

Document details

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Terms and definitions

Term	Definition
CAR	corrective action request
CEMP	Construction Environmental Management Plan
CoR	Chain of Responsibility
CRAW	Construction Risk Assessment Workshop
CWMP	Construction Waste Management Plan
DECC	Department of Environmental Climate Change
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	NSW Environment Protection Authority
ERAP	Environmental Risk Action Plan
ESCP	Erosion and Sediment Control Plan
ETP	Engineering and Technology Precinct
HAZID	Hazard Identification
HSE	health, safety and environmental
HSEMS	Health Safety and Environmental Management System
iGMS	Laing O'Rourke's enterprise-wide management system
Impact	Laing O'Rourke's online incident investigation reporting tool
OEH	NSW Office of Environment and Heritage
JSEA	Job Safety and Environmental Analysis
Laing O'Rourke	Laing O'Rourke Australia Construction Pty Limited
PER	Project Environmental Representative
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REF	Review of Environmental Factors
SDS	safety data sheet
SER	Severe Environmental Risk
SWMS	safe work method statement
The University	The University of Sydney
WIRES	Wildlife Information Rescues and Education Service

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1. Purpose

This Environmental Management Plan (EMP) and its associated management plans have been prepared for the Engineering and Technology Precinct (ETP) Stage 1 project, to comply with the contractual requirements for environmental management, the relevant environmental legislation and other environmental obligations associated with the project.

This EMP will also ensure that positive and negative effects on the environment are assessed as they relate to organisational stakeholders, including those described in Laing O'Rourke's Health, Safety and Environmental Management System (HSEMS).

This plan has been developed to:

- Ensure that the needs and expectations of the University of Sydney are met
- Ensure that the project meets contractual, legal and other environmental requirements
- Ensure the project meets the requirements of ISO 14001, including the need for continual improvement
- Provide a link between Laing O'Rourke's corporate and project management systems
- Provide all personnel with systems, procedures and documentation necessary to undertake this project in accordance with the environmental requirements.

2. Scope

This Laing O'Rourke EMP applies to the full scope of project activities described in the contract and the relevant conditions of approval over which we have the ability to control or influence with due consideration to the lifecycle perspective (as described below) and stakeholder relationships.

The plan has been developed to address the University of Sydney's specific requirements as well as the requirements of Laing O'Rourke HSEMS.

The project site is located at Electrical Engineering Building J03, Maze Crescent, Darlington. The University of Sydney is transforming its ETP into an environment that fosters scholarship at the highest standard possible and delivers a positive experience to all of its staff, students and stakeholders. The ETP Stage 1 works involve delivering high-quality infrastructure that accommodates maximum research opportunities while being flexible enough to respond to new education pathways in the future.

A new Micro Engineering Building (Building J03) will incorporate 11,000m² of new space and 6,000m² of refurbished facilities. The building will include research and teaching laboratories, office areas and teaching spaces. The project also involves the associated demolition works and infrastructure upgrades, as well as staging and decanting works in adjacent buildings.

The scope of works includes:

- An improved reputation as an innovative and modern engineering faculty
- Fit for purpose research facilities
- Increased research productivity and quality
- An enhanced student learning experience and quality of learning resources, such as learning spaces, computer laboratories, and teaching laboratories
- Iconic engineering innovations in design, construction and operation
- Improved integration between research and teaching
- Lower (rate of increase) of operating and maintenance costs



- Improved safety and security processes.

2.1 Lifecycle perspective

Laing O'Rourke takes a lifecycle approach (or lifecycle perspective) to business activities, including the environmental aspects of a project. This means understanding the relevant stages of a product or service system, from raw material acquisition or generation from natural resources to final disposal.

Project delivery can be divided into the following five broad categories:

- Work winning (estimating and cost planning, business development, bids and proposals)
- Commercial (head contract and subcontract 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 lifecycle perspective, Laing O'Rourke considers the:

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

At each stage of project delivery, Laing O'Rourke determines aspects and opportunities to influence lifecycle outcomes.

3. Distribution policy

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

All paper copies of this EMP will be considered 'uncontrolled'.

3.1 Issue, revision and reissue

The initial issue of this plan has been reviewed by the Environmental Leader to ensure it meets the requirements of the HSEMS and policy, contract, specifications and standards. The plan is approved for use on the project by the Project Leader. Evidence of initial review and approval is by signatures on the cover sheet or other approval mechanism through the project's document management system.

Revisions of this EMP may be required throughout the duration of the project to reflect changing circumstances or identified opportunities for improvement.

Revisions may result from:

- Management review
- Audit (either internal or external)
- Client complaints or non-conformance reports
- Changes to Laing O'Rourke's Health, Safety and Environmental Management System.

Revisions must be reviewed and approved by the Project Leader prior to issue. Updates to this plan will be numbered consecutively.

4. Health, Safety and Environmental Management System

Laing O'Rourke maintains an industry-leading Health, Safety and Environmental Management System (HSEMS) that is applied across all operations and is accredited by Sci Qual International to ISO 14001:2015 Environmental Management Systems – Requirements with Guidance for Use (see Figure 1).



Suite 19, Building D, "The Lakes Centre", 8-22 King Street, Caboolture QLD 4510

The certificate of Registration, which remains the property of Sci Qual International Pty Ltd, is granted subject to the Regulations governing the certification scheme operated by Sci Qual International Pty Ltd and in respect of goods or services described in the schedule hereto, bearing the same number as this certificate.

Figure 1: Laing O'Rourke's certification to ISO 14001:2015



The HSEMS is available for everyone to access via <https://nextgearsms.com>. The system includes three core environmental components: System Requirements, Environmental Primary Standards and Severe Environmental Risk protocols.

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

- The University of Sydney's requirements as detailed in the contract
- Laing O'Rourke's environmental requirements, as detailed in the [HSEMS](#)
- *ISO 14001:2015 Environmental Management Systems – Requirements with Guidance for Use*
- Laing O'Rourke's compliance obligations, including mandatory and voluntary requirements.

This plan references relevant parts of Laing O'Rourke's HSEMS and incorporates the additional elements necessary to satisfy the client's environmental requirements. An outline of Laing O'Rourke's environmental requirements in its HSEMS is provided below.



Environmental Requirements

Severe Environmental Risks (SERs)

Environmental Primary Standards

Environmental System Requirements

Laing O'Rourke > 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: Outline of Laing O'Rourke's environmental requirements in its HSEMS



5. References, standards, codes and regulations

The project will be constructed in accordance with relevant standards, codes, acts and regulations. Appendix 1 provides a register of applicable legislative instruments relevant to the project.

Access to the latest Australian standards is available via the Supporting Information section of iGMS, Laing O'Rourke's enterprise-wide management system.

6. Policy

Laing O'Rourke maintains an Environmental & Energy Policy that will be:

- Displayed at prominent locations on the project site
- Communicated to site personnel during induction and training
- Made accessible to clients and interested members of the public.

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



ENVIRONMENTAL & ENERGY

Laing O'Rourke is an engineering enterprise, focused on major construction projects and strategic programmes, delivering certainty for clients from the earliest engagement and throughout the project lifecycle. 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, and to a continual improvement of energy performance. High environmental and energy 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 environmental 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 an environmentally sustainable and high-quality built environment 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 minimising direct and embodied carbon emissions, and providing energy-efficient / low-carbon assets for our clients
- Continually improving the environmental and energy performance of our activities, products, services and associated management systems through clear objectives, targets and programmes
- Providing sufficient and competent resources and information to achieve our environmental and energy-related objectives and targets
- Exploring opportunities in the sourcing and lifecycle aspects of our products, services and supply chain to reduce carbon emissions, improve energy efficiency and demonstrate positive environmental outcomes
- Exploring opportunities for innovative technologies, products and processes that drive improved environmental outcomes / benefits and energy performance throughout the design, 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 exploring opportunities to enhance 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 & Energy Policy



7. Objectives and targets

High-level objectives and targets for this project are outlined in the following table.

Objective	Target	Reporting/monitoring
Effective site environmental controls are implemented	<ul style="list-style-type: none">Set up controls prior to starting work in the affected areaMaintain effective controls.	Inspection checklists
Environmental performance	<ul style="list-style-type: none">No breaches or environmental infringement noticesNo Class 1 or Class 2 incidents.	Monthly reports
Environmental lead indicators	<ul style="list-style-type: none">50% of project environmental inspections accompanied by supervisory or engineering personnelMinimum of one environmental toolbox talk to be carried out each monthEnvironmental Alters (as issued across the LOR business)100% of weekly environmental inspections signed off by the Project Leader	Monthly reports / Weekly Inspection Reports and Checklists
The HSEMS is effectively implemented	<ul style="list-style-type: none">No level 1 corrective action requests<3 level 2 risks in each report<10 level 3 risks in each reportClosure of corrective action requests (CARs) within the nominated timeframeTimely release of environmental hold points	Audit report
Community issues are carefully managed	<ul style="list-style-type: none">Complainant contacted within two hoursMatter closed out within one week.	Impact / Complaints Register

Table 2: Environmental objectives and targets

Operational objectives and targets relating to significant environmental issues are contained within the operational control procedures provided in Appendix 2.

8. Responsibilities and authorities

Authorities and responsibilities for all positions are defined and communicated in job descriptions and project documentation.

Reporting lines are shown in the organisational chart (available within the project's document management system). Key responsibilities are indicated in the organisational chart in Appendix 3.

Key responsibilities and authorities are outlined below.

8.1 Business Stream Director

- Ensure that independent audits of the HSEMS are conducted
- Review environmental performance through the monthly reporting cycle
- Authorise resourcing on environmental issues
- Resolve major issues that cannot be resolved by the General Manager.

8.2 General Manager

- 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 that cannot be resolved by the Project Leader.

8.3 Project Leader

- Ensure that project responsibilities and authorities are defined and communicated
- Provide adequate resources to meet environmental objectives
- Approve the EMP
- Ensure that the EMP is effectively implemented and maintained
- Appoint 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 and local authorities as required.

8.4 Construction Manager

- Supervise all site construction activities and personnel to ensure 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.

8.5 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 that are environmentally friendly.

8.6 Project Environmental Representative

- Ensure that the EMP 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 Principal's Environmental Representative and/or Superintendent on environmental issues, including the written notification of non-conformances (incidents, emergencies or deviations from the EMP).
- 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 Leader on the performance of the 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.
- Conduct regular compliance checking as required by this EMP.
- Ensure that non-conformances and environmental incidents are recorded and written reports provided to the client's representative as necessary. 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.

8.7 Environmental Leader/HSE Leader [revise title in accordance with org chart]

- Provide functional environmental support to the project team
- Coordinate internal audits as part of Laing O'Rourke's business-wide audit schedule.

8.8 Subcontractors

- Comply with all legal and contractual requirements
- Comply with site environmental requirements
- Comply with management and supervisory directions
- Participate in induction and training as directed
- Report all incidents.

8.9 All personnel

- Comply with the relevant acts, regulations and standards
- Comply with the Laing O'Rourke'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
- Act in an environmentally responsible manner.

9. Legal and compliance obligations

Mandatory compliance obligations and requirements relevant to the project are summarised below. The [Compliance Obligations](#) Environmental System Requirement in Laing O'Rourke's HSEMS outlines the process Laing O'Rourke uses to determine legal and other mandatory requirements.

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

- Laws – acts, regulations and policies
- Environment protection licence (EPL) and permits
- Development consents
- Relevant industry standards and codes
- Contract requirements



- Other compliance obligations outline in this EMP, including any voluntary compliance obligations.

An assessment of the relevant legislative instruments has been conducted and recorded in Appendix 1.

Licences, permits and approvals are outlined in the Project Permits and Approvals Register in Appendix 4. The register must be developed at or prior to the start of the project to outline the full scope of the project's requirements for authority approvals.

The register must be reviewed in conjunction with the six-monthly management review outlined in Section 20 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 Project Permits and Approvals Register are incorporated into this EMP. Specific details and controls are included in the associated sub-plans and Environmental Risk Action Plans (ERAPs) in Appendix 2.

Copies of relevant permits, licences and development consents will be kept on site as controlled documents in the project's document management system.

9.1 Project approval and development consent

The project has been approved in accordance with the *Environmental Planning and Assessment Act 1979*. The approval process includes specific planning conditions and commitments that must be addressed in this EMP and delivered during the project.

A Conditions of Approval Compliance Tracking Matrix (see Appendix 5) will be established upon commencement to ensure the approval conditions are captured, addressed and closed out. The matrix includes all conditions relevant to Laing O'Rourke's scope of work. The matrix will be updated as the works progress and reviewed on a quarterly basis to verify compliance with each condition.

Specific conditions of approval relevant to construction activities are included in the project's operational controls in the aspect-specific ERAPs in Appendix 2.

Non-compliances with the conditions will be documented and addressed through Impact's Assurance application. Impact is Laing O'Rourke's HSE information management system.

10. Environmental risk assessment and control

Laing O'Rourke has established a business-wide Environmental Aspects and Impacts Register in accordance with the HSEMS Environmental System Requirement [Environmental Aspects and Impacts](#). The register outlines the environmental aspects that need to be assessed and effectively managed to meet Laing O'Rourke's environmental obligations with respect to the context of the organisation and its projects. The register is to be used to inform the development of the project-specific aspects and impacts register and associated risk and opportunity assessment.

The [Environmental Risk and Opportunity](#) Environmental System Requirement 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.

This assessment must consider the following as a minimum:

- 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.

Assessing significant environmental aspects is based on the risk and opportunity assessment matrix established in the [Risk and Opportunity Management Procedure](#) and the Risk and Opportunity Register.

Site-specific environmental aspects and impacts for ETP Stage 1 project have been identified and assessed in Appendix 6: Risk and Opportunity Assessment and Aspects and Impacts Register of this EMP.

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

The environmental risk and opportunity assessment process and the associated matrix define risks as follows:

- 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 action have the potential to result in off-site impacts, where the environment recovers over the medium term. There is reasonable probability that the impacts would occur with the absence of suitable controls.
- Red risk – Environmental impacts have significant off-site impacts. The environment recovers over the long term, but there is an impact on the local community. There is a high probability that the impact would occur. Environmental impacts occurring off-site are considered major. Impacts result in the destruction of protected species or sensitive habits, or may involve other impacts not envisaged as part of the environmental assessment process. The environment is not able to recover without substantial intervention.

Significant environmental issues must be controlled to a degree that is commensurate with the level of risk and the level of influence Laing O'Rourke has over these issues.

An Environmental Risk Action Plan (ERAP) or an issue-specific sub-plan must be developed for aspects or impacts that are determined by the initial risk assessment to be an amber or red risk. The ERAP or sub-plan must address the strategic mitigation and control measures developed following the initial risk assessment and as outlined in Laing O'Rourke's 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 that issue-specific controls must be put in place, even if 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 HSE Leader or delegate.

If additional risks are encountered on site during the delivery phase, these will be addressed either by updating this EMP or by using separate ERAPs.

An overview of this process is contained in the [Environmental Management Plans](#) Environmental System Requirement in the HSEMS.



10.1 Severe Environmental Risk controls

Severe Environmental Risks (SERs) are activities that, if not managed effectively, could lead to severe environmental impacts resulting in permanent or long-term damage to the environment that is not easily rectified. There would also be a significant impact on the project's and Laing O'Rourke's environmental objectives. The focus of these risks is on high-consequence environmental harm risks rather than regulatory exposure.

The SERs applicable to the ETP Stage 1 project as determined by the risk assessment, are listed below.

Standard SERs	Project-specific SERs
Biodiversity	Unauthorised removal of vegetation outside of work area, potential to remove threatened species. 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. Disturbance of pests and rodents onsite, potential to relocate into residential areas, increased health risks associated with increased presence of rodents.
Heritage (Indigenous and European)	Unexpected heritage items found, delayed work, additional studies, approvals required, damage to heritage item.
Water quality and wastewater storage	Sediment laden runoff from works leaving site, potential for degradation of local watercourses, increased turbidity in local waterways with impact to aquatic life. Non-compliant water discharged from site, may lead to polluted water entering stormwater systems. Washout of concrete in undesignated areas, potential for sediment laden/alkaline water to pollute stormwater systems/waterways. Incorrect management of contaminated or untreated materials, could result in non-compliant material entering surrounding waterways with loss of ecosystem health. Storage of hazardous substances, leaking plant equipment and spillage from refuelling, could lead to pollution of stormwater systems/waterways. Fuel contaminated runoff from works leaves site, potential for contaminated runoff to enter stormwater systems/waterways. 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.
Erosion and sedimentation	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. Sediment tracked onto surrounding roadways by construction vehicles, affecting surrounding environment and possibly resulting in complaints from neighbours. 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.
Temporary waterway crossings	Not relevant to the project.



