY 4		POSSIBLE 3		UNLIKELY 2		RARE 1	
▼Consequence										
2 – Minor	10	8	6	4	2	1				
1 – Incidental	5	4	3	2	1					

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

## APPENDIX 4 – Operational Control Procedures - Environmental Risk Action Plans

Environmental Risk Action Plans will be developed for each environmental issue which has a risk ranking of **Medium** or **High**.

Significant environmental issues will be managed as per the Project's specific Management Plans i.e. Construction Noise and Vibration Management Plan, Construction Traffic and Pedestrian Management Plan, Construction Waste Management Plan and according to the ERAPs below.

**For Noise and Vibration refer to the Project Specific Construction Noise and Vibration Management Plan (submitted under Conditions B22, B23).**

**For Traffic Management refer to the Project Specific Construction Traffic and Pedestrian Management Plan (submitted under Conditions B26, B27).**

Dust and Air Quality	
Objective	<ul style="list-style-type: none"> <li>To comply with contractual requirements, consent conditions and ensure that dust and other air emissions from construction activities do not cause impacts on sensitive receivers and equipment.</li> </ul>
Targets	<ul style="list-style-type: none"> <li>No valid dust &amp; odour complaints from construction works or stakeholders</li> <li>No dust impacting on offsite activities or surrounding residences.</li> <li>No release of contaminants, (odour, smoke etc) into the air.</li> <li>Comply with construction contract conditions.</li> </ul>
Legal, Contractual and Other Requirements	<ul style="list-style-type: none"> <li>Contract specification</li> <li>Planning consent conditions – approval number (SSD7974):</li> <li>Protection of the Environment Operations Act 1997</li> <li>Protection of the Environment Operations (Clean Air) Reg 2002</li> <li>Local Government Act 1993</li> </ul>
Site specific planning / approval conditions / licence conditions	<p><i>Condition C13 – The body of any vehicle or trailer used to transport waste or excavation spoil must be covered before leaving the premises to prevent any spillage or escape of any dust, waste or spoil. Mud, Splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site must be removed before leaving the premises.</i></p>
Controls (means and resources)	<ul style="list-style-type: none"> <li>Spraying formations, stockpiles and exposed work areas to suppress dust using water carts, tankers and other suitable equipment</li> <li>Minimise traffic on exposed areas – create designated haul roads</li> <li>Cover haul vehicles loads &amp; ensure tail gates are closed prior to vehicles leaving the site and when operating on roads external to the site</li> <li>Provide shaker grids or rumble strip at site egress points.</li> <li>Remove mud from haul vehicles prior to vehicles leaving the site and entering roads external to the site</li> <li>Remove spilt mud by construction equipment or vehicles on roads external to the site</li> <li>Reprogram dust generating work during periods of high wind</li> <li>Provide awareness training in the need to minimise dust during site inductions and toolbox talks</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Dust and Air Quality	
	<ul style="list-style-type: none"> <li>Regular visual monitoring of dust generation</li> <li>Maintenance of Plant &amp; Equipment as per manufacturers requirements</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>The Site Manager/Project Leader to implement the requirements of this plan.</li> <li>Site Manager to inspect the works at regular intervals to identify areas of dust generation.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>Shaker grids to be installed prior to commencement of works</li> <li>Water tankers and other measures available at the commencement of earthworks</li> <li>Spilt mud and sediment to be removed from roads external to the site as soon as practicable .</li> <li>Duration of site works.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>Weekly inspections to be recorded on Environmental Checklist – E-T-8-1227</li> <li>Complaints to be recorded on form Environmental Incident and Complaint Report (<a href="#">E-T-8-1222 Environmental Incident and Complaint Report</a>).</li> </ul>

Waste Also refer to Project specific Construction Waste Management Plan (submitted under Conditions B24, B25)	
Objective	<ul style="list-style-type: none"> <li>To comply with contractual, consent conditions and legislative requirements and ensure that waste from construction activities does not have the potential to escape from the site and cause an environmental nuisance / harm.</li> </ul>
Targets	<ul style="list-style-type: none"> <li>No incidences where waste is stored in a position where it has the potential to move off-site.</li> <li>All off site movements of waste will be tracked.</li> <li>The principles of the waste management hierarchy will be adopted, where practicable.</li> <li>Target to reuse or recycle 85% by weight of construction waste, that is non-hazardous.</li> <li>Waste will be minimised where ever possible.</li> </ul>
Legal, Contractual and Other Requirements	<ul style="list-style-type: none"> <li>Contract Specification Clause</li> <li>Planning consent conditions – approval number (SSD 7974) Protection of the Environment Operations Act 1997</li> <li>Protection of the Environment Operations (Waste) Regulation 2005</li> <li>Waste Avoidance and Resource Recovery Act 2001</li> <li>Local Government Act 1993</li> <li>Local Government (General) Regulation 2005</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Waste Also refer to Project specific Construction Waste Management Plan (submitted under Conditions B24, B25)	
Site specific planning / approval conditions / licence conditions	<p><i>Condition C12 “All waste generated during construction must be assessed, classified and managed in accordance with the Waste Classification Guidelines Part 1 : Classifying Waste (EPA, 2014)”</i></p> <p><i>Condition C13 “The body of any vehicle or trailer used to transport waste or excavation spoil must be covered before leaving the premises to prevent any spillage or escape of any dust, waste or spoil. Mud, Splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site must be removed before leaving the premises.”</i></p> <p><i>Condition C14 “The Applicant must ensure that concrete waste and rinse water are not disposed of on the Subject Site and are prevented from entering any natural or artificial watercourse.”</i></p> <p><i>Condition C15 “The Applicant is to consult with SafeWork NSW concerning the handling of any asbestos waste that may be encountered during construction. The requirements of the POEO (Waste) Regulation 2014 with particular reference to Part 7 = Transportation and management of asbestos waste must also be complied with”.</i></p>
Controls (means and resources)	<ul style="list-style-type: none"> <li>• Licensed waste contractors will be utilised to remove waste from site.</li> <li>• All waste is to be disposed of at licenced waste facilities / at a lawful facility that can accept the waste. Note: A lawful facility includes one that has the appropriate Development Consent, Environment Protection Licence or is complying with EPA approved conditions and requirements.</li> <li>• Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines and disposed at licenced waste facilities in accordance with its waste classification status.</li> <li>• All spoil material removed from the site will be classified as per the NSW EPA Waste Classification Guidelines. Only a suitable Licensed or approved facility or approved site that can lawfully accept the waste may receive the waste.</li> <li>• Records of the waste classification, quantity, waste transporter and final location (waste facility) of the spoil and waste material disposed off-site will be retained.</li> <li>• Use skip bins and ensure there are an adequate number of bins on site to hold all waste generated.</li> <li>• Use designated concrete wash outs / trays – lined / contained</li> <li>• Provide bins to enable waste segregation</li> <li>• Provide recycling services. E.g. Paper, Concrete, Steel, Cardboard, Timber.</li> <li>• Ensure housekeeping is maintained and waste is disposed of to the appropriate bin.</li> <li>• Retain all records - waste classification, disposal dockets, permits and figures on the amount of waste that has been removed from site.</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>• Site Manager will ensure waste is correctly stored, classified, recorded, tracked and minimised at all times</li> <li>• The Project Leader is accountable for ensuring lawful waste disposal</li> <li>• All personnel are responsible for ensuring waste is placed in the bins provided.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>• Duration of site works.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Skips monitored visually by the Site Supervision on a daily basis.</li> <li>• Environmental Checklist E-T-8-1227 to be used to verify site waste practices</li> <li>• Waste disposal records to be recorded in Waste Tracker through IMPACT</li> </ul>

