



No.: C.009588-SH-PLN-0002

Rev: 0

Title: Construction Environmental Management Plan

Date: 7 June 2023

KI Construction Environmental Management Plan

Project Plan

C009588-SH-PLN-0002

Project No. **C.009588**

Project Name: **ANP1 ANSOL Capability Project**

Client: **Orica Australia Pty Ltd**

REV	DESCRIPTION	DATE	WRITTEN BY	REVIEWED BY	APPROVED BY
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1 INTRODUCTION

This template is to be used in conjunction with the KI Construction Environmental Management Plan - Orica KI CEMP Guidance Document.

1.1. BACKGROUND

Orica is undertaking a project to increase the Ammonium Nitrate Solution (ANSOL) capability at its Kooragang Island (KI) facility. ANSOL is a key feed material for the preparation of AN emulsion products supporting the mining industry.

This project improves operational flexibility by allowing KI's to supply ANSOL from ANP1 to a storage tank in ANP2. This would result in additional flexibility in the product mix [solid ammonium nitrate (AN Prill) vs ammonium nitrate solution (ANSOL)] produced on the KI site. Total production capacity does not change as a consequence of the project. Successful implementation of the project would provide Orica KI with a more reliable ANSOL production, and hence allow Orica KI to cover production during maintenance tasks and periods of increased demand.

1.2. PURPOSE OF CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

This Construction Environmental Management Plan (CEMP) identifies the control measures required for the construction and/or demolition works that form part of the ANP1 ANSOL Capability project (the Project).

Sub-contractor environmental management plans may be developed to provide more detailed environmental controls and these plans must comply with the principles set out in this CEMP.

The purpose and objectives of this plan are to:

- Describe how site approvals, statements of commitment and other statutory requirements relate to the different construction activities around the site;
- Provide an overview of the regulatory obligations construction works are required to comply with, including the Protection of the Environment Operations Act 1997 and relevant licences (including EPL 828) and the requirements of City of Newcastle Development Control Plan (2012).
- Describe the systems that will be implemented to deliver effective environmental management and prevent detrimental effects on the environment or human health caused by potential discharges or emissions from the construction works.
- Identify requirements for an operational structure that allows identification and reporting of incidents and non-conformances such that corrective actions can be completed in a timely manner and response to changes in environmental conditions through review of the monitoring and control programs.
- Provide an overview of personnel responsible for the implementation of the control measures detailed in this plan and its associated sub plans to ensure compliance with regulatory requirements; and
- Provide an overview of effective environmental controls to manage key environmental aspects identified in a project's environmental risk reviews.