Standard SERs	Project-specific SERs
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>

Table 3: Severe Environmental Risks

The SER Controls Standard provides clear guidance on the required controls and expectations for preventing high-consequence environmental impact. The [SER Controls Standard](#) describes the various minimum mandatory requirements that must be implemented and working effectively to manage severe environmental harm risks on all Laing O'Rourke projects. Additional SER controls have been included as necessary to address site-specific conditions.

The [Severe Environmental Risks Control Adequacy Assessment Tool](#) will be used as guidance for the implementation of the standard.

On a monthly basis, projects and sites must undertake field-based observations to ensure that the required SER critical controls are demonstrated to be working effectively.

The required elements for the successful completion of the monthly SER activities are:

- The monthly checks of field and system criteria should be recorded in Field View (Laing O'Rourke's digital data capture tool) or on the Severe Environmental Risk Control Adequacy Assessment Tool.
- System-based controls are to be reviewed for application and effectiveness within the bounds of the project's EMP.
- The monitoring activity frequency will be dependent on the programming 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 absence of critical controls are considered a 'no go'. Actions to address the 'no go' are to be raised in the projects action tracking system or Field View
- The SER assessment must be completed on a monthly basis.

11. Training, awareness and competence

Requirements for training, awareness and competence for environmental aspects and impacts are outlined in the HSEMS Environmental System Requirement [Onboarding, Training, Induction and VOC](#) and within this management plan.

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

Environmental requirements will be explained to personnel during site induction and ongoing training via toolbox talks, briefings, notifications and the like.



All personnel will receive induction and training in the following:

- Environmental & Energy Policy
- Site environmental objectives and targets
- Individual authorities and responsibilities
- Site environmental rules
- Potential consequences of departure from these rules
- Emergency procedure and response (for example, spill clean-up)
- Their legal obligations.

Personnel performing tasks that could cause significant environmental impacts must be competent on the basis of appropriate education, training and/or experience.

All Laing O'Rourke operational staff on the ETP Stage 1 project will be provided with training in the requirements and implementation of this plan and the HSEMS. EMP training for new staff members must be completed within one month of their commencement on the project.

The PER will establish a schedule of environmental training in conjunction with the development of this EMP.

Training in high-risk aspects will be carried out as the project progresses. An outline of the proposed training is provided below. The training will be scheduled to reflect the requirements of the construction programme.

Aspect	Training	Personnel required	Method
Emergency spill response	<ul style="list-style-type: none">• Use and location of spill kits• Spill control• Emergency response procedures• Spill response drill• Identification of hydraulic hose fatigue.	Supervisory personnel	<ul style="list-style-type: none">• Project induction• Toolbox talks• Internal Laing O'Rourke course run as required for site personnel.
Erosion and sediment control	<ul style="list-style-type: none">• Standard erosion and sediment controls from the Landcom 'Blue Book'• Implementation of controls on site• Erosion and sediment control plans.	Engineering and supervisory personnel	<ul style="list-style-type: none">• Project induction• Toolbox talks• Internal Laing O'Rourke course run as required for site personnel.
Heritage awareness	<ul style="list-style-type: none">• Stop works and reporting protocols for discovery of previously unknown heritage and archaeological items• Exclusion zones and heritage protection measures for known heritage items.	Supervisory personnel	<ul style="list-style-type: none">• Project induction• Toolbox talks
Contamination awareness	<ul style="list-style-type: none">• Contamination status of site• Stop works protocols for unidentified potential contamination (such as hydrocarbons and asbestos).	Supervisory and Engineering personnel	<ul style="list-style-type: none">• Project induction• Toolbox talks• Protocol distributed to workers and posted on message boards.
Environmental legal obligations	<ul style="list-style-type: none">• POEO Act and other project requirements• Applicable fines and prosecutions.	All personnel	<ul style="list-style-type: none">• Project induction• Toolbox talks.
Energy and resource usage	<ul style="list-style-type: none">• Energy and resource efficiency in the workplace (including site and compound) and site initiatives such as the use of biofuels and harvesting rainwater for dust suppression instead of potable mains water.	All personnel	<ul style="list-style-type: none">• Project induction• Toolbox talks.



Aspect	Training	Personnel required	Method
Community and stakeholder awareness	<ul style="list-style-type: none">• Adjacent community and project involvement• Relevant project stakeholders• Accepted behaviours• Approved hours of work.	All personnel	<ul style="list-style-type: none">• Project induction• Toolbox talks.
Biodiversity	<ul style="list-style-type: none">• Measures to stop feral animals coming to site.	Supervisory personnel	<ul style="list-style-type: none">• Toolbox talks.

Table 4: Proposed training for the project

Environmental content will be included in toolbox talks and pre-start briefings with records retained in the project filing system.

12. Communication and reporting

Laing O'Rourke's HSEMS includes specific organisational requirements related to communication and reporting, within Environmental System Requirement [Communication and Reporting](#).

The University of Sydney, Laing O'Rourke's employees and other interested parties will be kept informed about the functioning of the project's environmental system as necessary, with specific requirements outlined in the section below.

12.1 Internal

Internal communication methods will include:

- Digital contract reviews (Laing O'Rourke's monthly project review forum)
- Management reports
- Site inspection reports
- Audit reports
- Incident reports
- Noticeboards
- Site meetings
- Employee induction, training and toolbox talks
- Briefings, notifications and alerts.

12.2 External

External communication methods will include:

- Site meetings with the client
- Client notification of all significant incidents
- Project reports to the client at progress meetings and in the relevant project monthly report
- Meetings and correspondence with interested parties (for example, City of Sydney and EPA) as necessary
- Discussions with adjoining land owners, neighbours and the community who may be affected by the project.



13. System documentation

Laing O'Rourke's integrated HSEMS is part of an enterprise-wide management system called iGMS. The core elements of the HSEMS are described in this EMP, with reference to relevant Environmental System Requirements, Primary Standards and Severe Environmental Risk Protocols.

14. Document control and records

Document control requirements in Laing O'Rourke's HSEMS must be implemented in accordance with the [document control procedures in iGMS](#).

The project will establish a document management system that allows for ready access to HSE information. This may include hardcopy folders, server-based electronic systems or proprietary document management systems.

Individuals with responsibilities for work packages are also responsible for the proper maintenance and upkeep of the document 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 contractual and statutory requirements, including timeframes
- Records are kept as objective evidence of compliance with environmental requirements
- Filed in accordance with the document control procedures in iGMS.

15. Operational control

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

Within Laing O'Rourke's HSEMS, operational controls for the business are documented in Environmental Primary Standards. These 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 some or all of the following:

- ERAPs contained in Appendix 2
- Sub-plans contained in Appendix 2 or standalone documents referenced below
- Safe work method statements (SWMSs), environmental work method statements (EWMSs), job safety and environmental analyses (JSEAs), hazard identifications (HAZIDs), construction risk assessment workshops (CRAWS), and inspection and test plans (ITPs) and checklists (as appropriate)
- Work instructions (for example, refuelling and servicing).

Significant environmental issues identified in the risk and opportunity assessment in Appendix 6 will be controlled by ERAPs and 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.



15.1 Hold points

The following table outlines hold points – activities that must not proceed without objective review and approval by the nominated authority. These hold points should be incorporated into the working plans for the project (such as SWMSs, work instructions and construction methodologies).

Item	Process held	Acceptance criteria	Approval authority
Environmental Management Plan	Construction activities	Site-specific EMP has been developed, reviewed and approved.	Project Leader
Dewatering	Dewatering/pumping water off the site	Verification that the water quality criteria have been met.	Construction Manager
Sediment and erosion control measures	Construction activities involving ground disturbance	Sediment and erosion control plans have been developed, reviewed, approved and implemented.	Construction 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
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
Dangerous Goods	Transport and storage of dangerous goods	Verification that transport vehicles meet the requirements, and all applicable licences are in place and verified, and landfill can lawfully receive the waste. Verification that bunded storage is provided for the dangerous goods, and offset distances are maintained for the storage area	Construction Manager
Controlled / Hazardous waste	Transport of controlled / hazardous waste from the site	Verification waste has been classified in accordance with the guidelines, transport licensing in place and landfill can lawfully receive the waste	Project Leader

Table 5: Hold points

Proceeding past a specified hold point without authorisation is a system non-conformance.

15.2 Environmental Control Plan

The project Environmental Control Plan 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.

A hardcopy of the project Environmental Control Plan is provided in Appendix 7 of this EMP.

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

The project Environmental Control Plan will include the location of:

- The worksite layout and boundary, including entry and exit points and clearing limits
- Adjoining land use and nearest noise sensitive receivers
- Sediment and erosion control measures, including type, size/capacity of detention basins and wheel wash facilities



- Site offices
- Spill containment and clean-up equipment
- Worksite waste management facilities
- Environmentally sensitive areas (for example, threatened species, critical habitat, contaminated areas and heritage zones)
- Vegetation and trees to be protected
- Known heritage items (Indigenous and non-Indigenous)
- Location of stormwater drainage and watercourses leading to and from the worksite.

The Environmental Control Plan will also include details of:

- The hours of work applicable to the worksite (including deliveries and any restrictions on high-noise-generating activities)
- Document control and approval details
- Specific environmental management requirements from licenses, approvals or permit conditions
- Key environmental risk issues and the specific mitigation measures

The Environmental Control Plan is maintained in addition to any erosion and sediment control plans or other documentation that specify the location of environmental controls on site.

15.3 Design

Environmental design requirements will be managed in accordance with Environmental System Requirement [Environmental Design](#). Where Laing O'Rourke has the responsibility for the completion of design activities, design risk and compliance obligations must be included in the project environmental risk assessment and the project's risk and opportunity assessment.

The following environmental issues should be considered during the design phase:

- How to minimise any adverse impacts on the environment, including energy-efficient operation and incorporating sustainable or recycled materials
- How to improve design efficiency to conserve natural resources
- How to address the requirements of Laing O'Rourke's sustainability agenda
- How to meet environmental codes, regulations and other requirements
- Conditions of approval and development consent requirements
- Mitigation measures outlined in the environmental assessments
- Contractual environmental design requirements and scope of works and technical criteria.

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

The Design Management Plan will outline the environmental compliance requirements necessary for the project to meet its environmental obligations. In particular, the Design Management Plan must describe the project-specific design approach to minimising impact of the works on the surrounding ecology, water, flora, fauna and atmosphere – for example, the appointment of specialist consultants, carbon accounting and design environmental assessments.



The Design Management Plan will 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.

15.4 Procurement

The supply of goods and/or services by suppliers and subcontractors will be managed in accordance with the Environmental System Requirement [Procurement and Supply Chain](#) and the business processes outlined in iGMS. In particular:

- During the tender phase, supply chain partners will be evaluated for their ability to meet the project's environmental obligations. Environmental issues will be taken into account when selecting subcontractors and suppliers and as provided in the project's Procurement Management Plan and using [ITT Part E HSES Supply Chain Evaluation](#).
- Supply, subcontract and consultancy agreements must address the relevant environmental compliance.
- Agreements will outline the contractual requirements to be delivered by the supply chain through their scope of works and as outlined in the 'Procurement and Supply Chain' Environmental System Requirement.
- Suppliers of chemicals and hazardous substances will be required to submit safety data sheets (SDSs) with delivery or prior to chemicals arriving at site.
- Supply chain partners will 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' SWMSs 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.

15.5 Handling, storage, packaging and transport

The handling, storage, packaging and transport of goods will be managed in accordance with the project [Quality Management Plan](#).

Dangerous goods and hazardous materials will be stored and handled in accordance with SDSs and the requirements of the Australian Dangerous Goods Code.

The *Dangerous Goods (Road and Rail Transport) Act 2008* 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 Laing O'Rourke 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:

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

These materials will be stored in a safe area (for example, bunded and/or storage) that will prevent or contain accidental spillage and harm to the environment. Further details are provided in Appendix 2 in the 'Delivery and storage of chemicals, fuels and oils, including dangerous goods requirements' ERAP.

SDSs must be stored along with or at the point of storage.



15.6 Manufacture, construction and fabrication processes

The manufacturing, construction and fabrication processes will be controlled in accordance with the procedures in iGMS and requirements outlined in the project's Quality Management Plan.

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

- Construction methodologies, SWMSs and JSEAs
- ITPs, task complete checklists and associated documents
- Contract documents
- Environmental control procedures
- EWMs.

15.6.1 Lifecycle perspective

As described earlier, the lifecycle perspective means understanding the relevant stages of a product or service system, from raw material acquisition or generation from natural resources to final disposal. Laing O'Rourke's Environmental System Requirement [Life Cycle Perspective](#) outlines the process for ensuring this approach is taken on our projects.

15.6.2 Planning for high environmental risk activities

Site planning processes for high environmental risk activities are outlined in Environmental System Requirement [Environmental Planning](#) which forms part of the Laing O'Rourke 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 in Appendix 2.

Activity-specific method statements must be developed and implemented for all activities that have the potential to cause high-risk environmental impacts or are nominated as high-risk activities during the project environment risk assessment.

An activity-specific method statement that addresses environmental high-risk activities may be combined with existing construction planning documentation. It must be developed in consultation with the environmental team, engineering team and relevant workplace supervisors.

Prior to the start of the activity, the site team must 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 must address the above requirements in their activity methodologies and method statements. Supply chain partners involved in these activities must complete an environmental risk assessment workshop prior to the start of the activity.

15.7 Plant and equipment

Environmental Primary Standard [Spill Prevention](#) includes requirements related to the fuelling and servicing of plant and equipment. These represent the minimum requirements within Laing O'Rourke HSEMS. Additional project-specific requirements and specific controls may be included in the issue-specific sub-plans or ERAPs in Appendix 2.

Plant and equipment owned by Laing O'Rourke will be maintained in a safe and serviceable manner. 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 will be inspected. Items found to be worn, damaged or otherwise degraded will be replaced prior to operation.

- Plant will be serviced, refuelled 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 and fix oil leaks.
- Plant will be driven and operated only in approved areas.
- Plant will have effective pollution control and sound attenuation devices fitted.

Further project specific information on environmental controls is contained in Appendix 2.

16. Emergency preparedness and response

The types of environmental emergencies that could occur on the ETP Stage 1 project are shown in Appendix 8.

All environmental emergencies and incidents must be immediately reported to the Project Leader and 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 18 below.
- Contact emergency service personnel as necessary (for example, NSW Fire and Rescue and spill clean-up services). The site emergency response team will also be contacted.
- Provide notification to the Environmental Leader, 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 18).
- 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 must be displayed in the main site office.

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

Specific system requirements related to environmental emergencies are outlined in Environmental System Requirement [Emergency Planning and Response](#).

16.1 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 three consecutive days. This includes public holiday and RDO periods. Site shutdown planning must be undertaken in accordance with the 'Environmental Planning and Response' Environmental System Requirement. Planning activities must ensure that inspections, resources and contingency measures are agreed and implemented for the shutdown period. This will be documented in a specific Shutdown Plan.



17. Monitoring and measurement

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

This will include:

- Recording information to track performance
- Monitoring operational controls
- Assessing the level of conformance with objectives and targets.

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

The [Management Site Safety and Environment Inspection Report](#) will be completed each week by the project's Supervisors to monitor environmental issues on site. The reports will be issued to the Project Leader and/or Construction Manager for review.

Issues identified during environmental inspection requiring further action beyond normal practice or maintenance are to be logged into Field View as defined in the project procedures.

Non-conformance to operational control procedures or to the HSEMS that cannot be rectified immediately must be recorded and addressed by raising a [Non-conformance Report](#) or logged into the Assurance application in Impact.

The following environmental issues and non-conformances must be included within Impact as corrective actions:

- Internal inspection outcomes that cannot be rectified immediately – actions nominated on the Environmental Inspection Report and Management Site Environmental Inspection Report
- Incidents and associated corrective actions
- Internal audit observations and non-compliances
- Client audits or other notice of non-compliance
- Notices or actions from regulatory authorities.

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

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

17.1 Corrective actions

Corrective actions are differentiated by risk ranking. The nominated timeframes to resolve items on the CAR Register are as follows:

CAR risk ranking	Timeframe for resolution
1	Action needs to be commenced immediately to resolve the issue
2	Action needs to be resolved within one week
3	Action needs to be resolved within one month

Table 6: Corrective action risk rankings

Refer to [Continual improvement and corrective action](#) on iGMS for further detail.



Further monitoring and reporting activities against operational objectives and targets are listed in Section 7 of this plan.

If monitoring and measuring equipment is required, it must be calibrated, maintained and controlled in accordance with the procedures in iGMS and requirements outlined in the project Quality Management plan. Records of calibration will be kept in the document management system.

17.2 Monthly environmental reporting

Laing O'Rourke's approach to environmental reporting is outlined in [Environmental System Requirement Communication and Reporting](#).