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Water Quality, Site Drainage and Erosion and Sediment Control	
Objective	<ul style="list-style-type: none"> <li>To comply with contractual, consent conditions and legislative requirements and ensure that water discharged off-site from construction and erosion and sediment control (ESC) activities does not cause environmental nuisance / harm.</li> </ul>
Targets	<ul style="list-style-type: none"> <li>No sediment impacts to the surrounding environment and waterways as a result of the works</li> <li>Prevent water quality impacts off site as a result of erosion and sedimentation.</li> </ul>
Legal, Contractual and Other Requirements	<ul style="list-style-type: none"> <li>Planning consent conditions – approval number (SSD 7974):</li> <li>Protection of the Environment Operations Act 1997</li> <li>Local Government Act 1993</li> </ul>
Site specific planning / approval conditions / licence conditions	<p><i>Condition C18 – All erosion and sediment control measures are to be effectively implemented and maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works have been stabilized and rehabilitated so that it no longer acts as a source of sediment.</i></p> <p><i>Condition C19 – Any seepage or rainwater collected on-site during the construction or groundwater must not be pumped to the street stormwater system unless separate prior approval is given in writing by the relevant approval authority where necessary.</i></p>
Controls (means and resources)	<ul style="list-style-type: none"> <li>Progressive ESCPs will be developed in accordance with the 'Blue Book' and other guidelines where required, and implemented prior to the commencement of works.</li> <li>The Project specific ESCP is included in Appendix 6.</li> <li>Particular attention will be paid to the design criteria for sediment fences, straw bales, catch drains, diversion drains, sandbags and similar controls</li> <li>Permanent drainage to be installed as early in the program as possible</li> <li>All water to be discharged in accordance with legislation and only after LOR approval. HOLD POINT - Prior approval on dewatering and discharge procedures /requirements for the site must be first obtained by the LORAC Project Team from the Environmental Leader – Australia Hub:</li> <li>All water discharges are noted as Hold points within the works and shall not occur without a <b>signed and valid Permit to Discharge</b>. The following controls shall be implemented prior to the discharge of stormwater</li> <li>Treating water as necessary to meet water quality criteria below including pH correction, reduction of total suspended soils</li> <li>Discharge quality must comply with:             <ul style="list-style-type: none"> <li>TSS: <math>\leq 50\text{mg/L}</math> (~Turbidity 30NTU). If this cannot be achieved though natural settling, then the trapped sediment laden water is to be flocculated with gypsum applied at a rate of approx. 40kg/100m<sup>3</sup>.</li> <li>pH: Between 6.5 and 8.5.</li> <li>No visible oil and grease</li> </ul> </li> <li>Monitoring the pump outlet at all times during pumping and ceasing pumping immediately should the water quality change at the outlet</li> <li>Provide shaker grids or rumble strip at site egress points.</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

## Water Quality, Site Drainage and Erosion and Sediment Control

	<ul style="list-style-type: none"> <li>• Top soil/mulch stockpiles to be not greater than 2.0m in height. All stockpiles will be located clear of stormwater drains, watercourses and drainage works.</li> <li>• Wastewater management facilities shall only be provided through connection to existing sewer or proprietary storage and pump out systems are permitted.</li> <li>• Wastewater storage and pump out systems shall be procured, installed and operated in accordance with PS 11- including the provision of automatic cut off valves for inflows and high level alarms.</li> <li>• All disturbed surfaces will be revegetated within 1 month of final land forming and in compliance with the landscaping plans.</li> <li>• ESC devices are to be maintained when their capacity has been reduced by 25%.</li> <li>• Under no circumstances will temporary stockpiles be placed within 5m of the site boundary or in position where it could impact adjacent property.</li> <li>• Toolbox talks will be conducted for employees and subcontractors on the requirements of the ESCP</li> <li>• The ESCP is to be maintained and up to date for the current site conditions</li> <li>• Use sand bag check dams to protect stormwater drains as required.</li> <li>• All ESC works will be removed immediately prior to final completion and all surfaces will be returned to pre-existing condition.</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>• All staff to ensure adequate ESC devices are installed and maintained.</li> <li>• The PER will undertake “at least weekly” inspections of on-site ESC devices, plus prior to expected rainfall and after rainfall.</li> <li>• The Site Manager is responsible for the repair/ management of any damage or additional ESC devices, as required.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>• Duration of site works.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Visually monitored daily by site supervision.</li> <li>• Weekly inspections to be documented on the Weekly Environmental Inspection Checklist Form E-T-8-1227.</li> <li>• Maintenance activities for ESCPs shall be documented – items that cannot be immediately repaired are to be documented on the project CAR Register.</li> <li>• All water quality data including quantity, quality and dates of water release (Dewatering /Discharge Permits) will be maintained on the project records</li> </ul>

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Hazardous / Contaminated Material	
Objective	<ul style="list-style-type: none"> <li>To comply with contractual, consent conditions and legislative requirements and ensure that hazardous / contaminated material from construction activities does not cause an environmental nuisance / harm and is disposed of in accordance with legislative requirements.</li> </ul>
Targets	<ul style="list-style-type: none"> <li>No environmental incidences involving contaminated/ hazardous materials</li> <li>No pollution events of the surrounding environmental and water ways by contaminated material</li> <li>All off-site movement of any found contaminated material will be tracked</li> </ul>
Legal, Contractual and Other Requirements	<ul style="list-style-type: none"> <li>Contract specification clause</li> <li>Dangerous Goods Safety Management Act 2001</li> <li>Dangerous Goods Safety Management Regulation 2001</li> <li>AS/ NZS 1940: 2004 - The Storage and Handling of Flammable and Combustible Liquids</li> <li>Australian Dangerous Goods Code, 5th Edition</li> </ul>
Site specific planning / approval conditions / licence conditions	<ul style="list-style-type: none"> <li>Refer Waste ERAP within this section for consent conditions that are applicable.</li> </ul>
Controls (means and measures)	<p>If previously unidentified contamination (asbestos or contamination other than asbestos such as material visibly different to surrounding material, fibrous in nature, exhibits hydrocarbon odours or other unexpected characteristics, unknown containers, piping, underground storage tanks, or similar structures) is discovered, the following unexpected finds procedure to be implemented;</p> <ul style="list-style-type: none"> <li>Immediately cease work and contact the Site Manager and Project Leader (Project Leader to contact the client representative)</li> <li>Demarcate the 'unexpected /suspect contamination' to prevent access and install appropriate environmental and safety controls.</li> <li>A suitably qualified contamination specialist to assess and prepare a report detailing the degree, nature and extent of contamination and if contamination is to be reported in accordance with <u>relevant environmental and safety legislation, regulations and guidelines</u> (including advice on whether there is a Duty to Report under section 60 of the Contaminated Land Management Act 1997, and notify the EPA in accordance with the EPA's Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (2009)).</li> <li>Works may only recommence upon receipt of clearance / validation report from a suitably qualified occupational hygienist/ contamination specialist (as relevant to contamination discovered) that the remediation activities have been undertaken in accordance with the investigation report and remediation methodology.</li> <li>Prior to disposal of asbestos and contaminated material offsite, the material should be tested against the <i>Waste Classification Guidelines</i> and disposed as per classification status, using an EPA licensed transporter and to an EPA licensed waste facility that can accept the waste. Refer to "Waste ERAP", for further waste assessment, classification, tracking, disposal and record keeping requirements.</li> <li>The management, removal, handling and disposal of any asbestos or asbestos containing materials would be undertaken by an appropriately qualified/ licenced Occupational Hygienist and removalist and in accordance with applicable notifications/ permits and safety legislation/regulations, Codes of Practice for the Safe Removal and Management and Control of Asbestos in Work Places.</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