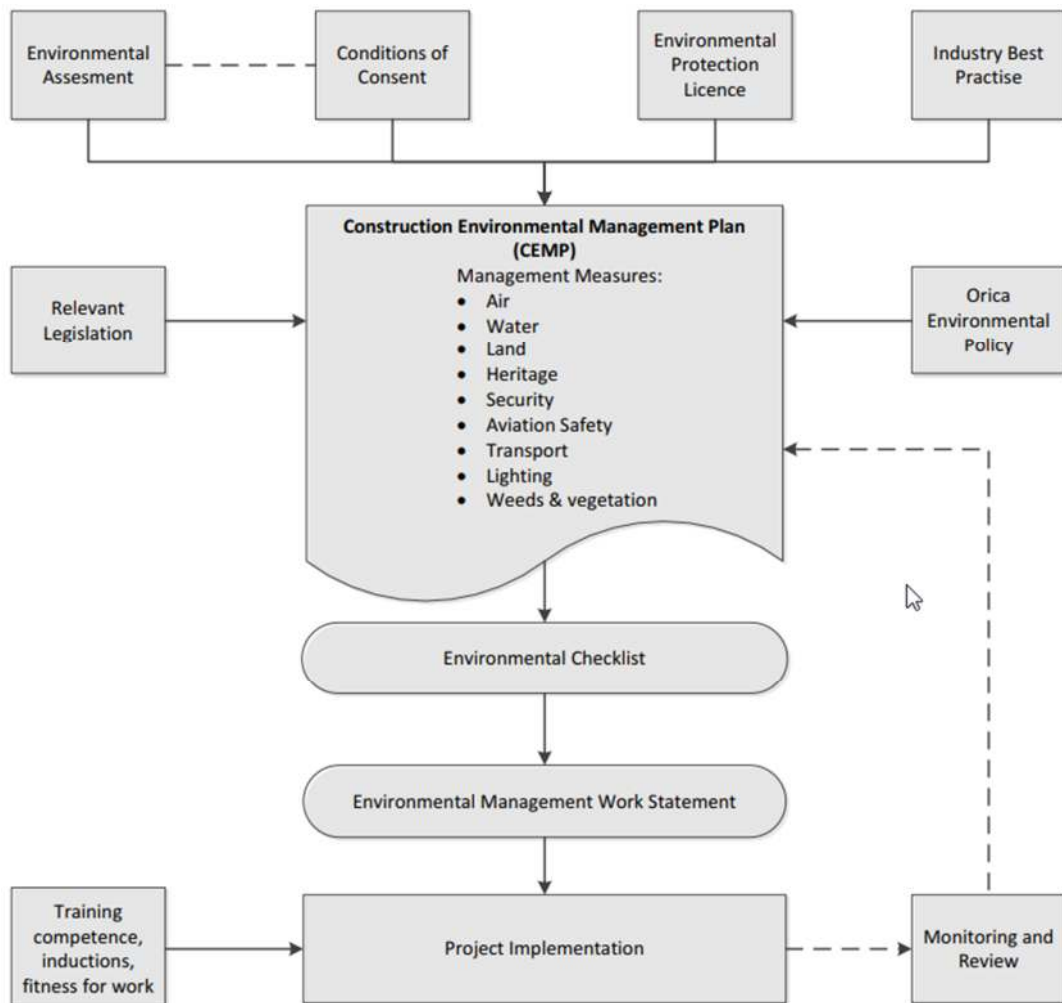


Figure 1 - Summary of CEMP Inputs, Outputs and Implementation

Construction activities that are permitted onsite, and are subject to the requirements outlined in the CEMP include, but may not be limited to:

- Bulk earthworks and excavations,
- Civil works including concreting and paving, drainage, road works, piling and foundation works,
- Plant and equipment construction and installation,
- Electrical and Instrumentation installation,
- Demolition works, and
- Landscaping and vegetation rehabilitation activities.

1.3. CONTINUOUS IMPROVEMENT

CEMPs require ongoing review and will be amended, as necessary, to allow new or changing environmental risks relating to the projects to be addressed.

As part of Orica's overall environmental management system, feedback systems will be in place for the duration of the Projects to enable the CEMP to be updated and responsive to learning from any incidents and complaints.

This CEMP will be reviewed and updated to reflect knowledge gained during the course of construction and to reflect new knowledge and changed community standards (values). Changes to the CEMP may be developed and implemented in consultation with relevant authorities and stakeholders over time as required.

Other triggers for CEMP review may include:

- Findings and recommendations of Contractors' EMPs and/ or work procedures;
- Changes to organisational structure, roles and responsibilities;
- Changes in environmental legislation and/or policies; and
- New technologies/innovation relevant to applied methods and controls that provide innovative means of executing work in order to meet performance criteria.

2. APPROVALS AND REGULATORY OVERVIEW

2.1. PLANNING APPROVALS

The Orica KI site operates under Project Approval 08_0129 which was issued in 2009 under the now repealed, Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Table 1: Summary of Existing Approvals