Monthly environmental reporting must be completed through Laing O'Rourke's Digital Contract Review process. The Project Leader is responsible for ensuring environmental performance information is included in each month's Digital Contract Review as necessary. This may include:

- 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 and event management, including the outcomes from incident investigations and corrective actions
- Content for the environmental project dashboard.

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

- Environmental management reporting requirements and key performance indicators
- Waste management reporting
- Project-specific conditions of approval or environmental compliance reporting requirements
- Greenhouse gas and lifecycle reporting

Supply chain environmental performance reporting will be used as necessary to inform project and workplace environmental reporting.

17.2.1 Contract-specific reporting

In addition to the above standard Laing O'Rourke monitoring and measurement requirements, this specific project has been conditioned under B44-B47 and C44-C49 to undertake staged project lifecycle monitoring and audits.

17.2.1.1 Independent Environmental Audit

To fulfil the planning conditions, the environmental audit will be a combination of documentation review (Management plans) as well as completing a site visit to confirm the implementation of relevant management plans and procedures. In accordance with the NSW Department of Planning and Environment's Independent Audit Post Approval Requirements, June 2018 (Section 3.3) the following information is to be reviewed:

1. An Assessment of compliance with:

- a. Conditions of consent applicable to the phase of the development that is being audited;
- b. All post approval documents prepared to satisfy the conditions of consent, including an assessment of the implementation of Environmental Management Plans and Sub-Plans;



- c. All environmental licenses and approvals applicable to the development excluding environmental protection licenses issued under the Protection of the Environment Operations Act 1997;
2. An assessment of the environmental performance of the development, including but not necessarily limited to, an assessment of:
- d. Actual impacts compared to predicted impacts documented in the environmental impact assessment
 - e. The physical extent of the development in comparison with the approved boundary, and any potential off-site impacts;
 - f. Incidents, non-compliances and complaints that occurred or were made during the audit period;
 - g. The performance of the development having regard to agency policy and any particular environmental issues identified through consultation carried out when developing the scope of the audit;
 - h. Feedback received from the Department, and other agencies and stakeholders, including the community or Community Consultative Committee, on the environmental performance of the project during the audit period;
3. The status of implementation of previous independent Audit findings, recommendations and actions (if any);
4. A high-level review of the project's environmental management system, including assessment of any third-party certification of them, the type, nature and scope of the systems having regard to the nature and scale of the development, and the implementation of the systems. It is not expected that an Independent Audit comprises a management system audit, however any key deficiencies identified in the system should be discussed;
5. A high-level assessment of whether Environmental Management Plans and Sub-plans are adequate; and
6. Any other matters considered relevant by the auditor or the Department taking into account relevant regulatory requirements and legislation and knowledge of the development's past performance.

The assessment of the implementation of each of the main management plans associated with the construction works include:

- Construction Environmental Management Plan
- Construction Noise and Vibration Management Plan (including any tested results)
- Dust mitigation measures
- Erosion and sediment control plans (including containment of surface water runoff from site and mitigation of mud tracking off site from vehicles)

The audit will also review Laing O'Rourke's construction management including:

- Monthly environmental reports
- Complaints register and correspondence
- Incident reporting
- Rectification of non-conformances from internal audits and complaints
- Waste receipts for contaminated soil removed from site
- General management of site
- Internal audits

A summary report will be provided within two weeks upon the initial site visit. The report will identify where good environmental practices were observed, as well as identify where non-conformances were identified and improvements can be achieved. The report will include relevant photos and will comply with the scope audit as defined by the planning condition. The below table summarises the scope of the Independent Environmental Audit program for the ETP Stage 1 project.

Proposed Program for Independent Environmental Audit during the construction of the Engineering and Technology Precinct

Development Application Number: SSD 8636

Developer: Laing O'Rourke

Proposed Construction Program: March 2019 to July 2020

Lead Auditor: Lana Assaf (RPS Group)

Date*	Justification
April 2019	<p>Close to the beginning of the construction works and therefore will determine whether relevant management plans and procedures are being implemented.</p> <p>Also coincides with the construction commencing of the CC1 Substructure – In ground services, bulk excavation, piling, pile cap, footing and temporary works (i.e. Tower crane), which is when the noise assessment is required, and sediment controls must be installed and maintained as excavation works would be occurring.</p>
September 2019	<p>Within 6 months of the previous audit.</p> <p>Also coincides with the construction of the frame and façade works (which have elevated potential of noise exceedances) as well as commencement of some fit-out works (J03 Electrical Engineering Building).</p>
February 2020	<p>Within 6 months of the previous audit.</p> <p>Continuation of fit out works and façade installation (which have elevated potential of noise exceedances) as well as external works/landscaping (therefore multiple work areas and contractors in the public eye).</p>
July 2020	<p>Operation Completion is scheduled for July 2020, an audit will be completed post completion.</p> <p>This audit will provide an assessment of the final phase of the project (i.e. to completion) as well as provide a summary of the previous three audits including identification of:</p> <ul style="list-style-type: none"> • Compliance with construction completion conditions • Compliance with any ongoing monitoring and reporting requirements

*These timings are based on the current construction program but might be adjusted if delays are evident.

This audit program has been prepared for the construction of the Engineering and Technology Precinct, Sydney University, and has been compiled in accordance with the latest version of AS/NZS ISO 19011-2014: Guidelines for Auditing Management Systems (Standards Australia, 2014) which can be submitted to the Secretary for information in accordance with DA Reference Number SSD 8636.



17.2.1.2 Independent Compliance Monitoring

To fulfil the planning condition and supplement environmental audits, the Compliance Monitoring and Reporting Program has been proposed for this project in accordance with the NSW DPE Compliance Reporting Post Approval Requirements, June 2018. The Compliance Monitoring and Reporting Program contains a compliance table that:

- Identifies the requirements in all conditions of consent that must be complied with during each phase of the development;
- Sets out the compliance monitoring and methodology that will be used to assess compliance with each compliance requirement: and
- Sets out the type of data or evidence that is to be collected to assess whether compliance has been achieved.

A copy of the proposed Compliance Scope and program is below:

Date*	Justification
March 2019 Pre-Construction Compliance Report	Prior to the beginning of the construction works and therefore will determine whether relevant management plans and procedures are being implemented. Prior to construction commencing of the CC1 Substructure – In ground services, bulk excavation, piling, pile cap, footing and temporary works (i.e. Tower crane), which is when the noise assessment is required, and sediment controls must be installed and maintained as excavation works would be occurring.
July 2019 Construction Compliance Report 1	Within 26 weeks from the date of commencement of construction.
December 2019 Construction Compliance Report 2	Within 26 weeks from the previous compliance report.
May 2020 Construction Compliance Report 3	Within 26 weeks from the previous compliance report.
Pre-Operational Compliance Report September 2020	A report will be completed post completion, which will provide an assessment of the final phase of the project (i.e. to completion), including identification of compliance with construction completion conditions and compliance with any ongoing operational monitoring and reporting requirements.
Operation Compliance Report 2021- Ongoing (potentially annually in accordance with Condition B47)	Reporting required for the duration of operation. At intervals, no greater than 52 weeks from the date of commencement of operation. This requirement would be the asset owner's responsibility – Sydney University. Condition B47 states: Notwithstanding the requirements of the Compliance Reporting Post Approval Requirements (2018), the Planning Secretary may approve a request for ongoing annual operational compliance reports to be ceased, where it has been demonstrated to the Planning Secretary's satisfaction that an operational compliance report has demonstrated operational compliance.
Post – Decommissioning Compliance Report	Report to be submitted to the Planning Secretary within 12 weeks of completion of decommissioning. This requirement would be the asset owner's responsibility – Sydney University.

Table 7 Compliance Monitoring Program



17.2.2 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. The outcomes are to be retained in the project records.

The table below outlines the requirement and criteria to be revised and the relevant frequency.

Requirement	Criteria	Frequency
Severe Environmental Risk Program	The programme has been implemented and actions are complete.	Monthly
Site inspection implementation	Site inspections have been completed in accordance with the EMP 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	The project waste management register is up to date, including spoil management and disposal.	Monthly
Conditions of Approval tracking	The conditions of approval compliance matrix has been reviewed and updated, demonstrating compliance with conditions.	Quarterly

Table 8: Criteria for monthly project environmental system self-check

17.2.3 Supply chain environmental compliance obligations review

Suppliers and subcontractors operating on the ETP Stage 1 project will be subject to environmental performance requirements, in accordance with the supply or subcontract agreements.

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

- Audits of the implementation of supply chain environmental systems on projects. Supply chain audits will verify implementation of the environmental requirements from their respective agreements.
- Environmental inspections on the project to review supply chain performance.
- Monthly environmental reports to provide updates 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 and reporting, where required by a supply chain agreement, to verify environmental performance targets are being met.

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.

18. Incidents, complaints, corrective and preventative action

The management, investigation, reporting and notification process for environmental events, including positive events, is to be undertaken in accordance with the Environmental System Requirement [Event Management and Reporting](#) and Appendix 9: Environmental incident investigation guidelines.



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

The [Environmental Incident and Complaint Report](#) may be completed as a hard-copy report at the discretion of the Project Leader.

All Class 1, Class 2 and Class 3 incidents are to be recorded in IMPACT, Laing O'Rourke's online incident investigation and reporting tool. IMPACT can be accessed from Laing O'Rourke's intranet, iGATE, or remotely via the Internet where connection is possible and direct access to the Intranet is not available. Incidents must be logged in Impact within 48 hours of occurrence. For Class 1 and Class 2 incidents, an investigation must also be logged in Impact.

The Environmental Leader, HSE General Manager and Head of Legal must be notified by telephone as soon as practical after any actual or potential Class 1 or Class 2 incidents with the potential to result in regulatory action.

Environmental Incident is classified into three classes, as outlined in the following table.

Class 1 (including potential)	Class 2 (including potential)	Class 3
Class 1 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. These result in a major environmental investigation and potential for large prosecution.	Class 2 environmental incidents create short- to medium-term damage to the environment. This damage will result in the environment taking up to 12 months to return to pre-existing conditions. There is the potential for prosecution or an infringement notice.	Class 3 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.

Table 9

These classifications are detailed, with examples provided, in the Laing O'Rourke Environmental Incident Classification Guidelines available in Environmental System Requirement [Event Management and Reporting](#).

Where a Class 3 incident has occurred, the Laing O'Rourke Construction Manager or immediate supervisor is to be informed. Class 3 incidents must be logged directly into IMPACT.

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

Where a Class 1 incident occurs, the Environmental Leader, HSE General Manager and the Head of Legal are to be informed immediately. Appendix 10 contains a Class 1 Incident Management Flow Chart, which must be followed in the event of all actual or potential Class 1 environmental incidents.

Class 1 incidents must be subject to an Incident Cause Analysis Method (ICAM) or TapRooT investigation.

Where complaints are received at project sites or workplaces involving the media or where the company image is likely to be affected, they must be considered potential class 2 incidents and notified accordingly.

All Class 1 and Class 2 incidents are to be reported to the relevant state and federal authorities as required under relevant Acts and Regulations. Further details are provided in Section 18.2: External incident notification below.

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

Refer to the [Environmental Legislation page on iGMS](#) for information on the applicable legislation.

Initial incident details must be provided in IMPACT for all actual and potential Class 1 and Class 2 incidents within 24 hours of the incident occurring. Notifications will be sent automatically to the relevant Laing O'Rourke leadership team members from IMPACT once the incident details have been entered.



18.1 Incident and complaints reporting

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

Environmental incidents and complaints must be recorded in Impact within two working days of the incident.

Laing O'Rourke will notify the client's representative as required and in accordance with the contract.

On this project and in accordance with the contract requirements, the University of Sydney is to be notified as outlined below.

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

Table 10: Contract requirements for incident notification

Class 1 and Class 2 reportable incidents must be reviewed by the Environmental Leader, 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 [Continual Improvement Corrective and Preventative Action Procedure](#) in iGMS.

Where an environmental non-conformance or incident is identified, corrective and preventive actions must be developed. These may include:

- Review and improvement of existing environmental controls, JSEAS and EWMSs
- Site rehabilitation
- Increased site inspections and monitoring
- Modification of construction or installation methods
- Increased environmental awareness including retraining and toolbox talks.

Each incident must be sufficiently investigated to allow specific and detailed corrective and preventative actions to be identified, actioned and closed out as outlined in Impact or in the [Environmental Incident and Complaint Report](#).

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 timeframes in the applicable state.

18.1.1 Senior Leaders Environmental incident review

For all Class 1 and Class 2 incidents, the Project Leader must convene a briefing within three days with the relevant senior business leader to provide an update on the incident investigation and to allow the senior leader 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 must be forwarded to the senior business leader and HSE Leader and Environmental Leader.

- 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
- A programme for implementing 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.

18.2 External incident notification

18.2.1 State matters

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 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 must 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:

- NSW Ministry of Health, via the local public health unit – (02) 9391 9000
- The SafeWork NSW – 13 10 50
- The City of Sydney – 02 9265 9333
- Fire and Rescue NSW – 000.


Regardless of the actual or potential impact, these authorities must be notified 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.

18.2.2 Federal matters

Environmental incidents relating to the *Environmental Protection and Biodiversity Conservation Act 1999* must be notified to the Secretary of the Department within seven days of the event.



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

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

18.3 Client complaints

All communications from the University of Sydney (including CARs and audit reports) expressing concern or dissatisfaction with the implementation or operation of the EMP must be documented in the Assurance application in Impact. Client complaints cannot be rated risk ranking 3.

Public complaints must be handled as outlined in Clause 18 above using Form [Environmental Incident and Complaint Report](#) and logged into IMPACT.

Management system non-conformances and recurring environmental incidents will be handled in accordance with the Environmental System Requirement [Inspections, Audits and Corrective Actions](#).

Corrective and preventive actions may include:

- Site remediation and rehabilitation
- Increased site inspections and monitoring
- Increased environmental awareness (such as retraining and toolbox talks)
- Review and improvement of existing environmental controls and JSEAS and EWMSs.

19. Environmental Management System audit

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

It is expected that the project will be audited within three months of commencing on site and approximately every 3 to 6 months thereafter and in accordance with the Laing O'Rourke audit schedule. The relevant HSE Leader, in consultation with the project leadership team, will decide on the frequency, scope and timing of site audits. An audit report will be issued to management for action. Actions will be followed up for close-out of actions within one month of the issue of the audit report. Audits must be captured within the Assurance application in Impact. Actions associated with audits shall also be logged in the Assurance application in Impact.

20. Management review

The project's management team will check the status and adequacy of this EMP to ensure that it meets current client and Laing O'Rourke 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 Laing O'Rourke's HSEMS
- 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 of the project's environmental management system and this management plan are to be undertaken annually.

Appendix 1: Legal and other requirements

The legal and other requirements relevant to the ETP Stage 1 project are shown in the table below. Access to this legislation is available through [Environment Essentials](#).

Legal and other requirements	Summary of obligations	Relevance to the project
Environmental planning legislation		
<i>Environmental Planning and Assessment Act 1979 (EP&A Act)</i>	This Act establishes a system of environmental planning and assessment of development proposals for the state.	High relevance. The development application (DA) conditions and obligations are incorporated into the specification documents and Laing O'Rourke'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 (for example, environmental planning, development consents and conditions of approval).	Medium relevance. Sydney City Council (the local government body for this area) has a number of powers to control local issues including development applications. The project is approved by NSW Department of Planning and Environment as a State Significant Development.
<i>Roads Act 1993</i> <i>Roads (General) Regulation 2000</i>	This Act and Regulation primarily provide for 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; and regulation of work, structures and activities.	High relevance This Act applies to activities that impact roads and require temporary/ permanent changes to traffic or infrastructure (Roads and Maritime Services for state and councils for local roads).
<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 and so on (that is, protected leader protected land).	No relevance. 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 protect 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.	Low relevance. 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.