<b>Hazardous / Contaminated Material</b>	
	<p>In addition, the following controls will be incorporated;</p> <ul style="list-style-type: none"> <li>• Manage any contaminated material as per legislative/EPA requirements including the testing and assessment at the direction of the Client's representative.</li> <li>• Protect the environment by implementing control measures to divert surface runoff away from the potentially contaminated ground.</li> <li>• Capture and manage any surface runoff contaminated by exposure to contaminated ground.</li> <li>• Environmental awareness training relating to the identification and management of acid sulphate soils (if applicable) to be provided to all site personnel involved in earthworks, excavation or drainage construction activities</li> <li>• The Client's Representative shall be notified upon discovery of suspected ASS or PASS.</li> <li>• Implementation of a specific runoff control plan to prevent acid runoff from contaminating site areas and watercourses.</li> <li>• Suspected ASS/PASS stockpiles to be covered with plastic overnight. DO NOT re-use/recycle, dispose or illegally dump contaminated materials on-site or off-site; to be disposed to a lawful waste facility such as a licensed landfill.</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>• Site Supervisors, Project Leader and LOR Staff to ensure all targets are met.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>• Contaminated Material: Duration of any contaminated material removal.</li> <li>• Hazardous Material: Duration of site works.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Receipts for the disposal of any found contaminated or hazardous material will be filed on site by the PER.</li> <li>• The finding of any contaminated material on site will be reported monthly by the PER using E-T-8-0908</li> </ul>
<b>Trade Waste (ERAP to be used, where applicable to the Project)</b>	
Objective	<ul style="list-style-type: none"> <li>• To comply with contractual and legislative requirements and ensure that trade waste from construction activities does not cause an environmental nuisance / harm.</li> </ul>
Targets	<ul style="list-style-type: none"> <li>• All trade waste to be discharged in accordance with legislation and approvals.</li> <li>• Educate LOR staff and subcontractors on the relevant legislation, the correct use of the washout system and the LOR Trade Waste Permit where required.</li> <li>• Reduced impacts to the surrounding environment and waterways.</li> </ul>
Legal, Contractual and Other Requirements	<ul style="list-style-type: none"> <li>• Contract specification clause</li> <li>• Sydney Water Act 1994.</li> <li>• Sydney Water Catchment Management Act 1999</li> </ul>
Site specific planning / approval conditions / licence conditions	<ul style="list-style-type: none"> <li>• As per the University of Sydney sustainability guidelines trade waste to be separated into recyclable waste streams as far as possible. Project target is to have 85% of waste on site recycled or reused. All non-recyclable waste to be regularly collected and disposed of at a licensed landfill facility.</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Hazardous / Contaminated Material	
Controls (means and resources)	<ul style="list-style-type: none"> <li>• Provide a washout system on site which complies with all relevant legislation and contract conditions</li> <li>• Any paint washout required shall only be undertaken in the designated areas with appropriate bunding and control measures.</li> <li>• Ensure the washout system is in a location which is away from stormwater drains and water courses.</li> <li>• Trade waste or other prohibited substances will not be discharged into infrastructure (storm water drains or sewerage system) without the approval.</li> <li>• Note: LOR staff and subcontractors may be prosecuted if they are found illegally dumping trade waste and could be responsible for paying sewerage system repair costs.</li> <li>• Toolbox talks will be conducted for LOR staff and subcontractors in the correct use of the washout system and legislation.</li> <li>• Ensure the washout system is monitored and cleaned on a regular basis.</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>• The Project Leader will ensure a permit has been obtained prior to discharging trade waste</li> <li>• The PER will ensure all relevant subcontractors undertake toolbox talks in relation to washout legislation and use.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>• At all times when there is site connection to sewage facilities</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Visually monitored daily by the PER.</li> <li>• Inspection report F1227 detailing any trade waste issues will be completed by the PER.</li> </ul>

Concrete Washout	
Objective	<ul style="list-style-type: none"> <li>• To comply with contractual and legislative requirements in relation to the washing out of concrete on the project</li> </ul>
Targets	<ul style="list-style-type: none"> <li>• Zero spills or uncontrolled release of concrete.</li> <li>• No instances of uncontrolled concrete washout</li> </ul>
Legal, Contractual and Other Requirements	<ul style="list-style-type: none"> <li>• Contract Specification</li> <li>• Protection of the Environment Operations Act (1997)</li> </ul>
Site specific planning / approval conditions / licence conditions	<ul style="list-style-type: none"> <li>• Condition C14 – Waste – <i>“The Applicant must ensure that concrete waste and rinse water are not disposed of on the Subject Site and are prevented from entering any natural or artificial watercourse.”</i></li> </ul>
<b>Controls (means and resources)</b>	<ul style="list-style-type: none"> <li>• Concrete washout to be constructed with geo-fabric lining and bunded or mobile concrete washout trays to be used (lined/contained).</li> <li>• Location of washout to be at least 20m away from any drainage line or stormwater system.</li> <li>• Washout to be barricaded off on all sides when not in use to prevent unauthorised entry.</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Concrete Washout	
	<ul style="list-style-type: none"> <li>Washout area is to be inspected daily by the Site Manager to ensure residual water levels don't exceed 75% of capacity.</li> <li>Record of daily inspection to be kept in Site Manager's/Supervisor's diary when concrete washout is being undertaken.</li> <li>Washout area to be cleaned when the capacity has been reduced below 50%.</li> <li>Cleaning of washout to involve, removal of spoiled geo-fabric material and disposed of in licensed landfill. Records to be retained.</li> <li>Where possible waste concrete shall be returned to the batch plant or concrete recycler.</li> <li>Concrete truck drivers are to be advised of the location of the washout area prior to arrival on site.</li> <li>The requirements relating to concrete washout on site are to be provided to the supplier prior to the works.</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>The Site Manager will ensure that an approved and prepared area for concrete washout is available.</li> <li>All personnel are required to ensure that the requirements of this ERAP are implemented for their operations.</li> <li>Site Manager/Project Leader are required to advise LOR of any concrete spills.</li> <li>The Site Manager is responsible for confirming these requirements with the concrete supplier prior to the works.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>Duration of site works.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>Weekly inspections to be recorded on Form E-T-8-1227.</li> <li>Incidents or spills of concrete to be recorded on form Environmental Incident and Complaint Report (<a href="#">E-T-8-1222 Environmental Incident and Complaint Report</a>).</li> </ul>

Delivery and Storage of Chemicals, Fuels a Oils and including Dangerous Goods requirements	
Objective	<ul style="list-style-type: none"> <li>To comply with contractual and legislative requirements in relations to the transport of dangerous goods</li> <li>To comply with contractual and legislative requirements in relation to the storage of chemicals, fuels and oils on the site.</li> <li>To ensure contractual and legislative requirements in relation to hazardous substances and dangerous goods are adequately addressed for all operations – there are specific additional requirements relating to the storage and transport of dangerous goods</li> </ul>
Targets	<ul style="list-style-type: none"> <li>Zero spills or uncontrolled release of fuel, oils or chemicals associated with LOR's Operations.</li> <li>Compliance with relevant transport and storage requirements</li> <li>All vehicles transporting dangerous goods have appropriate placards, licenses and emergency equipment and procedures</li> </ul>
Legal, Contractual & Other Requirements	<ul style="list-style-type: none"> <li>AS/ NZS 1940: 2004 – The Storage and Handling of Flammable and Combustible Liquids</li> <li>Dangerous goods (Road and Rail Transport) Act 2008</li> <li>Dangerous goods (Road and Rail Transport) Regulation 2008</li> <li>Australian Dangerous Goods Code, 7th Edition</li> <li>Contract specification</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

## Delivery and Storage of Chemicals, Fuels a Oils and including Dangerous Goods requirements

Controls (means and resources)

The following are the minimum general control measures to be implemented on the project, however additional control measures may be required following the completion of the construction process procedure/work method statement for the proposed activity.

- Minimise storage of fuel, oil, chemicals or other dangerous goods on site, though efficient and timely ordering.
- A risk assessment relating to the use of these materials is to be completed in accordance with the Construction Health and Safety Plan prior to the arrival of these goods to site.
- SDS and associated documentation for each material to be reviewed prior to the completion of the risk assessment for the relevant construction process. A copy to be included with the SWMS.
- Ensure SDSs are available on site for all fuels, oils, chemicals and dangerous goods. Suppliers are to provide SDS prior to dispatch of the material.
- Chemicals, fuels and oils to be stored in a securely bunded area with appropriate signage, at all times when not specifically in use.
- Chemicals, fuels and oils to be stored inside impervious bunds of sufficient capacity to contain 110% of the stored volume. Bunded areas must have sufficient cover to prevent ingress of rain.
- Materials removed from the bunded storage area for use are to be returned to the bund at the end of each shift
- Storage sites are to be > 20m away from operational facilities, drainage lines, areas prone to flooding or on slopes > 1V:10H.
- Driver or Supervisor to be in attendance at all times when unloading of fuel, oil or chemicals takes place on site.
- No water to be discharged from bunded areas into site drainage system. Contaminated water to be removed by appropriately licensed contractor & discharged to a suitably licensed waste facility.
- Delivery drivers are to be provided with specific drop off and storage instructions.
- Spill kits & absorbent material to be located adjacent to storage bunds.
- Training is to be provided to the workforce in the application of this ERAP and the use of spill kits.
- Absorbent material used to clean up spills to be disposed of in accordance with the EPA Waste Classification Guidelines.
- A register of Chemicals, Fuels/Oils and Hazardous materials is to be kept onsite and maintained for the duration of the project.
- Each construction method statement shall identify the use of chemicals, fuels & oils and hazardous materials.
- SWMSs to address the specific requirements relevant to the work to be undertaken and document relevant site control measures.