Project name	Project Summary	OEL/DMS Reference Documentation
NAP2/AN2 DA 379/87 (Newcastle City Council)	<ul style="list-style-type: none"> ▶ Construction of NAP2 ▶ Construction on AN2 	1979334
NAP3 / AN1 (N91/00593) (NSW Department of Urban Affairs and Planning)	<ul style="list-style-type: none"> ▶ Construction of NAP3 ▶ Upgrade of production capability of AN1 	1977007
Triella (DA 685/93) (Newcastle City Council)	<ul style="list-style-type: none"> ▶ Construction of anhydrous ammonia packaging and aqua ammonia plant 	1994409
Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) (NSW Department of Planning)	<ul style="list-style-type: none"> ▶ Upgrade Ammonia Plant from 800t/day to 1050t/day); ▶ Proposed to expand existing facility to increase maximum production rate from 500000 to 750000 tonnes of AN per annum; ▶ Construction of NAP4 and AN3 ▶ Construction of additional storage; and ▶ Installation of new infrastructure (cooling towers, access points, loading facilities) 	1980680
Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) – MOD 1 (NSW Department of Planning)	<ul style="list-style-type: none"> ▶ The modification amended the layout of the site and changes to the choice of plant and equipment for the project. 	1958982
Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) – MOD 2, 2014 (NSW Department of Planning)	<ul style="list-style-type: none"> ▶ Relocation and increase in storage capacity of the approved expansion project nitric acid tank; ▶ Ammonia Flaring Stacks – installation of three ammonia flares for the treatment of non-routine process relief-valve ammonia discharges. 	1978920

<p>Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) – MOD 3, 2015 (NSW Department of Planning)</p>	<ul style="list-style-type: none"> Increased the allowable annual production limit relating to the manufacture of ammonia at the site from 360,000t to 385,000t. 	<p>1980680</p>
<p>Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) – MOD 4, 2021 (NSW Department of Planning)</p>	<ul style="list-style-type: none"> Replacement of the existing in-ground Nitrates Effluent Pond with an above ground tank, complete with a dedicated bund to provide secondary containment. 	
<p>Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) – MOD 5, 2021 (NSW Department of Planning)</p>	<ul style="list-style-type: none"> Installation of Emission Abatement System on the existing ANP1 Prill Tower, to reduce PM2.5 emissions from the AN1 Prill Tower at the premises 	
<p>Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) – MOD 6, 2021 (NSW Department of Planning)</p>	<ul style="list-style-type: none"> Pending modification (Project scoping report has been completed and SEARS have been issued by DPIE) for construction of a 30,000 tonne ammonia tank. 	
<p>Orica Kooragang Island Ammonium Nitrate Expansion Project (08_0129) – MOD 7, 2021 (NSW Department of Planning)</p>	<ul style="list-style-type: none"> Upgrade of ANSOL product capability by drawing solution from AN1 to supply the storage tank in ANP2. 	

The Project Manager to identify if planning approval is required for the project to ensure that compliance to the requirements of the Site’s existing approvals are not compromised. This analysis should be completed in consultation with a Site Environmental Representative (Senior Specialist – Environment, or subsequent Line Manager) and prior to the completion of the project’s design.

The methodology detailed **Figure 2** below should be used as a guide to determine if an existing approval is adequate to cover the proposed works. Should there be any ambiguity, the Site Environmental Representative should be contacted as early as possible to avoid delays should additional approval be required.