Legal and other requirements	Summary of obligations	Relevance to the project
<p><i>Native Vegetation Act 2003</i></p> <p><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.</p> <p>Section 12 of the Act 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 Regulation 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>Low relevance.</p> <p>Significant impact to native vegetation is not required for this project.</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 cover matters such as the prosecution for offences under various environmental legislation and to appeal against conditions of approvals, permits or orders.</p>	<p>Low relevance.</p> <p>This Act would only apply to work under the contract if Laing O'Rourke were prosecuted for an environmental offence.</p>
<p><i>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>High relevance.</p> <p>Laing O'Rourke Australia is a registered entity under this Act. As such, where Laing O'Rourke 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.</p> <p>Laing O'Rourke does have operational control of this facility.</p>
Contaminated land legislation		
<p><i>Contaminated Land Management Act 1997</i></p>	<p>This Act provides 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 – 'Duty to Report Contamination' – applies to owners of land and persons who become aware their activities have contaminated the land.</p>	<p>Medium relevance.</p> <p>This Act will be relevant to the contractor in the event suspected or potentially contaminated ground is found during construction activities.</p>
Fire control legislation		
<p><i>Rural Fires Act 1997</i></p>	<p>This Act is intended to prevent, mitigate and suppress bushfires and other fires. It places a duty on Laing O'Rourke as the occupier of the site to extinguish fires during bushfire danger periods or if unable to do so notify appropriate firefighting authorities of the existence of the fire and its location.</p>	<p>Low relevance.</p> <p>This project site and surrounding areas are not prone to bushfires.</p>
Hazardous substances legislation		



Legal and other requirements	Summary of obligations	Relevance to the project
<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.	Low relevance. 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>	This Act regulates 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.	High relevance. This Act is relevant to the transport of dangerous good to and from the site. The project will require the use of a variety of dangerous goods. Laing O'Rourke 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 <i>Rivers and Foreshores Improvement Act 1948</i> and the <i>Water Act, 1912</i> . 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.	Low relevance. 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.	No relevance. 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.	No relevance. The project is not located in areas associated with this Act.
<i>National Parks and Wildlife Act 1974</i>	This Act provides for 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. It is also an offence under Part 8A of this Act to pick or harm threatened species. Refer to the notes under Threatened Species Conservation Act 1995 for more information.	Low relevance. No Aboriginal artefacts have been identified within the construction area. The only relevance would be if previously unknown artefacts were discovered during construction.



Legal and other requirements	Summary of obligations	Relevance to the project
<i>Threatened Species Conservation Act 1995</i> <i>Threatened Species Conservation Regulation 2002</i> <i>Threatened Species Conservation (Savings and Transitional) Regulation 1996</i>	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 Part 8A of the National Parks and Wildlife Act 1974. 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&A Act or an approval within the meaning of Part 5 of the EP&A Act.	No relevance. No threatened species of flora or fauna listed in the schedules of this Act have been identified within the proposed work area.
<i>Fisheries Management Act 1994</i>	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 has relevance for the removal of marine vegetation.	Low relevance. Along with the POEO Act, water discharging from the site must not pollute the adjacent streams or watercourses.
<i>Marine Pollution Act 1987</i>	This Act creates offences for discharges of oil, oily mixtures and noxious liquid substances from ships into state waters.	No relevance. The site is not located adjacent to state waters and does not involve the use of applicable vessels.
<i>Noxious Weeds Act 1993</i>	<p>This Act provides for the classification and control of noxious weeds. Declared noxious weeds are classified as:</p> <ul style="list-style-type: none">• Class 1: State-prohibited weeds• Class 2: Regionally prohibited weeds• Class 3: Regionally controlled weeds• Class 4: Locally controlled weeds• Class 5: Restricted plants. <p>The characteristics of each class is given in Section 8 (2) of the <i>Noxious Weeds Amendment Act 2005</i>. Class 1, 2 and 5 weeds are referred to in the Act as 'Notifiable Weeds'.</p>	Low relevance. The Act applies to owners or occupiers of land including public authorities and thus does not apply to Laing O'Rourke.
<i>Water Act 1912</i>	This Act provides for licences to extract water for construction purposes either from surface or artesian sources. Should construction water be extracted from surface sources (other than sedimentation ponds) or artesian sources, a licence will be required.	Low relevance. It is not proposed that construction water will be obtained from surface sources (such as creeks and lakes) or artesian sources.



Legal and other requirements	Summary of obligations	Relevance to the project
<i>Heritage Act 1977</i>	<p>This Act provides for the preservation and conservation of heritage items such as buildings, works, relics and places of historic interest or scientific, cultural, social, archaeological, architectural, natural or aesthetic significance.</p> <p>Under this Act, a relic means any deposit, object or material evidence that is 50 or more years old and relates to the settlement of the area (not being an Indigenous 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>Low relevance.</p> <p>Only one item of heritage has been identified in early studies and has been marked to be relocated as part of the project works.</p>
<i>Wilderness Act 1987</i>	<p>This Act provides for the permanent protection and proper management of wilderness areas and promotes the education of the public in the appreciation, protection and management of wilderness. The Act and associated Regulations provide a mechanism for the identification and declaration of wilderness areas.</p>	<p>No relevance.</p> <p>This project is not within or immediately adjacent to a declared wilderness area. This Act has little or no relevance to the project.</p>
<i>Plantations and Reafforestation Act 1999</i>	<p>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, management and harvesting of timber and other forest plantation products.</p>	<p>No relevance.</p> <p>The work under this contract is not located within or adjacent to reforested or plantation forest land.</p>
<i>Australian Heritage Council (Consequential & Transitional Provisions) Act 2003</i> <i>Australian Heritage Council Act 2003 (Cwth)</i>	<p>The <i>Australian Heritage Council (Consequential and Transitional Provisions) Act 2003</i> repealed the <i>Australian Heritage Commission Act 1975</i>.</p> <p>The <i>Australian Heritage Council Act 2003</i> 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.</p>	<p>No relevance.</p> <p>The site is not on the Register of the National Estate of places.</p>
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwth)</i>	<p>This Act provides for the preservation and protection from injury or desecration to areas and objects of particular significance to Indigenous peoples. Areas and objects can be protected by Ministerial Declaration and it is then an offence to contravene such a declaration.</p>	<p>No relevance.</p> <p>No areas or objects within the worksite have been identified as being subject to such a declaration and this Act is of little relevance to the project.</p>
<i>Ozone Protection Act 1989</i>	<p>This Act provides for a system of controls and regulates and prohibits the manufacture, sale, distribution, use, emission, recycling and disposal of stratospheric ozone-depleting substances and articles that contain these substances.</p> <p>Only people appropriately qualified in accordance with this Act can undertake servicing and maintenance of this type of equipment.</p>	<p>Low relevance.</p> <p>This Act relates to the use of refrigerators and air conditioning units in site buildings and vehicles that still contain CFCs. Such items are unlikely to be found on site.</p>



Legal and other requirements	Summary of obligations	Relevance to the project
<i>Protection of the Environment Operations Act 1997 (POEO Act)</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.	High relevance. 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 NSW Environment Protection Authority 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 are to supply and store water, provide sewerage services, provide stormwater drainage and dispose of waste water within the corporation's area of operations.	Medium relevance. Coordination may be required with Sydney Water during the works.
<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.	Low relevance. 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.	Low relevance. It is not envisaged that pesticides will be used on the project.
<i>Waste Avoidance and Resource Recovery Act 2001</i>	The Act encourages the most efficient use of resources and reduction in 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 also an offence under the POEO Act to wilfully or negligently dispose of waste in a manner that harms or is likely to harm the environment.	Medium relevance. 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); and disposal (as a last resort).
Legal and other requirements		

Appendix 2: Operational control procedures – Environmental Risk Action Plans

Significant environmental issues will be managed according to the Environmental Risk Action Plans below. Control measures documented in the Environmental Risk Action Plans will be guided by the requirements of the Environmental Primary Standards and project-specific conditions and mitigation measures. The highest level of control shall apply where there is any inconsistency.

Environmental Risk Action Plans	
Noise and vibration	
Objective	<ul style="list-style-type: none"> To comply with contractual requirements and ensure that noise and vibration from construction activities do not cause environmental nuisance.
Targets	<ul style="list-style-type: none"> No valid noise or vibration complaints resulting from construction works. No unreasonable noise or vibration. No noise and vibration impacts on external receptors.
Legal, contractual and other requirements	<ul style="list-style-type: none"> Contract specification Development Consent SSD 8636 Audible construction works, unless otherwise approved by the client, will be restricted to: <ul style="list-style-type: none"> 7:00 am to 6:00 pm Monday–Friday 8:00 am to 1:00 pm Saturdays. <p>There is to be no work outside of these hours without approval. Construction activities that are inaudible external to the site may be undertaken outside of these hours where approved.</p> POEO Act Protection of the Environment Operations (Noise Control) Regulation 2000 Local Government Act 1993 Protection of the Environment Operations Act 1997 AS 2436 Guide to Noise Control on Construction, Maintenance and Demolition Sites.
Site-specific planning, approval conditions and licence conditions	<p>Construction works to be restricted to within the hours of 7.00am to 6.00pm Monday to Friday and on Saturday within the hours of 7.30am to 3.30pm inclusive, with no work on Sundays and public holidays.</p> <p>Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between 9am to 12pm and 2pm to 5pm Monday to Friday, and 9am to 12pm Saturday.</p> <p>Works may be undertaken outside of these hours if required:</p> <ul style="list-style-type: none"> By the Police or public authority for the delivery of vehicles, plant or materials. In an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm Where the works are inaudible at the nearest sensitive receivers Where a variation is approved in advance in writing by the Secretary or her nominee if appropriate justification is provided for the works.



Environmental Risk Action Plans

	<p>Notification of any activities undertaken outside of the approved working hours must be given to affected residents.</p> <p>Works shall be carried out in accordance with the University of Sydney's 'Campus Infrastructure and Services Contractor Handbook'</p> <p>The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures identified in the approved CNVMP.</p> <p>Construction vehicles (including concrete agitator trucks) do not arrive at the Site or surrounding residential precincts outside of the construction hours of work outlined.</p> <p>Audible movement alarms must be implemented where practicable and without compromising the safety of construction staff or surrounding noise sensitive receivers.</p> <p>Any noise generated during construction must not be offensive noise within the meaning of the Protection of the Environment Operations Act 1997 or exceed approved noise limits for the site.</p> <p>Vibration caused by construction at any residence or structure outside the site must be limited to:</p> <p>For structural damage, the latest version of DIN 4250-3 (1992-02) Structural vibration – Effects of vibration on structures (German Institute for Standardisation, 1999); and</p> <p>For human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated from time to time).</p> <p>Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified above</p>
Baseline Data (Condition B16a)	<p>Refer to Project Specific Construction Noise and Vibration Management Plan for baseline data on noise and vibration conditions. Specifically:</p> <ul style="list-style-type: none">• Section 3.3, page 6 – Identification of existing sources of background noise.• Section 3.3.1, pages 6-7 – Location and results of unattended noise monitoring of existing conditions.• Section 3.3.2, pages 7-8 – Location and results of attended noise monitoring of existing conditions.• Section 3.4, pages 8-9 – Identification of noise catchment areas and sensitive land uses.
Controls (means and resources)	<ul style="list-style-type: none">• No work will be undertaken outside of the agreed hours without prior approval.• Where work outside the hours nominated above is required, approval will be gained prior to the commencement of works.• Where construction vibration is found to be causing a disturbance, the construction methods will be reviewed to reduce the impact where possible.• Site offices, compounds and sheds will be located so as to have no negative impact on the noise amenity of nearby sensitive receptors.• Delivery operations or other noise-generating activities at the compound and storage areas will take place during the designated construction hours nominated above, unless specifically required by NSW Police Force or RMS requirements.• Where practical, excessively noise processes will be substituted with alternative processes.• Where practical, the use of noisy plant simultaneously close together or adjacent to sensitive receptors will be avoided.



Environmental Risk Action Plans

	<ul style="list-style-type: none">• High-efficiency mufflers will be fitted to all plant and equipment to minimise the generation of noise.• All plant will be maintained in accordance with the manufacturer's requirements.• Noise-generating equipment will be orientated away from sensitive areas.• Loading and unloading activities will be carried out away from sensitive areas and during designated construction hours.• The most appropriate plant and equipment will be selected to minimise noise generation and include where necessary screening and enclosures.• On-site generators and auxiliary power sources used during construction will be positioned away from existing buildings to buffer noise and vibration.• Regular checks will be undertaken to ensure all equipment and vehicles are in good working order and are operated correctly. Checking should include:<ul style="list-style-type: none">• Engine covers• Defective silencing equipment• Rattling components• Leakages in compressed air lines.• Awareness training and information will be provided to project personnel in relation to the vibration requirements on the project and the need to minimise vibration when in close proximity to operational areas.• Plant, equipment and processes will be selected so as to limit construction-related vibration.• Working hours will be restricted or modified to minimise impact if required, with periods of respite included where possible when vibration-generating activities are being undertaken.
Responsibilities	<ul style="list-style-type: none">• The Construction Manager will ensure construction activities comply with these requirements and implement the control measures.• The Construction Manager/Project Leader will obtain approval to work outside approved hours.
Timeframe	<ul style="list-style-type: none">• Duration of site works.
Monitoring and reporting	<ul style="list-style-type: none">• Weekly inspections to be recorded on the Environmental Inspection Report.• Complaints to be recorded on form Environmental Incident and Complaint Report.• Daily inspection (pre-start) checks and regular servicing of equipment to be carried out.• Weekly check sheets to be kept for engine-driven or other 'noisy' equipment.
Tree protection	
Objective	<ul style="list-style-type: none">• To comply with contractual and development consent requirements and ensure that on-site trees are protected where required from construction activities.
Targets	<ul style="list-style-type: none">• Compliance with development consent requirements from The City of Sydney Council in relation to protected trees.• No damage to or death of trees marked as protected on the project.• All Laing O'Rourke staff and subcontractors informed of the requirements of protected trees on the project.



Environmental Risk Action Plans	
Legal, contractual and other requirements	<ul style="list-style-type: none"> • Contract specification • Development Consent SSD 8636 • <i>Heritage Act 1977</i> • <i>Local Government Act 1993</i> • Local Government (General) Regulation 2005.
Site-specific planning, approval and licence conditions	<p>Prior to the issue of a final Occupation Certificate, a report prepared by an appropriately qualified person (being an arborist or the like) will be submitted to the Principal Certifying Authority, detailing the health of the street trees to be retained.</p> <p>A specialist arborist with AQF Level 5 qualifications in arboriculture must be engaged prior to the detailed design stage to provide information and specialist advice to the consultant team in the protection of existing trees.</p> <p>Street trees must not be trimmed or removed unless approved under the development consent or written approval from Council is obtained or is required in an emergency to avoid the loss of life or damage to property.</p> <p>All street trees must be protected at all times during construction. Any tree on the footpath, which is damaged or removed during construction due to an emergency, must be replaced, to the satisfaction of the Council.</p> <p>All trees on the site that are not approved for removal must be suitably protected during construction in accordance with AS 4970: 2009. Protection of trees on development sites and the recommendations within the Arboriculture Impact Assessment Tree Protection Specification dated 5 December 2018.</p> <p>If access to the area within any protective barrier is required during the works, it must be carried out under the supervision of a qualified arborist.</p> <p>The removal of tree protection measures, following completion of the works, must be carried out under the supervision of a qualified arborist and mechanical injury to the tree structure as well as soil compaction within the canopy or the limit of former protective fencing must be prevented.</p>
Baseline data (Condition B16a)	<p>Refer to Arborist Impact Assessment. Specifically:</p> <ul style="list-style-type: none"> • Section 2.3, page 4 – Number of existing trees on site and native status. • Section 3, pages 5-8 – Identification of species and description of physical conditions of each individual tree on site. • Appendix 3, pages 13-21 – Tree Assessment Schedule
Controls (means and resources)	<ul style="list-style-type: none"> • Approval must be received to remove trees. • Appropriately trained and qualified tree removal contractors will be used. • Awareness training in the need to preserve vegetation will be retained. • Barricading or other suitable protection measures for trees to be retained will be provided.
Responsibilities	<ul style="list-style-type: none"> • Site Manager, Project Leader and Laing O'Rourke staff to ensure all targets are met.
Timeframe	<ul style="list-style-type: none"> • Duration of works by Laing O'Rourke.
Monitoring and reporting	<ul style="list-style-type: none"> • Environmental Inspection Report.
Dust and air quality	



Environmental Risk Action Plans	
Objective	<ul style="list-style-type: none">• To comply with contractual requirements and ensure that dust and other air emissions from construction activities do not cause impacts on sensitive receivers and equipment.
Targets	<ul style="list-style-type: none">• No valid dust complaints from construction works.• No dust impacting on off-site activities or surrounding residences.• No release of contaminants (such as odour or smoke) into the air.• Compliance with construction contract conditions.
Legal, contractual and other requirements	<ul style="list-style-type: none">• Contract specification• Development Consent SSD 8636• POEO Act• Protection of the Environment Operations (Clean Air) Reg 2002• <i>Local Government Act 1993.</i>
Site-specific planning, approval and licence conditions	<ul style="list-style-type: none">• Dust and odour must be managed appropriately to protect the amenity of the neighbourhood.• Exposed surfaces and stockpiles are to be suppressed by regular watering• All trucks entering or leaving the site with loads to have their loads covered.• Trucks associated with the development will not track dirt onto the public road network.• Public roads used by trucks associated with the development will be kept clean.• Land stabilisation works will be carried out progressively on site to minimise exposed surfaces.
Controls (means and resources)	<ul style="list-style-type: none">• Spraying of formations and exposed work areas to suppress dust, using water carts, tankers and other suitable equipment.• Minimisation of traffic on exposed areas by creating designated haul roads.• Covering of haul vehicles loads and closing of tail gates when operating on public roads.• Provision of shaker grids or rumble strip at site egress points. Note, where aggregate is used, minimum size is 150mm.• Removal of mud from haul vehicles prior to entering public roads.• Removal of spilt mud by construction equipment or vehicles on public roads.• Dust-generating work during periods of high wind reprogrammed.• Awareness training in the need to minimise dust during site inductions and toolbox talks.• Regular visual monitoring of dust generation.• Maintenance of plant and equipment as per manufacturer's requirements.
Responsibilities	<ul style="list-style-type: none">• The Construction Manager/Project Leader to implement the requirements of this plan.• Construction Manager to inspect the works at regular intervals to identify areas of dust generation.
Timeframe	<ul style="list-style-type: none">• Shaker grids to be installed prior to the start of works.• Water tankers and other measures to be available at the commencement of earthworks.