### Dangerous Goods

- Ensure transporters of these materials are appropriately licensed. This includes relevant licenses for vehicles and drivers.
- Dangerous goods that are to be transported in receptacles greater than 500lt/kg may require specific licenses and shall not be transported by LOR without the Project Leader/Workplace Manager's approval.
- Where dangerous goods are transported by LOR, a SWMS must be developed and include dangerous goods requirements.
- Transport information/manifest is required to be included with any quantity of Dangerous Goods transported by LOR – Form 1232 Dangerous Goods Transport Note is to be used unless it can be demonstrated that the activity is exempt.
- The SWMS statement must address the requirement for Licensing, Placards or other specific regulatory requirements

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

## Delivery and Storage of Chemicals, Fuels a Oils and including Dangerous Goods requirements

- Transport activities in quantities that trigger the requirements of a “Placard Load” under the regulations require the following:
  - Transport vehicle to have appropriate Dangerous Goods Placard
  - Transport documents including manifests
  - Emergency procedures and information in an appropriate holder
  - 30B fire extinguisher
  - Double-sided reflectors
  - Driver safety equipment and PPE
  - Goods must be secured and where required segregated from incompatible goods.
  - Dangerous goods must be appropriately marked in accordance with the Australian Dangerous Goods Code

Typical dangerous goods associated with our operations include the following:

Type of Goods	DG Class	Type of Goods	DG Class	Type of Goods	
LPG Gas	2.1	Epoxy paint including hardener	8	Plumbing adhesive	3
Open Gear Lubricant	2.1	Chemical Anchor - parts A & B	8	Diesel	3
Marker Paint	2.1	Chemical Anchor	8	Joint/gap sealant	3
Silicone Lubricant	2.1	Chemical Anchor	8	Dry Film Lubricating Paint	3
Fuel Gas for welding/cutting	2.1	Adhesive Mortar	8	Joint/gap sealant	5.2
Fuel Gas for welding/cutting	2.2	Acid	8	Sealant	6.1
Air Operated Tool Lubrication	3	Degreaser (Pile Rigs)	9	Flocculant	8
Zinc Primer Paint	3	Engine Coolant	9	Rail Welding Consumables	1.4 S
Air tool lubricant - workshop	3	Antifreeze	9	Adhesive	3
Petrol-Unleaded	3	Grout	9		
Sealant	3	Form Oil	9		

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Delivery and Storage of Chemicals, Fuels a Oils and including Dangerous Goods requirements	
	<p>Dangerous Goods Storage</p> <ul style="list-style-type: none"> <li>• Dangerous goods storage on site must comply with the requirements of AS 1940:2004 including maintaining separation distances for incompatible materials.</li> <li>• The proposed materials need to be assessed for compatibility and required separation distances or control measures implemented.</li> <li>• Flammable materials storage is to be &gt;15m from site facilities, officers, amenities or protected places.</li> <li>• Quantities to be stored must be assessed to determine if they are considered manifest quantities - manifest quantities will require notification to WorkCover.</li> <li>• A storage location plan is required and needs to include internal layout, location of registers/manifests for the storage location.</li> <li>• Bunding to be impervious and of sufficient capacity to contain 110% of the stored volume</li> <li>• Appropriate spill containment material and fire extinguishers are also required.</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>• Engineering personnel are responsible for identification of requirement to transport Dangerous Goods</li> <li>• Relevant Project Leader or Site Manager is responsible for ensuring all vehicles carry appropriate placards, licenses, emergency equipment and procedures</li> <li>• The Site Manager is required to ensure that sufficient bunds are available and that material is stored appropriately.</li> <li>• Engineering personnel are responsible for ensure SDS and other relevant documentation are obtained and where required submitted to the Client's Representative prior to the material arriving on site. Relevant documentation also includes appropriate risk assessment.</li> <li>• The Project Safety Advisor is responsible for ensuring the Chemicals, Fuels/Oils &amp; Hazardous Substances register is maintained.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>• Duration of operations. The requirements apply to goods transported by LOR and third parties.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Plant / project risk assessments</li> <li>• Weekly inspections to be recorded on Form E-T-8-1227.</li> <li>• Form E-T-8-1232 Dangerous Goods Transport Note</li> <li>• Register of Chemicals, Fuels/Oils and Hazardous Materials</li> <li>• Incidents or spills to be recorded on form Environmental Incident and Complaint Report (<a href="#">E-T-8-1222 Environmental Incident and Complaint Report</a>).</li> <li>• Storage areas are to be inspected by the Supervisory personnel on a weekly basis.</li> </ul>
Flora (including Tree Protection) and Fauna	
Objective	<ul style="list-style-type: none"> <li>• To comply with contractual, development consent conditions and legislative requirements and ensure that native fauna and flora are protected from construction activities.</li> </ul>
Targets	<ul style="list-style-type: none"> <li>• No death or injury to fauna</li> <li>• No unapproved destruction of flora</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

	<ul style="list-style-type: none"> <li>No damage/death to trees identified to be retained on the Project site</li> <li>All LOR staff and subcontractors are informed of the requirements of protected trees on the Project</li> </ul>
Legal, Contractual & Other Requirements	<ul style="list-style-type: none"> <li>Environmental Protection and Biodiversity Conservation Act</li> <li>Threatened Species Conservation Act 1995</li> </ul>
Site specific planning / approval conditions / licence conditions	<ul style="list-style-type: none"> <li>Condition – C17 – Tree Protection – <i>“Prior to commencement and for the duration of works, the tree protection measures outlined in the Arboricultural Impact Assessment Tree Protection Specification, prepared by TreeIQ, dated 11 September 2017, are to be implemented and maintained.”</i></li> </ul>
Controls (means & resources)	<ul style="list-style-type: none"> <li>If native fauna is identified within the disturbance footprint, the person taking the action must take all necessary steps to minimise harm and mortality to those animals.</li> <li>Open excavations and storage areas to be inspected regularly for the presence of fauna species.</li> <li>No clearing or vegetation removal to occur without the DP&amp;E/Client’s approval.</li> <li>All vegetation to be retained shall be protected with suitable tree protection measures as per the Project’s Arborist’s recommendations (e.g. fencing , tape etc)</li> <li>Works will only be undertaken in designated areas.</li> <li>Appropriately qualified tree removal contractors to be used.</li> <li>The clearing limits and protected vegetation is to be clearly communicated to site personnel during site inductions and toolbox talks.</li> <li>Plant and equipment brought on to site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds.</li> <li>Identification of noxious weeds is to be notified to the Client’s representative for action.</li> <li>Construction plant, equipment and materials are not to be stored within the dripline of any trees or vegetation to be retained or within established tree protection zones.</li> <li>No personnel on site are permitted to hunt, fish, feed, capture, extract, or otherwise disturb aquatic, animal, or vegetative species while performing any tasks in performance of the work.</li> </ul>
Responsibilities	<p>All personnel are responsible for ensuring that the clearing limits are addressed and native flora and fauna species are protected.</p> <p>All site personnel to undertake toolbox talks / Project induction in relation to ensuring no damage to trees retained, the reporting process for injury/ death to fauna or clearing of flora occurring beyond the required limits for construction.</p>
Timeframe	Duration of the works.
Monitoring & Reporting	<p>Visually monitored daily</p> <p>Weekly environmental inspection report E-T-8-1227 detailing any flora and fauna.</p>

Archaeology and Heritage	
Objective	<ul style="list-style-type: none"> <li>To comply with contractual and legislative requirements and ensure that existing and undiscovered heritage and archaeological items are protected from construction activities.</li> </ul>

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Legal, Contractual & Other Requirements	<ul style="list-style-type: none"> <li>Heritage Act 1977</li> <li>National Parks and Wildlife Act 1974</li> </ul>
Targets	<ul style="list-style-type: none"> <li>No disturbance or damage to existing known heritage sites or items.</li> <li>Unknown or undocumented heritage sites are not knowingly destroyed, defaced or damaged.</li> <li>Identify and protect any new artefacts or heritage sites before any harm can take place.</li> <li>Any relics found on site will be kept safe for consideration of incorporation into site fixtures.</li> </ul>
<b>Site specific planning / approval conditions / licence conditions</b>	<ul style="list-style-type: none"> <li>Condition C16 – Unexpected Finds – Non-Aboriginal Heritage: <i>“If any unexpected archaeological deposits/relics are discovered during construction, then all works must cease immediately in that area and the OEH Heritage Division contacted in writing. Depending on the possible significance of the discovery, an archaeological assessment and management strategy may be required before further works can continue in that area. Works may only recommence with the written approval of the OEH Heritage Division.”</i></li> </ul>
Controls (means & resources)	<ul style="list-style-type: none"> <li>Awareness training on unexpected finds / the need for the preservation of artefacts and items of heritage value to be provided during the site induction.</li> <li>Location of currently identified archaeological and heritage items are to be nominated on the Environmental Control Plan (where applicable).</li> <li>Exclusion fencing will be provided around the perimeter of any identified heritage or archaeological items.</li> <li>Awareness training on the need to stop work and to report on unexpected finds - new sites, artefacts or items of heritage value.</li> <li>Should any new items be discovered that are suspected of being of heritage significance, whether Indigenous or European, work in the specific area would cease and LOR is to be notified immediately.</li> <li>Should suspected heritage or archaeological items including human remains be found during the works, the following procedure will apply:             <ul style="list-style-type: none"> <li>Work is to cease in the area immediately and LOR notified</li> <li>The matter is to be referred to the client</li> <li>The object is to be left in place</li> <li>GPS coordinates of the item are to be noted</li> <li>Photographic records of the item and its location are to be made; and</li> <li>Condition C16 - Unexpected Finds – Non-Aboriginal Heritage requirements to be complied with</li> </ul> </li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>All personnel on site are to ensure that archaeological and heritage items are protected from damage or disturbance</li> <li>The PER/Site Manager will ensure all site personnel undertake Project inductions/ toolbox talks in relation to protection of nominated items that were previously unknown.</li> </ul>
Timeframe	<ul style="list-style-type: none"> <li>Throughout construction activities</li> </ul>
Monitoring & Reporting	<ul style="list-style-type: none"> <li>Visual monitoring weekly of any existing items</li> <li>Completion of weekly environmental inspection report E-T-8-1227.</li> </ul>