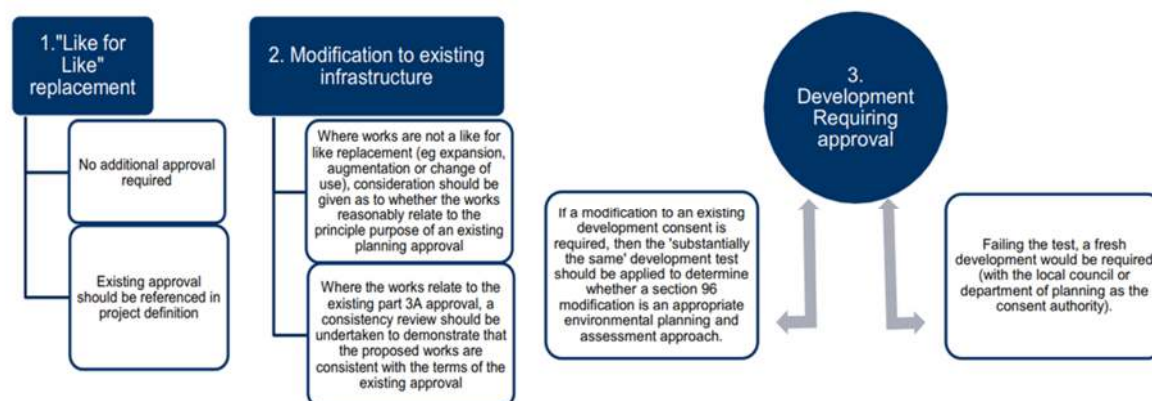


Figure 2 - Project Approval Test

2.2. ENVIRONMENTAL PROTECTION LICENCE

The NSW Environment Protection Authority (EPA) issues Environment Protection Licences (EPL) to owners/operators of industrial premises in compliance with the requirements detailed in the Protection of the Environment Operations Act 1997 (POEO Act). The objective of the POEO Act is to achieve the protection, restoration and enhancement of the quality of the NSW environment.

The site's Environment Protection Licence (EPL 828) can be accessed either by the site's DMS, reference number 11621094 or on the NSW EPA website.

Orica's EPL details the environmental performance requirements in which the site must operate. These include requirements relating to the way the site impacts on the local environment including air, water, land, noise and waste management at the site. Any project or process change that could potentially alter the site's performance will need to consider the requirements detailed in the site EPL.

The EPL is not limited to just operational requirements, but also includes construction related requirements including dust, waste, transportation, water and community complaint management.

All EPL holders must comply with their licence conditions, make pollution monitoring data available, prepare pollution incident response management plans, submit annual returns and pay annual administrative and load based licence fees.

2.3. OTHER STANDARDS AND LEGISLATIVE REQUIREMENTS

The Project will be conducted in a manner consistent with the requirements and guidance set out in the documents listed below.

- Environment Protection Licence (EPL 828);
- Protection of the Environment Operations (POEO) Act 1997;*
- Protection of the Environment Operations (General) Regulation 2009;*
- Protection of the Environment Operations (Clean Air) Regulation 2010;*
- Protection of the Environment Operations (Waste) Regulation 2014;*
- Waste Classification Guidelines (NSW EPA 2014);
- Managing Urban Stormwater: Soils and Construction Vol. 1 ("Blue Book") (Landcom 2004);

- National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (National Environmental Protection Council 2013).
- Australian Standard AS 4361.1 2017 'Guide to hazardous paint management, Part 1: Lead and other hazardous metallic pigments in industrial applications'
- Information from the Guidance note on the membrane filter method for estimating airborne asbestos fibres, 2nd Edition [NOHSC:3003(2005)]

2.4. REFERENCE MATERIALS

This Project CEMP was prepared with reference to the following: [

[KI Construction Environmental Management Plan - Orica KI CEMP 08.11.16 Rev 3](#)

- Project Requirements Statement - C.009588-PM-PRS-0002
- Project SHES Management Plan - C.009588-SH-PLN-0001

3. SITE AND PROJECT OVERVIEW

3.1. SITE LOCATION AND DESCRIPTION

The site is located on Kooragang Island, in the Hunter River approximately 3km north of Newcastle. It is on the south eastern peninsula of the island at the confluence of the North and South Arms of the river.