Environmental Risk Action Plans	
	<ul style="list-style-type: none"> Spilt mud and sediment to be removed from public roads prior to the end of each shift. Duration of site works.
Monitoring and reporting	<ul style="list-style-type: none"> Weekly inspections to be recorded in Field View. Complaints to be recorded in Impact.
Waste	
Objective	<ul style="list-style-type: none"> To comply with contractual 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 or harm.
Targets	<ul style="list-style-type: none"> There will be no incidences where waste is stored in a position where it has the potential to move off site. All off-site movements of waste will be tracked. The principles of the waste management hierarchy will be adopted where practicable. A target of 85% by weight of construction waste will be reused or recycled. Waste will be minimised wherever possible.
Legal, contractual and other requirements	<ul style="list-style-type: none"> Contract specification Development Consent SSD 8636 POEO Act Protection of the Environment Operations (Waste) Regulation 2005 <i>Waste Avoidance and Resource Recovery Act 2001</i> <i>Local Government Act 1993</i> Local Government (General) Regulation 2005.
Site-specific planning, approval and licence conditions	<p>Prior to the commencement of construction, a Construction Waste Management Sub-Plan is to be prepared and must address:</p> <p>The quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations.</p> <p>Removal of hazardous materials including asbestos, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guideline, prior to the commencement of any building works.</p> <p>The RMS Traffic Management Centre must be notified of any truck routes to be followed by trucks transporting waste material from the site, prior to the commencement of the removal of any waste material from the site.</p> <p>Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.</p> <p>All waste generated during construction must be assessed, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014).</p> <p>The body of any vehicle or trailer used to transport waste or excavation soil 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 a vehicle, trailer or motorised plant leaving the site must be removed before leaving the premises.</p>



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	Concrete waste and rinse water are not to be disposed of on the Site and must be prevented from entering any natural or artificial watercourse.
Controls (means and resources)	<ul style="list-style-type: none"> Licensed waste contractors will be used to remove waste. All waste will be disposed of at a lawful facility. Note: A lawful facility includes one that has the appropriate development consent or environment protection licence or is complying with EPA-approved conditions and requirements. A licensed contractor will be used to remove waste from site. Waste will be classified prior to disposal – refer to the NSW EPA Waste Classification Guidelines. 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 may receive the waste. Records of the quantity and final location of the spoil material will be retained. Skip bins will be used and there will be an adequate number of bins on site to hold all waste generated. Bins will be provided to enable waste segregation. Recycling services – such as paper, concrete, steel, cardboard and timber – will be provided. Housekeeping will be maintained and waste disposed of to the appropriate bin. Waste disposal permits and figures on the amount of waste that has been removed from site will be retained.
Responsibilities	<ul style="list-style-type: none"> The Construction Manager will ensure waste is correctly stored, classified, recorded, tracked and minimised at all times. The Project Leader will be accountable for ensuring lawful waste disposal. All personnel will be responsible for ensuring waste is placed in the bins provided.
Timeframe	<ul style="list-style-type: none"> Duration of site works.
Monitoring and reporting	<ul style="list-style-type: none"> Skips will be monitored visually by the Site Supervisor on a daily basis. The Environmental Inspection Report will be used to verify site waste practices. Waste disposal records will be recorded in Waste Tracker through IMPACT.
Water quality, site drainage and erosion and sediment control	
Objective	<ul style="list-style-type: none"> To comply with contractual and legislative requirements and ensure that water discharged off site from construction and erosion and sediment control (ESC) activities does not cause environmental nuisance or harm.
Targets	<ul style="list-style-type: none"> No sediment impacts to the surrounding environment and waterways as a result of the works. Prevention of water quality impacts off site as a result of erosion and sedimentation.
Legal, contractual and other requirements	<ul style="list-style-type: none"> Development Consent SSD 8636 POEO Act <i>Water Management Act 2000</i> <i>Local Government Act 1993.</i>



Environmental Risk Action Plans

Site-specific planning, approval and licence conditions	<ul style="list-style-type: none">• Prior to the commencement of construction, a Construction Soil & Water Management Sub-Plan is to be prepared and must address:• The erosion and sediment controls to be implemented during construction.• A plan of how all construction works will be managed in wet weather events.• Describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 1 year ARI, 1 in 5 year ARI and 1 in 100 year ARI.• 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 has been stabilised and rehabilitated so that it no longer acts as a source of sediment.• Any seepage or rainwater collected on-site during construction or groundwater must not be pumped to the street stormwater system unless separate prior approval is given in writing by the Environment Protection Authority in accordance with the Protection of the Environment Operations Act 1997.• During construction, stormwater runoff must be disposed in a controlled manner that is compatible with the ESC on the site. Immediately upon completion of any impervious areas on the site (including roofs, driveways, paving) and where the final drainage system is incomplete, the necessary temporary drainage systems must be installed to reasonably manage and control runoff as far as the approved point of stormwater discharge. Ongoing measures will be to the satisfaction of the Principal Certifying Authority.
Baseline Data (Condition B16a)	<p>Refer to Project Specific Soil and Water Management Plan. Specifically:</p> <ul style="list-style-type: none">• Section 3.1, page 6 – Subsurface soil and rock conditions.• Section 3.2, page 6 – Geology.• Section 3.3, page 6 – Hydrology.• Section 3.4, page 7 – Groundwater.• Section 3.6, page 7 – Acid sulphate soils.• Section 3.7, page 7 – Surface water.• Section 3.8, page 7 – Water quality.• Section 3.9, page 7 – Flooding.• Section 3.10, page 8 – Existing sources of contamination.
Controls (means and resources)	<ul style="list-style-type: none">• Erosion and sediment control plans (ESCPs) will be developed and implemented prior to the commencement of topsoil stripping and earthworks.• The development of ESCPs will be guided by the Blue Book and other guidelines where required.• Particular attention will be paid to the design criteria for sediment fences, straw bales, catch drains, diversion drains, sandbags and similar controls.• Permanent drainage will be installed as early in the programme as possible.• All water will be discharged in accordance with legislation and only after Laing O'Rourke approval.• Discharge quality will comply with:<ul style="list-style-type: none">• TSS: $\leq 50\text{mg/L}$ (~Turbidity 30NTU). If this cannot be achieved through a natural settling, the trapped sediment laden water is to be flocculated with gypsum applied at a rate of approximately $40\text{kg}/100\text{m}^3$.• pH: Between 6.5 and 8.5.



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	<ul style="list-style-type: none">• Shaker grids or rumble strip will be provided at site egress points. Note: where aggregate is used, the minimum size will be 150mm.• Top soil/mulch stockpiles will be no greater than 2m in height. All stockpiles will be located clear of watercourses and drainage works.• Wastewater management facilities will only be provided through connection to the existing sewer or proprietary storage, and pump-out systems are permitted.• Wastewater storage and pump-out systems will be procured, installed and operated in accordance with Environmental Primary Standard Water Quality and Wastewater Storage, including the provision of automatic cut-off valves for inflows and high-level alarms.• All disturbed surfaces will be revegetated within one month of final land forming and in compliance with the landscaping plans.• Erosion and sediment control devices will be maintained when their capacity has been reduced by 25%.• Under no circumstances will temporary stockpiles be placed within 5m of the site boundary or in positions where they could impact adjacent property.• Toolbox talks will be conducted for employees and subcontractors on the requirements of the Erosion and Sediment Control Plan.• The Erosion and Sediment Control Plan will to be maintained and kept up to date for the current site conditions.• Sand bag check dams will be used to protect stormwater drains as required.• All erosion and sediment control works will be removed immediately prior to final completion and all surfaces will be returned to pre-existing conditions.
Responsibilities	<ul style="list-style-type: none">• All staff to ensure adequate erosion and sediment control devices are installed and maintained.• The PER will undertake weekly inspections (at a minimum) of on-site erosion and sediment control devices, as well as prior to expected rainfall and after rainfall.• The Construction Manager will be responsible for the repair and management of any damage or additional erosion and sediment control devices, as required.
Timeframe	<ul style="list-style-type: none">• Duration of site works.
Monitoring and reporting	<ul style="list-style-type: none">• Visually monitored daily by site supervision.• Weekly inspections documented on the Environmental Inspection Report.• Maintenance activities for Erosion and Sediment Control Plans documented – items that cannot be immediately repaired will be documented on the project CAR Register.• All water quality data including quantity, quality and dates of water release maintained in the project records.
Traffic management	
Objective	<ul style="list-style-type: none">• To comply with contractual requirements and ensure that noise and additional traffic from construction activities does not cause an environmental nuisance
Targets	<ul style="list-style-type: none">• No valid complaints resulting from congestion from construction traffic outside the approved Traffic Management Plan.• Compliance with traffic management standards.• No visible queuing in streets surrounding the site.



Environmental Risk Action Plans	
Legal, contractual and other requirements	<ul style="list-style-type: none">• Planning consent conditions• Development Consent SSD 8636• POEO Act• Roads Act 1993• RMS Traffic Control at Worksites• Roads (General) Regulation 2000• Local Government Act 1993.
Site-specific planning, approval and licence conditions	<p>Prior to the commencement of construction, a Construction Soil & Water Management Sub-Plan is to be prepared and must address:</p> <p>Be prepared by a suitably qualified and experienced person.</p> <p>Be prepared in consultation with Council, RMS and the Sydney Coordination Office within TfNSW</p> <ul style="list-style-type: none">• The measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts of potential impacts on general traffic, cyclists and pedestrians and bus services.• Detail heavy vehicle routes, access and parking arrangements.• Include a Driver Code of Conduct to minimise the impacts of earthworks and construction on the local and regional road network; minimise conflicts with other road users; minimise road traffic noise and ensure truck drivers use specified routes.• Include a program to monitor the effectiveness of these measures.• Detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes. <p>Sufficient parking facilities for heavy vehicles on-site must be provided (unless alternative parking is agreed in writing from the relevant road authority.</p> <p>Minimise the use of on-street parking or the use of public parking facilities by construction traffic associated with the development.</p> <p>All construction vehicles (excluding worker vehicles) are to be contained wholly within the Site, except if located in an approved on street work zone, and vehicles must enter the Site before stopping.</p> <p>A Road Occupancy Licence must be obtained from the relevant transport authority for any works that impact on traffic flows during construction activities.</p> <p>The public way (outside of any construction works zone) must not be obstructed by any materials, vehicles, refuse, skips or the like, under any circumstances.</p>
Baseline Data (Condition B16a)	<p>Refer to Project Specific Construction Traffic and Pedestrian Management Plan for baseline data. Specifically:</p> <ul style="list-style-type: none">• Section 2.2, Page 6 – Surrounding road network, speed limits, existing parking conditions.• Section 2.3, Page 7 – Public transport availability and usage, distances to nearby rail services and stations and bus networks, and frequency of transport services.• Section 2.4, Page 8 – location and widths of existing pedestrian paths and safe crossings, map of existing bicycle parking facilities.
Controls (means and resources)	<ul style="list-style-type: none">• A Traffic Management Plan will be developed detailing the route to the site, times of activity, types of machinery, signage, traffic control measures and so on.• An approved Traffic Control Plan will be required for any activity on or immediately adjacent to public roads.



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	<ul style="list-style-type: none"> The Traffic Management Plan will detail the monitoring and inspection requirements. There will be no queuing of vehicles on any roads adjacent to the site. There will be no construction parking in non-approved zones or parking areas. Pedestrian access ways will be clearly defined and maintained. Regular checks will be undertaken to ensure all equipment and vehicles are in good working order and are operated correctly. Checking will include: <ul style="list-style-type: none"> Defective silencing equipment Rattling components.
Responsibilities	<ul style="list-style-type: none"> The Construction Manager will be responsible for ensuring the Traffic Management Plans and Traffic Control Plans are developed, approved and implemented.
Timeframe	<ul style="list-style-type: none"> Duration of site works.
Monitoring and reporting	<ul style="list-style-type: none"> The Environmental Incident and Complaint Report is to be used to document complaints. Daily inspection, checks and regular maintenance to be completed for traffic control measures.
Hazardous and contaminated material	
Objective	<ul style="list-style-type: none"> To comply with contractual and legislative requirements and ensure that hazardous or contaminated material from construction activities does not cause an environmental nuisance or harm and is disposed of in accordance with legislative requirements.
Targets	<ul style="list-style-type: none"> No environmental incidences involving contaminated or hazardous materials. No pollution events of the surrounding environment and waterways by contaminated material. Tracking of all off-site movement of any found contaminated material.
Legal, contractual and other requirements	<ul style="list-style-type: none"> Contract specification <i>Dangerous Goods Safety Management Act 2001</i> Dangerous Goods Safety Management Regulation 2001 AS/ NZS 1940: 2004 – The Storage and Handling of Flammable and Combustible Liquids Australian Dangerous Goods Code, 5th Edition.
Site-specific planning, approval and licence conditions	<ul style="list-style-type: none"> All hazardous materials will be removed from the site and disposed at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards, guidelines and licences, prior to the commencement of any building works. Details demonstrating compliance with the relevant legislative requirements, particularly the method of containment and control of emission of fibres to the air, are to be submitted to the satisfaction of the Principal Certifying Authority prior to the removal of any hazardous materials. An unexpected contamination procedure must be prepared to ensure that potentially contaminated material (including asbestos containing materials and lead based paint) is appropriately managed. The procedure must ensure that any material identified as contaminated must be disposed off-site, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the site.



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	<ul style="list-style-type: none">Following the relocation or demolition of any existing structures, infrastructure and in ground utilities, the Applicant is to carry out further investigation of soil contamination (including within the footprint and immediate surrounds of those structures, infrastructures and utilities prior to undertaking any construction) to address any contamination with regard to the following:NSW EPA Sampling Design GuidelinesGuidelines for the NSW Site Auditor Scheme (3rd edition) 2017Guidelines for Consultants Reporting on Contamination Sites, 2011; andThe National Environment Protection (Assessment of Contamination) Measure.If necessary, the Remedial Action Plan is to be appropriately updated to address any identified soil or groundwater contamination.SafeWork NSW is to be consulted concerning the handling of any asbestos waste that may be encountered during construction. The requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 – 'Transportation and management of asbestos waste' must also be complied with.
Controls (means and resources)	<ul style="list-style-type: none">Suspected material may include material that: is visibly different to surrounding material; is fibrous in nature; exhibits hydrocarbon odours or other unexpected characteristics; takes the form of unknown containers, piping, underground storage tanks or similar structures discovered.In the event that suspected hazardous or contaminated material is encountered:<ul style="list-style-type: none">Follow protocols in the contract, Remediation Action Plan or the client's Environmental Management Plan where relevant.Immediately cease work and contact the Site Supervisor.Demarcate the unexpected find to prevent access and install appropriate environmental and safety controls.Project Leader to contact the client representative.If substance is assessed as not presenting an unacceptable risk to human health, Site Supervisor to remove controls and continue work.In addition, the following controls will be incorporated:<ul style="list-style-type: none">Manage any contaminated material as per legislative or EPA requirements, including testing and assessment at the direction of the client's representative.Protect the environment by implementing control measures to divert surface run-off away from potentially contaminated ground.Capture and manage any surface run-off contaminated by exposure to contaminated ground.Provide environmental awareness training on the identification and management of acid sulphate soils to all site personnel involved in earthworks, excavation or drainage construction activities.Notify the client's representative upon discovery of suspected acid sulphate soils (ASS) or potential acid sulphate soils (PASS).Implement a specific run-off control plan to prevent acid run-off from contaminating site areas and watercourses.Cover suspected ASS and PASS stockpiles with plastic overnight.Refer to Unexpected Contamination Procedure noted in Condition B23 for further detail
Responsibilities	<ul style="list-style-type: none">Site Supervisors, Project Leader and Laing O'Rourke Staff to ensure all targets are met.
Timeframe	<ul style="list-style-type: none">Contaminated material: duration of any contaminated material removal.Hazardous material: duration of site works.