# Construction Environmental Management Plan

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**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

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## APPENDIX 5 – Progressive Environmental Control Plan

Note this is included as an example and is a progressive plan updated to reflect site changing conditions – refer to the Project Document System for the latest version.

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

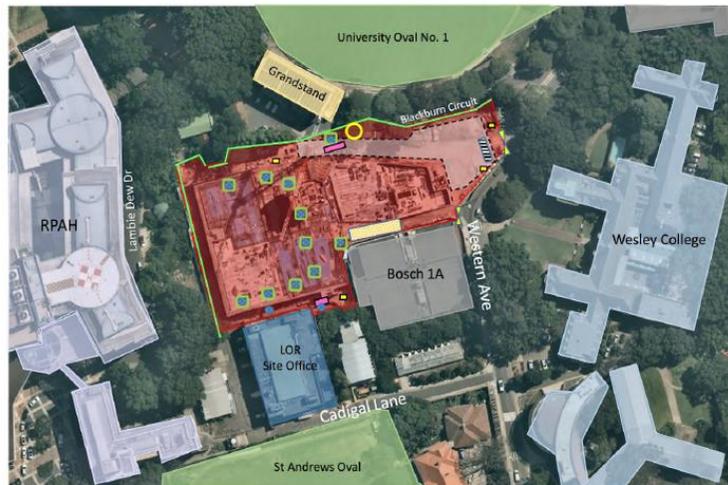
**Date:**  
April 2019

**Rev:**  
05



## Environmental Control Plan – Susan Wakil Health Building

Noise/Vibration Sensitive Receivers (Source CNVMP – Resonate September 2018)



**USYD SWHB**  
Environmental Control Map

**Legend**

- Open grate
- SW drains
- Site gates
- Rumble grid
- Internal road & Loading area
- SW Pit sediment controls – geofab and sand bags
- Hay bale wrapped in geofab
- Geofab & ballast
- Tree Protection
- Sed. Fencing and sand bags in some locations

**Land Use Types**

- Hospital
- Student Accommodation
- Education
- Recreation
- Commercial

Environmental Control Plan			
Key Project Contacts	Project Leader	Chris Quinn	0409 289 682
	Site Manager	Luke Allman	0439 203 340
	Senior Engineer	Chris Paul	0448 241 416
	Safety Manager (Project Enviro Rep)	Ben Reyes	0455 096 792
	Complaints Hotline		1800 95 11 61
Pre-starts/toolbox	<ul style="list-style-type: none"> <li>All personnel to be briefed on this Environmental Control Plan's requirements.</li> <li>Daily pre-start/toolbox meetings to address specific site conditions/requirements regarding environmental issues, where applicable.</li> </ul>		
Approved Hours of Work	<ul style="list-style-type: none"> <li>7:00am – 6pm Mon to Fri</li> <li>7:30am – 3:30pm Sat</li> <li>No work Sundays and public holidays</li> <li>Rock breaking, rock hammering, sheet piling and similar activities will only be carried out between 9am to 12pm, and 2pm to 5pm Monday to Friday, and 9am to 12pm Saturday.</li> </ul>		
Erosion & Sediment Control (Soil and Water Management)	<ul style="list-style-type: none"> <li>Erosion and sediment controls must be implemented, inspected &amp; maintained regularly (e.g. removal of sediment build up, replacing damaged controls, strengthening controls for effectiveness) – measures to be in line with the 'Blue Book'.</li> <li>No tracking (bedding/mud) or any other materials) on to roads external to the site – clean up immediately in case of any tracking.</li> <li>Material stockpiles (with potential to run-off) to be covered with geofabric/plastic tarps and sand/gravel bags established at base (for e.g. prior to wet weather, windy conditions, prolonged inactive periods on-site).</li> <li>Stockpiles, fuels or chemicals not to be located adjacent to stormwater drains/network.</li> <li>Stormwater drains to be protected – typical controls geofabric/sandbags/steel plates or plywood/hay bales wrapped in geofabric etc.</li> <li><b>DISCHARGE OF WATER HOLD POINT</b> – water must not be pumped on or off-site without LORAC approval (testing, treating and dewatering permit from LORAC is required) – note: Prior approval of dewatering and discharge procedure must first be obtained by the Project Team from LORAC. Environmental Leader – Australia Hub.</li> </ul>		
Flora & Fauna (including tree protection)	<ul style="list-style-type: none"> <li><b>VEGETATION REMOVAL HOLD POINT</b> – No vegetation removal is permitted on-site unless approved by relevant authorities.</li> <li>Tree protection measures installed for trees to be retained to remain for duration of works (e.g. fencing, hoarding, delineation).</li> <li>No storage of plant, equipment, materials within tree drip lines or established tree protection zones.</li> <li>Inspect vegetation for fauna, prior to removal.</li> <li>If fauna is found, injured or at risk of injury during works, <b>STOP WORK</b> and notify Site Manager immediately and contact WIRES 1300 094 737</li> </ul>		
Noise & Vibration Management	<ul style="list-style-type: none"> <li>Machinery and vehicles to be turned off when not in use (<b>NO IDLING</b>).</li> <li>Non-tonal reversing beepers fitted on plant/equipment.</li> <li>No swearing, shouting, dropping tools, loud music, unnecessary revving – be mindful of our neighbours/sensitive receivers.</li> <li>Schedule respite periods for high noise/annoying activities for e.g. Break for lunch between 12 and 2pm.</li> <li>If high noise/vibration complaints are received during works, notify the Site Manager immediately. Works will be assessed to determine any alternatives/additional controls.</li> <li>The location of noise sensitive receivers is shown below:</li> </ul>		
Dust & Air Quality	<ul style="list-style-type: none"> <li>Stockpiles/exposed surfaces to be compacted, wetted down or covered to prevent fugitive dust emissions.</li> <li>All loads to be covered and tailgates fixed securely prior to leaving site (to prevent spillage or escape of dust, waste, spill).</li> <li>Ensure plant and machinery is regularly checked and maintained in proper and efficient condition.</li> <li>Plant should not show visible exhaust emissions for 310 seconds. Report such observations to Site Manager immediately.</li> <li><b>In high wind conditions</b> – Site Manager to assess and <b>stop works</b> until adverse conditions subside/implement any additional controls.</li> </ul>		
Unexpected Finds	<ul style="list-style-type: none"> <li>If any unexpected finds are encountered on-site for e.g. contamination (asbestos/hazardous materials), heritage finds (aboriginal artefacts/archaeological deposits/relics) <b>STOP WORK</b>, isolate/secure area immediately, <b>DO NOT TOUCH MATERIAL</b> and notify Site Manager immediately.</li> <li>Follow unexpected finds protocols on-site.</li> </ul>		
Access, Traffic and Parking	<ul style="list-style-type: none"> <li>Follow designated site access points, haulage routes and parking as detailed within the CTMP.</li> </ul>		
Waste Management	<ul style="list-style-type: none"> <li>Construction waste to be separated into material types – use the "Right Bin or Skip" on-site.</li> <li>Concrete waste washout/rinse water to be disposed in designated washout areas or mobile trays (lined/contained) – do not set-up/store near stormwater drains.</li> <li>Any waste generated to be removed from site to be in accordance with its waste classification status and to a licensed waste facility.</li> <li>Retain records – Waste docket, waste classification reports.</li> <li>Site to be left tidy and litter free.</li> </ul>		
Contamination/Hazardous Materials	<ul style="list-style-type: none"> <li>Fuels, chemicals and oils must be stored in banded/storage containers when not in use &amp; away from stormwater drainage.</li> <li>Safety Data Sheets (SDS) must be made available for all substances brought onto site.</li> <li>No refuelling to occur near stormwater drains/network. Any refuelling to occur in designated areas (e.g. hardstand/banded area), appropriate funnels/nozzle attachments and drip tray utilized and spill kits located in close proximity.</li> <li>Spill kits to be fully stocked, made available and accessible within the specific work areas. In case of a spill, where safe to do – <b>CONTROL, CONTAIN, ISOLATE AREA, NOTIFY</b> the Site Manager immediately and clean up the spill.</li> </ul>		
Incident & Non-compliance reporting	<ul style="list-style-type: none"> <li>Any environmental incidents (e.g. spills, leaks, unauthorised clearing of vegetation, emissions, discharges)/non-compliances to be immediately reported to the Site Manager and Project Leader.</li> </ul>		
Document Control	<p><b>Environmental Control Map, Version 2, Date: 13<sup>th</sup> April 2019</b></p> <p>Note this map is progressive, must be updated to reflect changing site controls with effective control measures and is to be read in conjunction with the Project CEMP.</p>		

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

## APPENDIX 6 – Erosion and Sediment Control Map

### SWHB – Environmental Control Plan

Revision 3 – August 2019



**Key:**

- |  |  |  |
|--|--|--|
|  Site footprint   |  Building footprint       |  Geofabric batter/bunded area |
|  Laydown area   |  Secured sediment fence   |  Sediment fence               |
|  Existing sewer & pits                                      |  Spill kit station        |  |
|  Open grate SW drains protected with geofabric and sandbags |  Bundled concrete washout |  |
|  |  Rumble grid              |  |

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

## APPENDIX 7 – Emergency Preparedness and Response

The types of environmental emergencies that could occur on this site are tabulated below.

Note: This plan is designed to supplement the Client's site emergency response plan/s where available. In case of conflict, the Client's plan will apply.

Emergency	Preparation	Response	Responsibility
<b>Significant adverse dust event due to weather conditions: High winds</b>	<ul style="list-style-type: none"> <li>Monitor meteorological conditions for the area - develop contingency for wind speeds in excess of 16m/s (55km/hr)</li> <li>High wind 'stop works' protocols in place</li> <li>Establish contingency strategy for additional dust control measures, additional water carts, dust suppressants, stockpile covers etc</li> </ul>	<ul style="list-style-type: none"> <li>Dust generating activities will cease under direction of the PER or Site Manager until adverse conditions subside.</li> <li>Deploy additional mitigation measures to exposed areas stockpiles and other dust generating items will be water sprayed or covered.</li> </ul>	Site Manager PER
<b>Discovery of friable asbestos.</b>	<ul style="list-style-type: none"> <li>Review previous land uses, environmental reports for potential for friable asbestos.</li> <li>Include asbestos awareness in the site induction where the potential exists</li> <li>Include contingency in relevant work procedures and SWMSs</li> <li>Identify potential service providers for asbestos control and removal.</li> </ul>	<ul style="list-style-type: none"> <li>Quarantine suspected area</li> <li>Cover or provide dust mitigation strategy</li> <li>Engage licensed/approved - air monitoring, removal and disposal organisation</li> <li>Complete post removal verification</li> </ul>	Project Leader Site Manager PER/ Safety Representative
<b>Flooding</b>	<ul style="list-style-type: none"> <li>Monitor meteorological conditions – develop contingency strategy for rainfall &gt; 100mm in 24hours or potential for &gt; 1 in 5 ARI</li> <li>All chemicals, fuels and other hazardous substances to be in secured containers and stored within a sealable shipping container</li> <li>Remove plant and equipment from low lying areas</li> <li>Secure plant that cannot be removed</li> <li>Review site drainage flow paths:</li> <li>Redirect site drainage to prevent flooding of residential/business premises</li> <li>Ensure site drainage does not concentrate surface flow</li> <li>Review and address the potential for excess water entering the site</li> <li>Review and maintain erosion and sedimentation controls</li> </ul>	<ul style="list-style-type: none"> <li>Recover materials washed from site including sediment and other waste.</li> <li>Check effectiveness of erosion and sedimentation devices and other flood controls, maintain where required and safe to do so.</li> </ul>	Site Manager PER

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Emergency	Preparation	Response	Responsibility
<b>Temporary erosion and sediment controls are damaged during rainfall.</b>	<ul style="list-style-type: none"> <li>Plan controls to be suitable for expected conditions</li> <li>Ensure sufficient materials, labour and plant are available for additional controls.</li> </ul>	<ul style="list-style-type: none"> <li>A review of the site to be undertaken by a PER and Site Manager. Controls to be repaired or replaced within 24 hours of detection, immediately if inclement weather current.</li> </ul>	Site Manager / PER
<b>Damage to sediment basin (where applicable)</b>	<ul style="list-style-type: none"> <li>Check basins for suitability to project requirements; size, treatment type, etc</li> <li>Basin outlet to be designed to remain functional in 1 in 20 ARI event</li> <li>Ensure basin construction is in accordance with QA requirements including relevant ITPs.</li> </ul>	<ul style="list-style-type: none"> <li>Water in damaged basin to be pumped to another secure basin, or discharged if it meets the site criteria. Damage to be repaired as soon as practical. Repairs to be monitored when basin brought back online.</li> </ul>	Site Manager/ PER
<b>Spill of hazardous or toxic substance (&lt; 20L)</b>	<ul style="list-style-type: none"> <li>Awareness training of appropriate response and procedures to be incorporated into Project Induction</li> <li>SDS on site for all materials and kept up to date</li> <li>Adequate supply of absorbent materials available in the site compound and on vehicles at work location</li> </ul>	<ul style="list-style-type: none"> <li>Report spills immediately to Site Manager, Project Leader and/or the Project Environment Representative</li> <li>Attempts to be made to limit or contain the spill using sand bags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill.</li> <li>Site Manager to coordinate the response, clean up and disposal of the material</li> <li>Material to be disposed of in accordance with the manufacturers' recommendations and applicable legislation.</li> </ul>	Site Manager, Project Leader PER

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Emergency	Preparation	Response	Responsibility
<p><b>Major spill of hazardous or toxic substance off site or to environmentally sensitive area (&gt; 20L)</b></p>	<ul style="list-style-type: none"> <li>Awareness training of appropriate response and procedures to be incorporated into Environmental and Safety Induction</li> <li>SDS on site for all materials and kept up to date</li> <li>Adequate supply of absorbent materials available in the site compound and on vehicles in work location</li> <li>Emergency telephone numbers for Emergency Response organisations/fire brigade prominently displayed around office and issued to supervisors</li> <li>Initial contact to be made with relevant organisations at project commencement</li> </ul>	<ul style="list-style-type: none"> <li>Report spill immediately to Project Leader and/or Site Manager who will notify the client</li> <li>Attempts to be made to limit or contain the spill using sand bags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill, transferring remaining material.</li> <li>Implement procedures to notify the relevant authorities.</li> <li>Site Manager to coordinate the response, clean up</li> <li>Fire brigade or emergency organisations should be called if spill cannot be controlled by site resources.</li> <li>Evacuation procedures are to be implemented to remove non-essential personnel from the affected area</li> <li>On site client personnel are informed of the incident, internal reporting as per potential Class 1 matter.</li> <li>Access and egress to the area is established to ensure the appropriate vehicles have effective access and congestion is minimised.</li> <li>Senior Officer from fire brigade /emergency organisation assumes control of the operation with LOR personnel assisting as required.</li> <li>Commence data gathering and investigation once emergency is contained</li> </ul>	<p>Project Leader Site Manager PER</p>
<p><b>Fire</b></p>	<ul style="list-style-type: none"> <li>Awareness training of appropriate response and procedures to be incorporated into Environmental and Safety Induction</li> <li>Fire extinguishers maintained, clearly labelled and distributed around site compound and vehicles</li> <li>Training in the use of fire extinguishers and which one to use for each type of fire</li> <li>First Aid supplies are stocked and adequate</li> <li>Emergency telephone numbers for Emergency Response organisations/fire brigade prominently displayed around office and issued to supervisors</li> </ul>	<ul style="list-style-type: none"> <li>For small fires, attempts to be made to extinguish the fire or limit its spread with available fire extinguishers or water hoses if appropriate.</li> <li>Site Manager is to be informed immediately.</li> <li>Site Manager to contact client and external services where necessary (fire, ambulance) as a precautionary measure.</li> <li>All personnel in the vicinity to be assembled in the Evacuation Assembly Area and a head count performed</li> </ul>	<p>Site Manager PER</p>