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Monitoring and reporting	<ul style="list-style-type: none"> Receipts for the disposal of any found hazardous material will be filed on site by the PER. The finding of any contaminated material on site will be reported in accordance with the project's unexpected finds procedure.
Trade waste	
Objective	<ul style="list-style-type: none"> To comply with contractual and legislative requirements and ensure that trade waste from construction activities does not cause an environmental nuisance or harm.
Targets	<ul style="list-style-type: none"> All trade waste to be discharged in accordance with legislation and approvals. Laing O'Rourke staff and subcontractors to be educated on the relevant legislation, the correct use of the washout system and the Laing O'Rourke Trade Waste Permit where required. Impacts to the surrounding environment and waterways to be minimised.
Legal, contractual and other requirements	<ul style="list-style-type: none"> Development Consent SSD 8636 The City of Sydney Council Contract specification <i>Sydney Water Act 1994</i> <i>Sydney Water Catchment Management Act 1999.</i>
Site-specific planning, approval and licence conditions	<ul style="list-style-type: none"> Concrete waste and rinse water are not to be disposed of on the Site and must be prevented from entering any natural or artificial watercourse. As per the University of Sydney's sustainability guidelines trade waste is 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.
Controls (means and resources)	<ul style="list-style-type: none"> Provide a washout system on site that complies with all relevant legislation and contract conditions. Ensure any paint washout required is only undertaken in the designated areas with appropriate bunding and control measures. Ensure the washout system is in a location away from stormwater drains and watercourses. Ensure trade waste or other prohibited substances are not discharged into infrastructure (stormwater drains or sewerage system) without approval. Conduct toolbox talks for Laing O'Rourke staff and subcontractors in the correct use of the washout system and legislation. Ensure the washout system is monitored and cleaned on a regular basis. Note: Laing O'Rourke staff and subcontractors may be prosecuted if they are found illegally dumping trade waste and could be responsible for paying sewerage system repair costs.
Responsibilities	<ul style="list-style-type: none"> The Project Leader will ensure a permit has been obtained prior to discharging trade waste. The PER will ensure all relevant subcontractors undertake toolbox talks in relation to washout legislation and use.
Timeframe	<ul style="list-style-type: none"> At all times when there is site connection to sewage facilities.
Monitoring and reporting	<ul style="list-style-type: none"> Visually monitored daily by the PER. Field View environmental inspection report detailing any trade waste issues completed by the PER.



Environmental Risk Action Plans	
Concrete washout	
Objective	<ul style="list-style-type: none">To comply with contractual and legislative requirements in relation to the washing out of concrete on the project.
Targets	<ul style="list-style-type: none">Zero spills or uncontrolled release of concrete.No instances of uncontrolled concrete washout.
Legal, contractual and other requirements	<ul style="list-style-type: none">Contract specificationPOEO Act.
Site-specific planning, approval and licence conditions	<ul style="list-style-type: none">Concrete waste and rinse water are not to be disposed of on the Site and must be prevented from entering any natural or artificial watercourse.
Controls (means and resources)	<ul style="list-style-type: none">Concrete washout to be constructed with geofabric lining and bunded.Washout to be located at least 20m away from any drainage line or stormwater system.Washout to be constructed to the dimensions of 6m x 3m x 0.5m deep prior to the start of concrete works.Washout to be barricaded off on all sides when not in use to prevent unauthorised entry.Washout area to be inspected daily by the Construction Manager to ensure residual water levels do not exceed 75% of capacity.Record of daily inspection to be kept in Construction Manager's/Supervisor's diary when concrete washout is being undertaken.Washout area to be cleaned when the capacity has been reduced below 50%.Cleaning of washout to involve removal of spoiled geofabric material, which is to be disposed of in licensed landfill. Records to be retained.Where possible, waste concrete to be returned to the batch plant or concrete recycler.Concrete truck drivers to be advised of the location of the washout area prior to arrival on site.The requirements relating to concrete washout on site to be provided to the supplier prior to the works.
Responsibilities	<ul style="list-style-type: none">The Construction Manager will ensure that an approved and prepared area for concrete washout is available.All personnel are required to ensure that the requirements of this ERAP are implemented for their operations.The Construction Manager /Project Leader is required to advise Laing O'Rourke of any concrete spills.The Construction Manager is responsible for confirming these requirements with the concrete supplier prior to the works.
Timeframe	<ul style="list-style-type: none">Duration of site works.
Monitoring and reporting	<ul style="list-style-type: none">Weekly inspections to be recorded in the Environmental Inspection Report.Incidents or spills of concrete to be recorded on form Environmental Incident and Complaint Report.
Delivery and storage of chemicals, fuels and oils, including dangerous goods requirements	
Objective	<ul style="list-style-type: none">To comply with contractual and legislative requirements in relations to the transport of dangerous goods.To comply with contractual and legislative requirements in relation to the storage of chemicals, fuels and oils on site.



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	<ul style="list-style-type: none">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.
Targets	<ul style="list-style-type: none">Zero spills or uncontrolled release of fuel, oils or chemicals associated with Laing O'Rourke's operations.Compliance with relevant transport and storage requirements.All vehicles transporting dangerous goods have appropriate placards, licences and emergency equipment and procedures.
Legal, contractual and other requirements	<ul style="list-style-type: none">AS/ NZS 1940: 2004 – The Storage and Handling of Flammable and Combustible Liquids<i>Dangerous goods (Road and Rail Transport) Act 2008</i>Dangerous goods (Road and Rail Transport) Regulation 2008Australian Dangerous Goods Code, 7th EditionContract specification.
Site-specific planning, approval and licence conditions	<ul style="list-style-type: none">All chemicals, fuels and oils, including all dangerous goods must be delivered, stored and used in line with the control measures identified below
Controls (means and resources)	<p>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.</p> <ul style="list-style-type: none">The storage of fuel, oil, chemicals or other dangerous goods on site is to be minimised though efficient and timely ordering.The safety data sheet (SDS) and material risk assessment – including any specific control measures – are to be submitted where required to the client's representative for each and every substance to be brought on to site.A risk assessment relating to the use of these materials is to be completed in accordance with the Construction Health and Safety Management Plan prior to the arrival of these goods to site.The SDS and associated documentation for each material are to be reviewed prior to the completion of the risk assessment for the relevant construction process. A copy is to be included with the safe work method statement (SWMS).SDSs are to be available on site for all fuels, oils, chemicals and dangerous goods. Suppliers are to provide SDSs prior to dispatch of the material.At all times when not specifically in use, chemicals, fuels and oils are to be stored in a securely bunded area with appropriate signage.Chemicals, fuels and oils are 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 located more than 20m away from operational facilities, drainage lines and areas prone to flooding or on slopes > 1V:10H.The driver or Supervisor is to be in attendance at all times when the unloading of fuel, oil or chemicals takes place on site.No water is to be discharged from bunded areas into the site drainage system. Contaminated water is to be removed by an appropriately licensed contractor and discharged to a suitably licensed waste facility.Delivery drivers are to be provided with specific drop-off and storage instructions.Spill kits and absorbent material are to be located adjacent to storage bunds.

Environmental Risk Action Plans

- 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 is to be disposed of in accordance with the NSW EPA's Waste Classification Guidelines.
- A register of chemicals, fuels, oils and hazardous materials is to be kept on site and maintained for the duration of the project.
- Each construction method statement is to identify the use of chemicals, fuels, oils and hazardous materials.
- SWMSs are to address the specific requirements relevant to the work to be undertaken and document relevant site control measures.

Controls specific to the management of dangerous goods include the following:

- Transporters of dangerous goods must be 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 licences and must not be transported by Laing O'Rourke without the Project Leader approval.
- Where dangerous goods are transported by Laing O'Rourke, 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 Laing O'Rourke.
- The SWMS statement must address the requirement for licensing, placards or other specific regulatory 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 personal protective equipment
 - 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 association with our operations include the following.

Type of goods	DG class	Type of goods	DG class	Type of goods	DG class
LPG gas	2.1	Epoxy paint, including hardener	8	Plumbing adhesive	3
Open gear lubricant	2.1	Chemical anchor – parts A and B	8	Diesel	3
Marker paint	2.1	Chemical anchor	8	Joint/gap sealant	3
Silicone lubricant	2.1	Adhesive mortar		Dry film lubricating paint	3
Fuel gas for welding or cutting	2.1	Acid	8	Sealant	
Fuel gas for welding or cutting	2.2	Degreaser (pile rigs)	8	Flocculant	6.1
Air-operated tool lubrication	3	Engine coolant	9	Rail welding consumables	8
Zinc primer paint	3	Antifreeze	9	Adhesive	1.4 S



Environmental Risk Action Plans				
	Air tool lubricant – workshop	3	Grout	9
	Petrol – unleaded	3	Form oil	9
	Sealant	3		9
	<ul style="list-style-type: none">Controls specific to the storage of dangerous goods include the following:<ul style="list-style-type: none">Dangerous goods storage on site must comply with the requirements of Australian Standard AS 1940:2017, including maintaining separation distances for incompatible materials.The proposed materials must be assessed for compatibility and required separation distances or control measures implemented.Flammable materials storage must be >15m from site facilities, offices, amenities or protected places.Quantities to be stored must be assessed to determine if they are considered manifest quantities; manifest quantities will require notification to SafeWork NSW.A storage location plan is required and must include internal layout and the location of registers and manifests for the storage location.Bunding must be impervious and of sufficient capacity to contain 110% of the stored volume.Appropriate spill containment material and fire extinguishers are also required.			
Responsibilities	<ul style="list-style-type: none">Engineering personnel are responsible for identifying any requirement to transport dangerous goods.Relevant Project Leader or Site Manager is responsible for ensuring all vehicles carry appropriate placards, licences, emergency equipment and procedures.The Construction Manager is required to ensure that sufficient bunds are available and that material is stored appropriately.Engineering personnel are responsible for ensure SDSs 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.The Project Senior Safety Advisor is responsible for ensuring the chemicals, fuels, oils and hazardous substances register is maintained.			
Timeframe	<ul style="list-style-type: none">Duration of operations. The requirements apply to goods transported by Laing O'Rourke and third parties.			
Monitoring and reporting	<ul style="list-style-type: none">Plant and project risk assessmentsWeekly inspections, which are to be recorded in the Environmental Inspection ReportRegister of chemicals, fuels, oils and hazardous materialsIncidents or spills recorded in ImpactStorage areas inspected by supervisory personnel on a weekly basis.			
Flora and fauna				
Objective	<ul style="list-style-type: none">To comply with contractual and legislative requirements and ensure that native fauna and flora are protected from construction activities.			
Targets	<ul style="list-style-type: none">No death or injury to faunaNo unapproved destruction of flora.			



Environmental Risk Action Plans	
Legal, contractual and other requirements	<ul style="list-style-type: none">• <i>Environmental Protection and Biodiversity Conservation Act 1999</i>• <i>Threatened Species Conservation Act 1995</i>
Site-specific planning, approval and licence conditions	<ul style="list-style-type: none">• Ensure identified tree protection zones, as per the project's arborist, are adhered to, and all management measures are implemented
Controls (means and resources)	<ul style="list-style-type: none">• 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.• Open excavations and storage areas are to be inspected regularly for the presence of fauna species.• No clearing or vegetation removal can occur without the client's approval.• All vegetation to be retained must be protected.• Works will only be undertaken in designated areas.• The clearing limits and protected vegetation is to be clearly communicated to site personnel during site inductions and toolbox talks.• Plant and equipment brought on to site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds.• The client's representative must be notified of any noxious weeds identified.• Construction plant, equipment and materials must not to be stored within the dripline of any trees or vegetation to be retained.• No personnel on site are permitted to hunt, fish, feed, capture, extract or otherwise disturb aquatic, animal or vegetative species while performing any tasks for the project.
Responsibilities	<ul style="list-style-type: none">• All personnel are responsible for ensuring that the clearing limits are addressed and native flora and fauna species are protected.• All site personnel must undertake toolbox talks on the reporting process for injury or death to fauna or clearing of flora occurring beyond the required limits for construction.
Timeframe	<ul style="list-style-type: none">• Duration of the works.
Monitoring and reporting	<ul style="list-style-type: none">• Visually monitored daily.• The Environmental Inspection Report detailing any flora and fauna.
Archaeology and heritage	
Objective	<ul style="list-style-type: none">• To comply with contractual and legislative requirements and ensure that existing and undiscovered heritage and archaeological items are protected from construction activities.
Legal, contractual and other requirements	<ul style="list-style-type: none">• <i>Heritage Act 1977</i>• <i>National Parks and Wildlife Act 1974.</i>
Targets	<ul style="list-style-type: none">• No disturbance or damage to existing known heritage sites or items.• Unknown or undocumented heritage sites are not knowingly destroyed, defaced or damaged.• Identify and protect any new artefacts or heritage sites before any harm can take place.



Environmental Risk Action Plans	
	<ul style="list-style-type: none">Any relics found on site will be kept safe for consideration of incorporation into site fixtures
Controls (means and resources)	<ul style="list-style-type: none">Awareness training on the need for the preservation of artefacts and items of heritage value to be provided during the site induction.Location of currently identified archaeological and heritage items are to be nominated on the Environmental Control Plan.Exclusion fencing will be provided around the perimeter of any identified heritage or archaeological items.Awareness training on the need to stop work and to report on new sites, artefacts or items of heritage value.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 Laing O'Rourke is to be notified immediately.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">Work is to cease in the area immediately and Laing O'Rourke notifiedThe matter is to be referred to the clientThe object is to be left in placeGPS coordinates of the item are to be notedPhotographic records of the item and its location are to be made
Responsibilities	<ul style="list-style-type: none">All personnel on site are to ensure that archaeological and heritage items are protected from damage or disturbance, unlessThe Environmental Manager will ensure all site personnel undertake toolbox talks in relation to protection of nominated items that were previously unknown.
Timeframe	<ul style="list-style-type: none">Throughout construction activities
Monitoring and reporting	<ul style="list-style-type: none">Visual monitoring weekly of any existing itemsCompletion of the Environmental Inspection Report.

Operational control procedures – Environmental Risk Action Plans

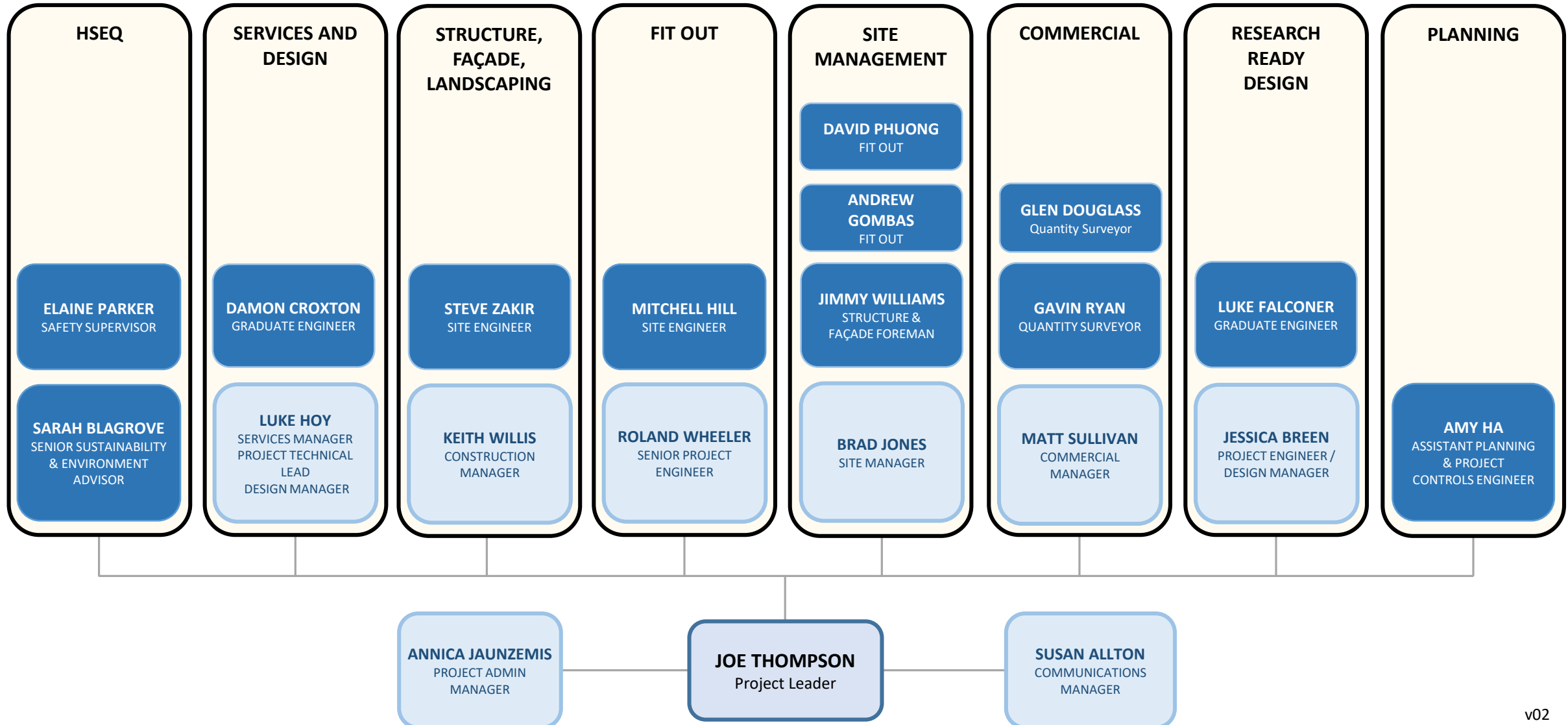


Appendix 3: Organisational chart



The University of Sydney

Engineering & Technology Precinct (Stage 1)





Appendix 4: Project Permits and Approvals Register

Relevant legislation	Applicable to the project (yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
<i>Environmental Planning and Assessment Act 1979</i>	Yes	SSD6123	2014	2020		University of Sydney	
<i>Water Act 1912</i>							
Section 10 Surface water licence							
Part 5 Section 112 Groundwater licence							
Part 8 Division 3 Approval of controlled work							
<i>Water Management Act 2000</i>							
Section 56 Access licences							
Section 89 Water use approvals							
Section 90 Water management work approvals							
Section 91 Activity approvals							
<i>Fisheries Management Act 1994</i>							
Division 3 (Sections 199, 200, 201) Dredging and reclamation							
Section 205 Marine vegetation—regulation of harm Permit to Harm Marine Vegetation							
Section 220ZW Licence to harm threatened species, population or ecological community or damage habitat							
<i>Sydney Water Act 1994</i>							
Section 49 Offence to discharge into works – Trade Waste Permit							
Permit to use approved metered standpipes on Sydney Water hydrants	Yes, potentially	To be updated, when required					



Relevant legislation	Applicable to the project (yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
<i>Hunter Water Act 1991</i>							
Section 31 Offence to discharge into works – Trade Waste Permit							
<i>Dangerous Goods (Road and Rail) Transport Act 2008</i>							
Section 6 Licensing of vehicles transporting dangerous goods							
Section 7 Licensing of drivers transporting dangerous goods							
<i>Local Government Act 1993</i>							
Section 68 What activities, general, require the approval of council							
Section 68A Operation of a system of sewage management	Yes, potentially	To be updated, when required					
<i>Roads Act 1993</i>							
Section 138 Works and structures - permit to undertake works to roads							
<i>Occupational Health and Safety Regulation 2001</i>							
Section 174ZS Notification to SafeWork NSW	Yes	When asbestos is discovered / requires removal / disposal					
Section 175L Major hazard facility must be registered or provisionally registered							
<i>National Parks and Wildlife Act 1974</i>							
Section 90 Aboriginal heritage impact permit							
<i>Heritage Act 1977</i>							
Division 3 Applications for approval							
Section 139 Excavation permit							



Relevant legislation	Applicable to the project (yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
Marine Safety Act 1998							
Section 29 Types of marine safety licences							
Management of Waters and Waterside Lands Regulations							
Division 3 Occupation of waters							
Rural Fires Act 1997							
Section 89 Issue of permits (includes 'hot works' which would constitute lighting a fire)							
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)							
Other							

Project Permits and Approvals Register

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Appendix 6: Risk and Opportunity Assessment and Aspects and Impacts Register

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
Approvals and licensing									
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 requirements in CEMP Establish a register of approvals, licenses, permits	2	3	6	Project Manager, WHSEQ Manager
Noise									
Noise from general construction activities resulting in impact to residents	Disturbance to residents of the University Potential for complaints	4	4	16	Develop and implement a Noise and Vibration Management Plan Consult with the community in relation to upcoming activities that may result in concern Establish noise targets and monitor for compliance as the works progress at receiver locations Provide periods of respite for high noise generating activities Apply noise mitigation measures during entire project Noise efficient equipment to be used on-site	2	4	8	Construction Manager
Vibration									
Vibration intensive activities undertaken on the site such as demolition, piling, vibratory rolling/compaction	Disruption, annoyance and nuisance to residents Potential damage to adjacent residential and commercial residences and structures Disruption to businesses as a result of vibration nuisance	4	3	12	Develop and implement a Noise and Vibration Management Plan Establish vibration targets 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	3	3	9	Construction Manager



Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					Ongoing vibration monitoring during vibration intensive works				
Water quality, erosion and sedimentation									
Sediment laden runoff from construction works leaving site	Degradation of local watercourses. Increased turbidity in local waterways resulting in impact on aquatic life Fines for sediment escaping site	3	3	9	Develop Erosion Sediment Control Plan Develop and implement sediment and erosion control measures including sediment basins, water collection and dispersal systems 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	2	3	6	Construction Manager WHSEQ Manager
Stockpiling of vegetation and topsoil	Wind and water erosion causing weed/seed dispersion offsite Location of stockpiling next to waterways causing weeds/seeds to disperse from construction site	3	3	9	Develop environmental control maps to show stockpile areas Appropriate locations for stockpiling (away from waterways, watercourses, drains) Designated vegetation stockpiling areas Minimise stockpiling/Use temporary stockpiling Cover stockpiles if left for extended periods	2	3	6	Construction Manager
Non-compliant water from construction works discharged from site	Non-compliant water entering stormwater system waterways (i.e. polluting - not compliant with discharge criteria)	3	3	9	Induction and toolbox talks Toolbox training on-site procedures for water discharge Educate site staff on licence conditions and consequences of prosecution PER/Site Manager to approve all water discharges from site	2	3	6	Construction Manager PER
Waste									
Waste disposal during construction	Incorrect disposal of waste, further costs incurred for classifications and disposal, fines may be issued.	3	2	6	Develop CEMP Identify opportunities to incorporate recovered materials into the permanent works	2	2	4	Construction Manager

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					Provide facilities on-site for source separation and recycling Ensure accurate waste records are retained Removal of wastes from the site only to be undertaken by a licensed contractor as required by the <i>Protection of the Environment Operations Act 1997</i> and with appropriate approvals, if required, for contaminated materials All material to be recovered off-site to be appropriately classified in accordance with the resource recovery exemptions All material that requires off-site disposal to be appropriately tested and classified against the Waste Classification Guidelines (Department of Environmental Climate Change (DECC) 2008)				
Earthworks spoil disposal	Incorrect classification of waste (spoil) resulting in incorrect/illegal disposal/re-use	3	4	12	Inductions, toolbox talks and training on recycling facilities and waste segregation practices Separation of waste on-site Tracking of disposal processes All contamination hotspots would be clearly marked in the field	1	4	4	Construction Manager
Washout of concrete in undesignated areas	Sediment laden/alkaline water polluting surrounding stormwater system /watercourses	3	4	12	Concrete washout areas clearly marked on environmental control maps and delineated Inductions on designated concrete washout areas Subcontractors agreements to include project compliant waste management principles	1	4	4	Construction Manager Site Manager
Contamination									
Management of contaminated or untreated materials	Non-compliant material and contaminated water entering surrounding waterways Decrease in health of nearby ecosystems	4	3	12	Develop contamination management procedures and protocols Identify any contamination hotspots and incorporate procedures for these locations into construction documentation Develop unexpected finds procedures	1	3	3	Construction Manager PER

Aspect	Potential environmental impact	Initial risk rating $P \times C = \text{Risk}$			Control measures	Residual risk rating $P \times C = \text{Risk}$			Responsible person
Potential for discovery of unexpected contaminated spoil during excavation	Health effects resulting from airborne contamination (for example, asbestos) Complaints received from odours released during excavations Classification of spoil is changed and disposal options altered, costs incurred associated with disposal of higher classification of waste	4	2	8	If contaminated soil is encountered, all works are to stop in the vicinity of the find and investigations commence Induct personnel on location, type, nature, concentration of contaminants on-site if found	2	2	4	Construction Manager Project/site engineers Site Manager
Encountering asbestos/contaminated material on-site	Transfer of material into previously uncontaminated area (outside work site) causing new contamination	3	4	12	Fibrous and synthetic minerals fibres identified in five different locations Specialist licenced contracts to be engaged to remove and dispose of asbestos-containing materials Contaminated soils would not be stockpiled on the structural fill layer or formation layers to avoid cross contamination	1	4	4	Construction Manager Site Manager
Hazardous materials									
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 stormwater drains should be identified prior to works Storage areas to be away from sensitive areas and appropriately bunded SDS approved prior to bringing hazardous substances on-site including risk assessment Plans showing storage locations and associated controls (for example, spill kits). (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	2	3	6	Site Manager

Aspect	Potential environmental impact	Initial risk rating $P \times C = \text{Risk}$			Control measures	Residual risk rating $P \times C = \text{Risk}$			Responsible person
					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) 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)	3	4	12	All stormwater drains should be identified prior to works and controls implemented Refuelling of vehicles away from 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	1	4	4	Construction Manager Site Manager
Biodiversity									
Vegetation trimming/clearing required outside approved work area	Unauthorised works/removal of vegetation outside defined work area, possibility of removing threatened species, fines incurred	3	5	15	Induction and toolbox training on clearance zones and required protection measures Inspections during clearing activities Fencing in place/clear marking of trees to be retained and cleared/demarcation areas/ plans showing clearing areas Pre-clearing checklist to be completed before any clearing of vegetation Arboriculture report/arborist supervision	1	5	5	Construction Manager Site Manager
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	4	5	20	Inductions and toolbox training on erosion and sediment controls Where possible works to be staged so environmental controls can be implemented after clearance works Approved Erosion and Sediment Control Plans in place prior to starting works	1	5	5	Construction Manager Project/site engineers Site Manager

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					Where applicable, mature trees and other native vegetation to be retained would be clearly delineated, with all construction activities excluded from these areas Pre-clearing checklist to be completed before any clearing of vegetation				
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	Construction Manager Site Manager
Air quality									
General construction works; site establishment, earthworks, piling, drilling etc	High dust activity in close proximity to live campus operations, dust deposition at sensitive receivers, repairs and clean-up needed, complaints received	4	2	8	Inductions and toolbox training on dust and air quality management Include provision for air quality 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 Install dust controls immediately and continually through the project Erosion and Sediment Control Plans approved before works commence. Controls are then reviewed for maintenance. Physical barriers to be erected at right angles to the prevailing wind direction or placed around or over dust sources to prevent wind or activity from generating dust emissions Earthworks and scheduling activities will be managed to coincide with the next stage of development to minimise the amount of time the site is left cut or exposed	2	2	4	Construction Manager Project/site engineers Site Manager



Aspect	Potential environmental impact	Initial risk rating $P \times C = \text{Risk}$			Control measures	Residual risk rating $P \times C = \text{Risk}$			Responsible person
					<p>The surface should be dampened slightly to prevent dust from becoming airborne but should not be wet to the extent that runoff occurs</p> <p>All vehicles carrying spoil or rubble to or from the site will at all times be covered to prevent the escape of dust or other material</p> <p>All equipment wheels to be washed before exiting the site using manual or automated sprayers and drive-through washing bays</p> <p>Gates to be closed between vehicle movements and fitted with shade cloth</p> <p>Cleaning of footpaths and roadways will be carried out regularly</p> <p>Materials must not be burnt on the site</p> <p>Vehicles entering and leaving the site with soil or fill material must be covered</p>				
Dust created during construction activities	High dust activity in close proximity to residential and educational premises, dust deposition at sensitive receivers, repairs and clean-up needed, complaints received	4	3	12	<p>Develop air quality management ERAP</p> <p>Inductions and toolbox training on Dust and Air Quality Management</p> <p>Include provision for visual monitoring of dust during works</p>	2	2	4	<p>Construction Manager</p> <p>Project/site engineers</p> <p>Site Manager</p>
Exhaust from plant and equipment	Emissions resulting in air pollution	3	2	6	<p>Inductions and toolbox training on dust and air quality management</p> <p>Well maintained plant/ equipment and pre-start checks and servicing</p> <p>Non-complaint vehicles removed from site/repared</p>	2	2	4	Foreman
Heritage									
Unexpected heritage items encountered	Work delays, additional studies, approvals required, damage to heritage item	3	4	12	<p>General inductions toolbox training on heritage management protocols</p> <p>Label any known heritage items on environmental control maps</p>	2	4	8	<p>Construction Manager</p> <p>Project/site engineers</p>

Aspect	Potential environmental impact	Initial risk rating $P \times C = \text{Risk}$			Control measures	Residual risk rating $P \times C = \text{Risk}$			Responsible person
					<p>If suspected heritage item encountered, works to stop immediately and PER contacted</p> <p>Engaging with Campus Infrastructure Services Heritage Manager to identify any items of significance and developing a Heritage Impact Assessment</p>				
Traffic									
Loss of parking in adjacent areas to campus during construction	Loss of parking availability to adjacent residential and commercial properties could result in complaints	3	2	6	<p>Community notifications</p> <p>Develop Traffic Management Plan/traffic control procedures</p>	2	2	4	<p>Construction Manager</p> <p>Project/site engineers</p> <p>Stakeholder Manager</p>
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	<p>Approved traffic management plans in consultation with relevant authorities. Detour routes to be advertised/ notified</p> <p>Approved access routes, detailed traffic control plans</p> <p>Clear notifications/signage</p>	2	2	4	<p>Construction Manager</p> <p>Project/site engineers</p> <p>Stakeholder Manager</p>
Management of heavy vehicles/ haulage routes	Complaints from sensitive receivers due to increased level and frequency of noise	3	2	6	<p>Designated haulage routes</p> <p>Approved traffic management plans</p> <p>Community notifications</p> <p>Pedestrian management with traffic controller in place where required</p>	2	2	4	<p>Construction Manager</p> <p>Stakeholder Manager</p>
Truck deliveries out of normal working hours (unapproved)	<p>Non-conformance with project requirements</p> <p>Noise impact to community/potential complaints</p>	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 required</p>	2	3	6	<p>Project Manager</p> <p>Construction Manager</p> <p>Project/site engineers</p> <p>Stakeholder Manager</p>



Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					Approved traffic/haulage routes Planning and staging of works in approved hours as much as practical				
Resources and energy use									
Energy consumption by construction plant and operation of site compound facilities	Inappropriate energy use, waste of energy recourses, energy wastage costs, increased greenhouse gas emissions	3	3	9	Inductions and toolbox training on waste management and energy saving practices in construction plant and equipment and during site office work No idling of plant equipment where possible onsite Equipment/plant equipment inspections must be undertaken prior to use on-site	3	2	6	Construction Manager Project/site engineers Site Manager
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	2	2	4	Construction Manager Site Manager
Resource usage (for example, building materials, water, fuels, packaging), waste generation and disposal	Depletion of resources due to wastage (for example, waste water/no recycling, poor management of procurement, ineffective removal of offcuts, 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 Subcontractors agreements to include project-compliant waste management principles Waste management undertaken in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> Recycling of materials in accordance with the University's Sustainability Framework Managing urban stormwater: soils and construction. Odour suppression measures must also be carried out where appropriate so as to prevent nuisance occurring at adjoining properties	2	2	4	Construction Manager Project/site engineers Site Manager

Risk assessment likelihood and consequence matrix

Probability scale	(1) Improbable	(2) Remote	(3) Occasional	(4) Probable	(5) Certain
	2	4	8	16	32
Likelihood	10%	25%	50%	75%	100%
Environmental impact scale	(1) Low	(2) Moderate	(3) Material	(4) Severe	(5) Highly severe
	2	4	8	16	32
Detail	Low impact to isolated area	Contained low impact	Uncontained impact, able to be rectified in the short term	Extensive hazardous impact requiring long-term rectification	Uncontained hazardous impact with residual effect

Red–amber–green assessment matrix

	Environmental impact >	(1) Low	(2) Moderate	(3) Material	(4) Severe	(5) Highly severe
v Probability		2	4	8	16	32
(5) Certain	32	64	128	256	512	1024
(4) Probable	16	32	64	128	256	512
(3) Occasional	8	16	32	64	128	256
(2) Remote	4	8	16	32	64	128
(1) Improbable	2	4	8	16	32	64

Appendix 7: Environmental Control Plan

Details on the minimum requirements for the Environmental Control Plan are provided in Section 15.2: Environmental Control Plan.