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Emergency	Preparation	Response	Responsibility
	<ul style="list-style-type: none"> <li>Initial contact to be made with relevant organisations at project commencement</li> </ul>	<ul style="list-style-type: none"> <li>Any resulting fuel or chemical spill to be handled as detailed above</li> <li>Site Manager to coordinate with emergency services and provide assistance as required.</li> </ul>	
<b>Vibration causing structural damage</b>	<ul style="list-style-type: none"> <li>Choose correct plant when working near structures; minimise size and impact</li> <li>Use safe working distances during planning phase</li> <li>Implement vibration monitoring at commencement of vibration generating works to ensure compliance with standards</li> </ul>	<ul style="list-style-type: none"> <li>Activities causing vibration would cease under direction of the PER or Site Manager or Project Leader. Any occupants of buildings may be evacuated with due consideration to safety, and the area secured to prevent unauthorised access.</li> <li>A structural assessment to be undertaken; and if any damage is associated with construction, rectification work would be agreed.</li> </ul>	PER Project Leader Site Manager
<b>Unapproved clearing / damage to protected vegetation – threatened/endangered species</b>	<ul style="list-style-type: none"> <li>Clearly demarcate site boundaries</li> <li>Ensure approval from the relevant authorities is sought prior to removal of any vegetation</li> <li>Clearly demarcate clearing areas and brief site personnel</li> <li>Identify/mark vegetation to be retained or that is protected.</li> <li>Identify species that may be impacted, include material within the project induction</li> <li>Include requirements within construction planning documentation.</li> </ul>	<ul style="list-style-type: none"> <li>Immediately cease activities</li> <li>Engage consultant to assess damage to vegetation and presence of any endangered or threatened communities.</li> </ul>	Site Manager PER
<b>Injury/death to protected/endangered/threatened fauna</b>	<ul style="list-style-type: none"> <li>Identify potentially impacted species prior to commencement on site.</li> <li>Identify species that may be impacted, include material within the project induction</li> <li>Review/inspect vegetation to be cleared prior to clearing – utilise ecologist/spotter where there is the potential for endangered/threatened species</li> <li>Engage with local vet/WIRES representative on the appropriate contact/procedure</li> <li>Site procedure for the short term management of injured fauna</li> </ul>	<ul style="list-style-type: none"> <li>Immediately cease activities upon discovery of injured fauna</li> <li>Implement procedure for short-term stabilisation and transport to Vet or WIRES</li> <li>Undertake additional vegetation inspection to identify any remaining fauna prior to recommencement.</li> </ul>	Site Manager/ PER
<b>Damage / destruction of indigenous heritage item</b>	<ul style="list-style-type: none"> <li>Ensure site investigations detail any heritage items on or in proximity to the site.</li> <li>Include awareness material within the project induction</li> </ul>	<ul style="list-style-type: none"> <li>Cease works and stabilise the area, under the direction of the PER or Site Manager. The PER is to</li> </ul>	PER / Site Manager

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

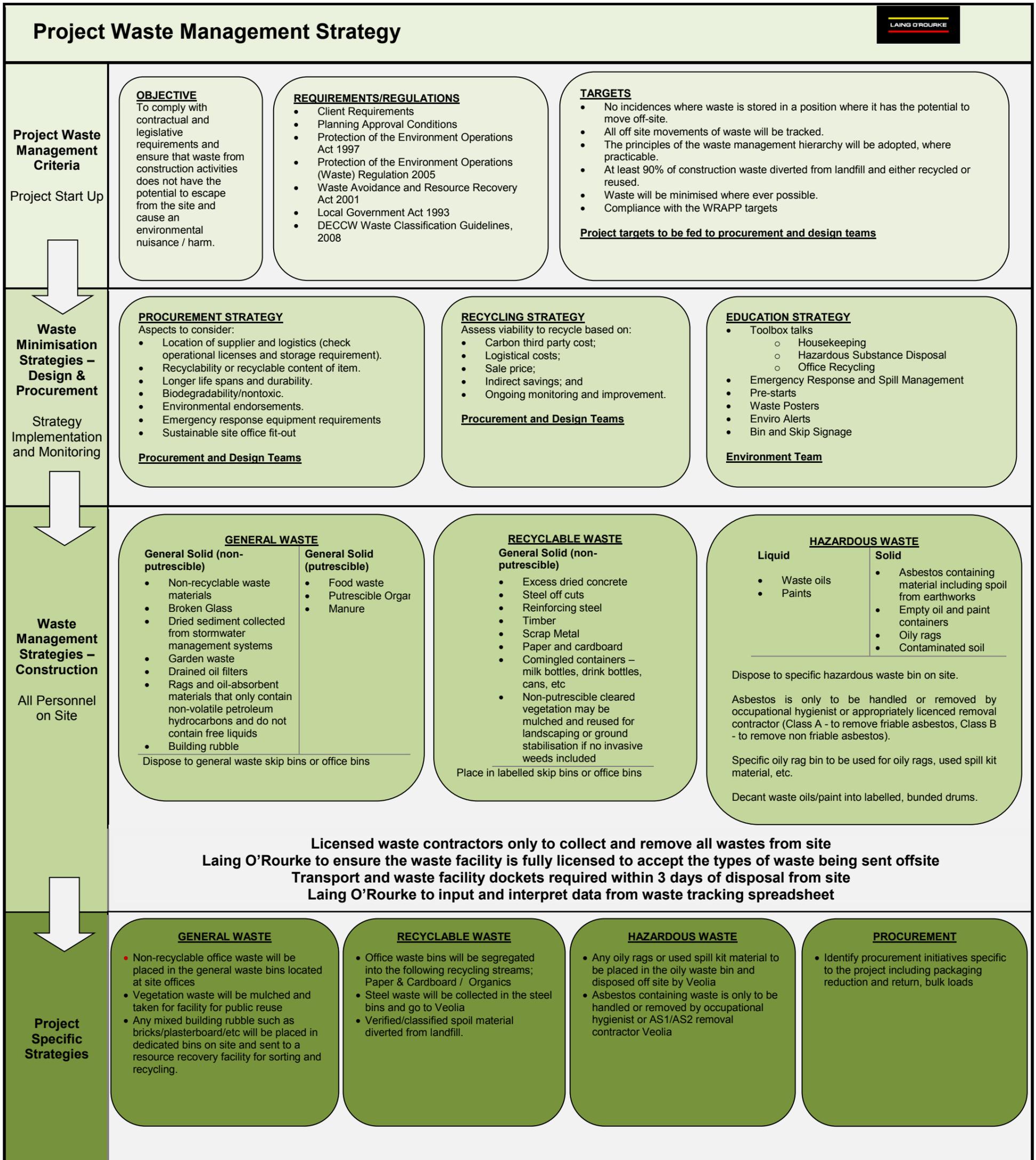
**Date:**  
April 2019

**Rev:**  
05

Emergency	Preparation	Response	Responsibility
	<ul style="list-style-type: none"> <li>Develop a 'stop works' protocol for any heritage find on site.</li> </ul>	<p>report the remnants to the client and regulatory authority.</p> <ul style="list-style-type: none"> <li>Request an archaeologist to assess the significance and archaeological potential of the uncovered feature.</li> </ul>	
<b>Damage / destruction of European heritage</b>	<ul style="list-style-type: none"> <li>Ensure site investigations detail any heritage items on or in proximity to the site.</li> <li>Develop a 'stop works' protocol for any heritage find on site.</li> </ul>	<ul style="list-style-type: none"> <li>Cease works and stabilise the area, under the direction of the PER or Site Supervisor. Contact an archaeologist to assess the significance and archaeological potential of the uncovered feature.</li> </ul>	PER / Site Manager

APPENDIX 8 – Project Waste Strategy

The following strategy is an indicative guide to identify and state the type of waste that is intended to be controlled and recycled where practical.



# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

## APPENDIX 9 – Project Permits and Licenses Register

Project Permit and Approvals Register	Applicable to the project (Yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
<b>Environmental Planning and Assessment Act 1979</b>	Yes	SSD – 7974 (Development Consent Conditions)					
<b>Environment Protection Licence</b>	No						
<b>Water Act 1912</b>	No						
Section 10 Surface Water Licence	No						
Part 5 Section 112 Groundwater Licence	No						
Part 8 Division 3 Approval of controlled work	No						
<b>Water Management Act 2000</b>	No						
Section 56 Access Licences	No						
Section 89 Water use approvals	No						
Section 90 Water management work approvals	No						
Section 91 Activity Approvals	No						
<b>Fisheries Management Act 1994</b>	No						
Division 3 (Sections 199, 200, 201) Dredging and Reclamation	No						
Section 205 Marine vegetation - regulation of harm Permit to Harm Marine Vegetation	No No						

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Project Permit and Approvals Register	Applicable to the project (Yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
Section 220ZW Licence to harm threatened species, population or ecological community or damage habitat	No						
<b>Sydney Water Act 1994</b>	Yes (potentially)						
Section 49 Offence to discharge into works - Trade Waste Permit	No						
Permit to Use Approved Metered Standpipes on Sydney Water Hydrants	Yes, potentially	To be updated, when required					
<b>Hunter Water Act 1991</b>	No						
Section 31 Offence to discharge into works - Trade Waste Permit	No						
<b>Dangerous Goods (Road and Rail) Transport Act</b>	No						
Section 6 Licensing of vehicles transporting dangerous goods	No						
Section 7 Licensing of drivers transporting dangerous goods	No						
<b>Local Government Act</b>	Yes, potentially						
Section 68 - What activities, general, require the approval of council	No						
Section 68A - Operation of a system of sewage management	Yes, potentially	To be updated, when required					
<b>Roads Act 1993</b>	No						

# Construction Environmental Management Plan

Project:  
Susan Wakil Health Building

Project No:  
K34

Date:  
April 2019

Rev:  
05

Project Permit and Approvals Register	Applicable to the project (Yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
Section 138 Works and structures - permit to undertake works to roads	No						
<b>Work Health and Safety Regulation 2017</b>	Yes						
Section 174ZS Notification to SafeWork	Yes	When asbestos is discovered/requires removal/disposal					
Section 175L Major hazard facility must be registered or provisionally registered	No						
<b>National Parks and Wildlife Act 1974</b>	No						
Section 90 Aboriginal heritage impact permit	No						
<b>Heritage Act 1977</b>	No						
Division 3 Applications for approval	No						
Section 139 Excavation permit	No						
<b>Marine Safety Act</b>	No						
Section 29 Types of marine safety licences	No						
<b>Management of Waters and Waterside Lands Regulations</b>	No						
Division 3 Occupation of Waters	No						
<b>Rural Fires Act 1997</b>	No						
Section 89 Issue of permits (includes "hot works" which would constitute lighting a fire)	No						

# Construction Environmental Management Plan

**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

Project Permit and Approvals Register	Applicable to the project (Yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
<b>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</b>	No						
Include details of approvals under this Act where applicable	No						
<b>Other</b>							
List other relevant legislation here	N/A						

# Construction Environmental Management Plan

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**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

---

## APPENDIX 10 – Environmental Incident Investigation Guidelines

### Incident Investigation ([E-T-8-1222 Environmental Incident and Complaint Report](#))

Class 1 incidents shall be subject to an ICAM or Tap Root investigation. The following section outlines the environmental incident and complaint investigation. The actual detail required will vary depending on the class of the incident. In any case, form E-T-8-1222 Environmental Incident and Complaint Report is to be used to document the incident.

**Step 1-** Identify the class of incident and obtain the incident or complaint details.

**Step 2** - Observation and information gathering.

The first priority is to understand the incident and how the incident occurred.

- **Take samples or obtain results (required for Class 1&2)** - laboratory results or insitu samples (Note: for Class 1 & 2 incidents NATA certified laboratories may be required)
- **Interview persons involved where required** - Include witnesses / supervisors / experts
- **Inspect the incident scene** - Take measurements (do not guess), photos, videos, drawings, diagrams / sketches.

**Collect related documentation** - Attach additional material as appropriate such as Work Method Statements, JSEA's, ERAPs, Erosion and Sediment Control Plans, Risk Assessments, induction records, toolbox talks, pre-start, environmental training records, subcontractor/client incident report, relevant design documentation, maintenance records.

**Step 3** - Give detailed description of the incident

- Outlined exactly what happened and give the following details as applicable:
- Area or people affected and pollutant type as appropriate
- Time, date and weather conditions
- Plant, equipment, organisations involved
- Potential stakeholders involved
- Describe the nature of the incident including:
- Breach of licence condition, Act or regulation
- Discovery of cultural heritage item, artefact, etc
- Unauthorised release of harmful substance to environment
- Penalty or fine imposed or protection order or notice issued.
- Performance of the environmental controls
- Describe the immediate remedial actions undertaken:
- Notify relevant parties
- Contain pollution or clean up affected area
- Repair to environmental controls
- Rectify damage and remediate the affected area

**Step 4** - Undertake basic level incident analysis

List the elements involved including people, equipment and environment (weather conditions), procedures, organisational elements involved in the incident. List the essential and contributing factors for the items above.

**Step 5** - Identify the corrective and preventative actions.

- Change to equipment/machinery design / maintenance
- Improve environmental control measures
- Implement additional resources
- Change to work methods, procedures or processes
- Change or additional induction training
- Address organisational issues

**Step 6** - Implement the corrective and preventative actions outlined above

- Outline responsibilities and accountabilities
- Obtain relevant approvals for the corrective and preventative actions (i.e. Regulatory Authority or Client requirement)
- Provide proposed completion dates for the approved actions
- Document actions implemented and close out

**Note:** where a Class 1 Incident has occurred the HSE Director will initiate the investigation and allocate responsibilities, an external consultant may be engaged. Authorities are to be notified in accordance with the legislative time frames in the applicable state.



# Construction Environmental Management Plan

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**Project:**  
Susan Wakil Health Building

**Project No:**  
K34

**Date:**  
April 2019

**Rev:**  
05

---

## APPENDIX 12 – Forms (Resources)

- [E-T-8-1227](#) [Environmental Inspection Report](#)
- [E-T-8-1200](#) [Environmental Risk Action Plans](#)
- [E-T-8-1221](#) [Management Review of the Environmental System](#)
- [E-T-8-1222](#) [Environmental Incident Complaint Report](#)
- [E-T-8-1298](#) [Water Sampling Record](#)



# Environmental Management Plan

Project:  
Susan Wakil Health Building

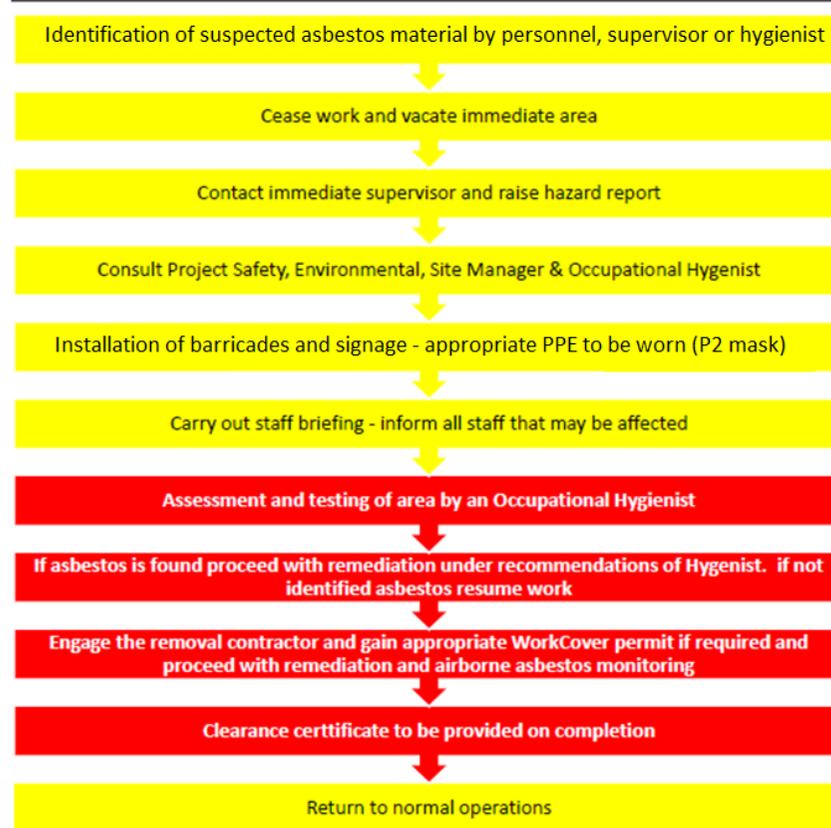
Project No:  
K34

Date:  
April 2019

Rev:  
05

## APPENDIX 14 – Unexpected Finds Protocol

### RESPONSE FLOW CHART



**Yellow** sections to be undertaken by Laing O'Rourke Australia

**Red** sections to be undertaken by a professional hygienist