Environmental Control Plan				
Key Project Contacts	Project Leader	Joe Thompson	0437 476 581	
	Site Manager	Brad Jones	0408 718 186	
	Construction Manager	Keith Willis	0437 737 055	
	Project Environmental Representative	Jannaya Ashelford	0429 384 960	
	Complaints Hotline		1800 95 11 61	
Pre-starts/toolbox	<ul style="list-style-type: none"> All personnel to be briefed on this Environmental Control Plan's requirements. Daily pre-start/toolbox meetings to address specific site conditions/requirements regarding environmental issues, where applicable. 			
Approved Hours of Work	<ul style="list-style-type: none"> 7.00am – 6pm Mon to Fri 7.30am – 3.30pm Sat No work Sundays and public holidays 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. 			
Erosion & Sediment Control (Soil and Water Management)	<ul style="list-style-type: none"> Erosion and sediment controls must be implemented, inspected & 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'. No tracking (sediment/mud or any other materials) on to roads external to the site – clean up immediately in case of any tracking. 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). Stockpiles, fuels or chemicals not to be located adjacent to stormwater drains/network. Stormwater drains to be protected – typical controls geofabric/sandbags/steel plates or plywood/hay bales wrapped in geofabric etc. DISCHARGE OF WATER HOLD POINT – 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. 			
Flora & Fauna (including tree protection)	<ul style="list-style-type: none"> VEGETATION REMOVAL HOLD POINT – No vegetation removal is permitted on-site unless approved by relevant authorities. Tree protection measures installed for trees to be retained to remain for duration of works (e.g. fencing, hoarding, delineation). No storage of plant, equipment, materials within tree drip lines or established tree protection zones. Inspect vegetation for fauna, prior to removal. If fauna is found, injured or at risk of injury during works, STOP WORK and notify Site Manager immediately and contact WIRES 1300 094 737 			
Noise & Vibration Management	<ul style="list-style-type: none"> Machinery and vehicles to be turned off when not in use (NO IDLING). Non-tonal reversing beepers fitted on plant/equipment. No swearing, shouting, dropping tools, loud music, unnecessary revving – be mindful of our neighbours/sensitive receivers. Schedule respite periods for high noise/annoying activities for e.g. Break for lunch between 12 and 2pm. If high noise/vibration complaints are received during works, notify the Site Manager immediately. Works will be assessed to determine any alternatives/additional controls. 			
Dust & Air Quality	<ul style="list-style-type: none"> Stockpiles/exposed surfaces to be compacted, wetted down or covered to prevent fugitive dust emissions. All loads to be covered and tailgates fixed securely prior to leaving site (to prevent spillage or escape of dust, waste, spoil). Ensure plant and machinery is regularly checked and maintained in proper and efficient condition. Plant should not show visible exhaust emissions for >10 seconds. Report such observations to Site Manager immediately. In high wind conditions – Site Manager to assess and stop works until adverse conditions subside/implement any additional controls. 			
Unexpected Finds	<ul style="list-style-type: none"> If any unexpected finds are encountered on-site for e.g. contamination (asbestos/hazardous materials), heritage finds (aboriginal artefacts/archaeological deposits/relics) STOP WORK, isolate/secure area immediately, DO NOT TOUCH MATERIAL and notify Site Manager immediately. Follow unexpected finds protocols on-site. 			
Access, Traffic and Parking	<ul style="list-style-type: none"> Follow designated site access points, haulage routes and parking as detailed within the CTMP. 			
Waste Management	<ul style="list-style-type: none"> Construction waste to be separated into material types – use the "Right Bin or Skip" on-site 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. Any waste generated to be removed from site to be in accordance with its waste classification status and to a licensed waste facility. Retain records – Waste dockets, waste classification reports. Site to be left tidy and litter free. 			
Contamination/Hazardous Materials	<ul style="list-style-type: none"> Fuels, chemicals and oils must be stored in banded/storage containers when not in use & away from stormwater drainage. Safety Data Sheets (SDSs) must be made available for all substances brought onto site. 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 kit located in close proximity. Spill kits to be fully stocked, made available and accessible within the specific work areas. In case of a spill, where safe to do – CONTROL, CONTAIN, ISOLATE AREA, NOTIFY the Site Manager immediately and clean up the spill. 			
Incident & Non-compliance reporting	<ul style="list-style-type: none"> 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. 			
Document Control	<p>Environmental Control Map – ETP, Version 2, Date: 1st April 2019, Development Consent SSD 8636</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>			



USYD ETP Stage 1

Site Layout Plan

Revision 3: 19/08/19

	Site Gates		Existing SW pit/line
	Bunded Refuelling Area		Existing Sewer pit/line
	Hazardous Substance Storage Area		Stockpile (covered with geofabric when not in use)
	Heavy Vehicle Route		Batter: Covered with Geo Fabric or soil binder
	Spill Kit		Sediment baffle tank
	First Aid		Stabilised area: asphalt/concrete surface
	SW Pit Sediment Controls – Sed socks and/or geofab		Water flow direction
	Tree Protection		Stabilised access: geofabric / clean aggregate rock
	Bunded concrete washout area		Sediment fencing
	Sandbags		
	Temp Berm (Storm Control)		

Appendix 8: Emergency preparedness and response

The types of environmental emergencies that could occur on this site are outlined in the following table.

Note: This plan is designed to supplement The University of Sydney's site emergency response plan where available. In case of conflict, The University of Sydney's plan will apply.

Emergency	Preparation	Response	Responsibility
Significant adverse dust event due to weather conditions (high winds)	<ul style="list-style-type: none">• Monitor meteorological conditions for the area and develop contingency for wind speeds in excess of 16m/s (55km/h)• Ensure high-wind 'stop works' protocols are in place• Establish contingency strategy for additional dust control measures, such as additional water carts, dust suppressants and stockpile covers.	<ul style="list-style-type: none">• Cease dust-generating activities under direction of the Project Environmental Representative or Site Supervisor until adverse conditions subside• Deploy additional mitigation measures to exposed areas, stockpiles and other dust-generating items (for example, water sprayed or covered).	<ul style="list-style-type: none">• Site Supervisor• Construction Manager• PER.
Discovery of friable asbestos	<ul style="list-style-type: none">• Review previous land uses and environmental reports for potential for friable asbestos• Include asbestos awareness in the site induction where the potential exists• Include contingency in relevant work procedures and SWMSs• Identify potential service providers for asbestos control and removal.	<ul style="list-style-type: none">• Quarantine suspected area• Cover or provide dust mitigation strategy• Engage licensed removal and disposal organisation• Complete post-removal verification.	<ul style="list-style-type: none">• Project Leader• Site Supervisor• Construction Manager• PER• Safety Representative.



Emergency	Preparation	Response	Responsibility
Flooding	<ul style="list-style-type: none">• Monitor meteorological conditions and develop contingency strategy for rainfall greater than 100mm in 24 hours or potential for greater than 1 in 5 average recurrence interval (ARI)• Secure all chemicals, fuels and other hazardous substances in secured containers and store within a sealable shipping container• Remove plant and equipment from low-lying areas• Secure plant that cannot be removed• Review site drainage flow paths based on current arrangements• Redirect site drainage to prevent flooding of residential/business premises• Ensure site drainage does not concentrate surface flow• Review and address the potential for excess water entering the site• Review and maintain erosion and sedimentation controls.	<ul style="list-style-type: none">• Recover materials washed from site, including sediment and other waste• Check effectiveness of erosion and sedimentation devices and other flood controls and maintain where required and safe to do so.	<ul style="list-style-type: none">• Site Supervisor• Construction Manager• PER.
Damage to temporary erosion and sediment controls during rainfall	<ul style="list-style-type: none">• Plan controls to be suitable for expected conditions• Ensure sufficient materials, labour and plant are available for additional controls.	<ul style="list-style-type: none">• Project Environmental Representative and Site Supervisor to review the site• Repair or replace damaged controls within 24 hours of detection or immediately if inclement weather current.	<ul style="list-style-type: none">• Site Supervisor• PER.
Damage to sediment basin	<ul style="list-style-type: none">• Check basins for suitability to project requirements – such as size and treatment type• Design basin outlet to remain functional in a 1 in 20 ARI event• Ensure basin construction is in accordance with quality assurance requirements, including relevant inspection and test plans (ITPs).	<ul style="list-style-type: none">• Pump water in damaged basin to another secure basin or discharge if the water meets the site criteria• Repair damage as soon as practical• Monitor the repairs when the basin is brought back online.	<ul style="list-style-type: none">• Site Supervisor• PER



Emergency	Preparation	Response	Responsibility
Spill (less than 20L) of hazardous or toxic substance	<ul style="list-style-type: none">• Incorporate awareness training of appropriate response and procedures into the project induction• Ensure an SDS is on site for all materials and kept up to date• Ensure an adequate supply of absorbent materials is available in the site compound and on vehicles at work locations.	<ul style="list-style-type: none">• Report spills immediately to the Construction Manager and/or the PER• Attempt to limit or contain the spill: using sand bags to construct a bund wall; using absorbent material; temporarily sealing cracks or leaks in containers; or using geotextile or silt fencing to contain the spill.• Construction Manager and Supervisors to coordinate the response, clean up and disposal of the material• Dispose of the material in accordance with the manufacturers' recommendations and applicable legislation.	<ul style="list-style-type: none">• Site Supervisor• PER.
Major spill (greater than 20L) of hazardous or toxic substance off site or to environmentally sensitive area	<ul style="list-style-type: none">• Incorporate awareness training of appropriate response and procedures into environmental and safety induction• Ensure an SDS is on site for all materials and kept up to date• Ensure an adequate supply of absorbent materials is available in the site compound and on vehicles at work locations• Display emergency telephone numbers for emergency response organisations/fire brigade prominently around the office and issue them to supervisors• Make initial contact with relevant organisations at start of project.	<ul style="list-style-type: none">• Report spill immediately to Project Leader and/or Construction Manager who will notify the client• Attempt to limit or contain the spill: using sand bags to construct a bund wall; using absorbent material; temporarily sealing cracks or leaks in containers; using geotextile or silt fencing to contain the spill; or transferring the remaining material• Implement procedures to notify the relevant authorities• Construction Manager to coordinate the response and clean-up• Call NSW Fire and Rescue or emergency organisations if spill cannot be controlled by site resources• Implement evacuation procedures to remove non-essential personnel from the affected area• Inform on-site client personnel of the incident• Internal reporting as per potential Class 1 matter• Establish access and egress to the area to ensure the appropriate vehicles have effective access and congestion is minimised• Assist, where required, the senior officer from NSW Fire and Rescue/emergency organisation who will assume control of the operation• Commence data gathering and investigation once the emergency is contained.	<ul style="list-style-type: none">• Project Leader• Construction Manager• Site Supervisor• PER.

Emergency	Preparation	Response	Responsibility
Fire	<ul style="list-style-type: none"> Incorporate awareness training of appropriate response and procedures into environmental and safety induction Maintain fire extinguishers that are clearly labelled and distributed around site compound and vehicles Conduct training in the use of fire extinguishers and which one to use for each type of fire Stock adequate first aid supplies Display emergency telephone numbers for emergency response organisations/NSW Fire and Rescue prominently displayed around office and issued to supervisors Make initial contact with relevant organisations at the start of the project. 	<ul style="list-style-type: none"> For small fires, attempt to extinguish the fire or limit its spread with available fire extinguishers or water hoses if appropriate Inform Supervisor immediately Supervisor to contact the client and emergency services where necessary as a precautionary measure All personnel in the vicinity to assemble in the evacuation assembly area, with a head count performed Handle any resulting fuel or chemical spill as detailed above Supervisor to coordinate with emergency services and provide assistance as required. 	<ul style="list-style-type: none"> Site Supervisor PER.
Vibration causing structural damage	<ul style="list-style-type: none"> Choose correct plant when working near structures; minimise size and impact Use safe working distances during the planning phase Implement vibration monitoring at the start of vibration-generating works to ensure compliance with standards. 	<ul style="list-style-type: none"> Cease activities causing vibration under direction of the Environment Advisor or Site Supervisor Evacuate any occupants of buildings with due consideration to safety and secure the area to prevent unauthorised access Undertake a structural assessment and, if there is any damage associated with construction, agree on rectification work. 	<ul style="list-style-type: none"> PER Project Leader
Unapproved clearing or damage to protected vegetation, threatened or endangered flora	<ul style="list-style-type: none"> Clearly demarcate site boundaries Clearly demarcate clearing areas and brief site personnel Identify/mark vegetation to be retained or protected Identify species that may be impacted and include material within the project induction Include requirements within construction planning documentation. 	<ul style="list-style-type: none"> Immediately cease activities Engage a consultant to assess damage to vegetation and the presence of any endangered or threatened communities. 	<ul style="list-style-type: none"> Site Supervisor PER.
Injury or death to protected, endangered or threatened fauna	<ul style="list-style-type: none"> Identify potentially impacted species prior to starting on site Identify species that may be impacted and include material within the project induction Review and inspect vegetation to be cleared prior to clearing; use an ecologist or spotter where there is the potential for endangered or threatened species Engage with local vet and/or WIRES representative on the appropriate contact and procedure Implement a site procedure for the short-term management of injured fauna. 	<ul style="list-style-type: none"> Immediately cease activities upon discovery of injured fauna Implement procedure for short-term stabilisation and transport to vet or WIRES Undertake additional vegetation inspection to identify any remaining fauna prior to restarting work. 	<ul style="list-style-type: none"> Site Supervisor PER.



Emergency	Preparation	Response	Responsibility
Damage to or destruction of Indigenous heritage items	<ul style="list-style-type: none">• Ensure site investigations detail any heritage items on or in proximity to the site• Include awareness material within the project induction• Develop a 'stop works' protocol for any heritage find on site.	<ul style="list-style-type: none">• Cease works and stabilise the area, under the direction of the Environmental Advisor or Site Supervisor. The Environmental Advisor is to report the remnants to the client and regulatory authority• Contact an archaeologist to assess the significance and archaeological potential of the uncovered feature.	<ul style="list-style-type: none">• PER.
Damage to or destruction of European heritage items	<ul style="list-style-type: none">• Ensure site investigations detail any heritage items on or in proximity to the site.• Develop a 'stop works' protocol for any heritage find on site.	<ul style="list-style-type: none">• Cease works and stabilise the area, under the direction of the Environmental Advisor or Site Supervisor.• Contact an archaeologist to assess the significance and archaeological potential of the uncovered feature.	<ul style="list-style-type: none">• PER.

Emergency preparedness and response procedures



Appendix 9: Environmental incident investigation guidelines

Class 1 incidents will be subject to an ICAM or TapRoot investigation. The following guidelines outline the environmental incident and complaint investigation procedure. The actual detail required will vary depending on the class of the incident. The [Environmental Incident and Complaint Report](#) can be used to document the incident.

Step 1: Identify the class of incident and obtain the incident or complaint details

Step 2: Observe and gather information

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

- Take samples or obtain results (required for Class 1 and 2 incidents), such as laboratory results or in situ samples. For Class 1 and 2 incidents, NATA-certified laboratory results may be required.
- Interview persons involved – such as witnesses, supervisors and experts – where required.
- Inspect the incident scene. Take measurements (do not guess), photos and videos and make drawings, diagrams and sketches.
- Collect related documentation. Attach additional material as appropriate such as work method statements, JSEAs, ERAPs, Erosion and Sediment Control Plans, risk assessments, induction records, toolbox talks, prestart records, environmental training records, subcontractor and client incident reports, relevant design documentation and maintenance records.

Step 3: Give a detailed description of the incident

Outlined exactly what happened and give the following details as applicable:

- Area or people affected and pollutant type if appropriate
- Time, date and weather conditions
- Plant, equipment and organisations involved
- Potential stakeholders involved

Describe the nature of the incident, including:

- Breach of licence condition, Act or regulation
- Discovery of cultural heritage item
- 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:

- Notification of relevant parties
- Containment of pollution or clean-up of affected area
- Repair to environmental controls
- Rectification of damage and remediation of the affected area.



Step 4: Undertake basic level incident analysis

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

Step 5: Identify the corrective and preventative actions

Identify corrective and preventative actions, which may include:

- Changing equipment or machinery design or maintenance
- Improving environmental control measures
- Implementing additional resources
- Changing work methods, procedures or processes
- Changing or adding to induction training
- Addressing organisational issues.

Step 6: Implement the corrective and preventative actions

Implement the corrective and preventative actions identified in Step 5. This includes:

- Outlining responsibilities and accountabilities
- Obtaining relevant approvals for the corrective and preventative actions (such as regulatory authority or client approval)
- Providing proposed completion dates for the approved actions
- Documenting actions implemented and closed out.

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 NSW.

Appendix 10: Class 1 Incident Management Flow Chart