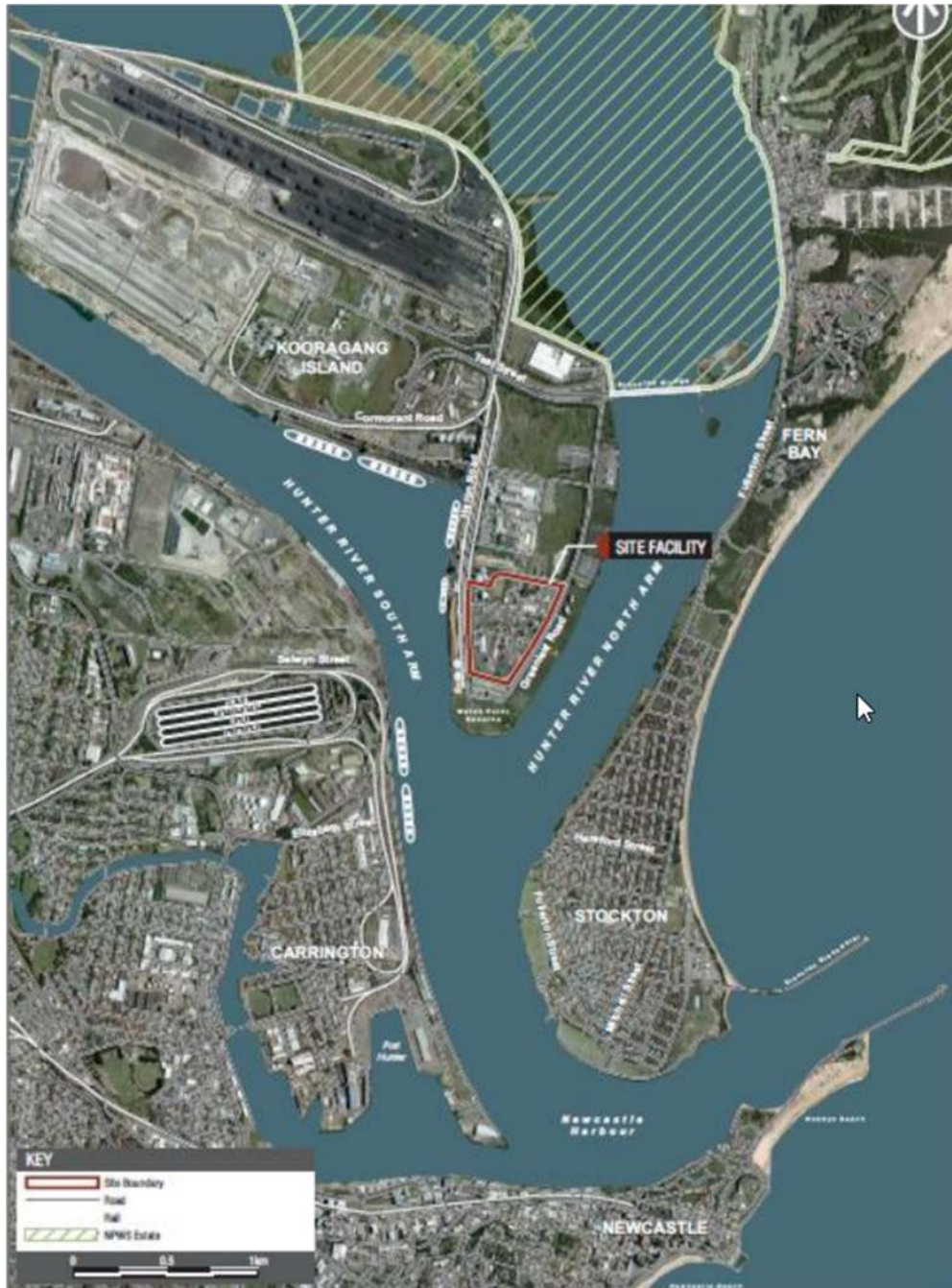


Figure 3 – Orica KI Facility Location Plan

The manufacture of ammonia, nitric acid and ammonium nitrate has occurred at the site since the facility was commissioned in 1969. The site is located on land zoned 4(b) suitable for Port and Industry use.

3.2. PROJECT OBJECTIVES

The project will draw solution from AN1 and supply 83% solution to the storage tank at ANP2. This will be a separate, independent source of ANSOL from ANP2, and allow Nitropril manufacture to continue at low rates.

3.3. PROJECT LOCATION AND DESCRIPTION

The new ANSOL installation will span from the ANP1 Wet section to the ANP2 ANSOL Storage Tank location. The works will include a pipebridge over 6th Avenue, and will also utilise the existing Second Street Piperack.

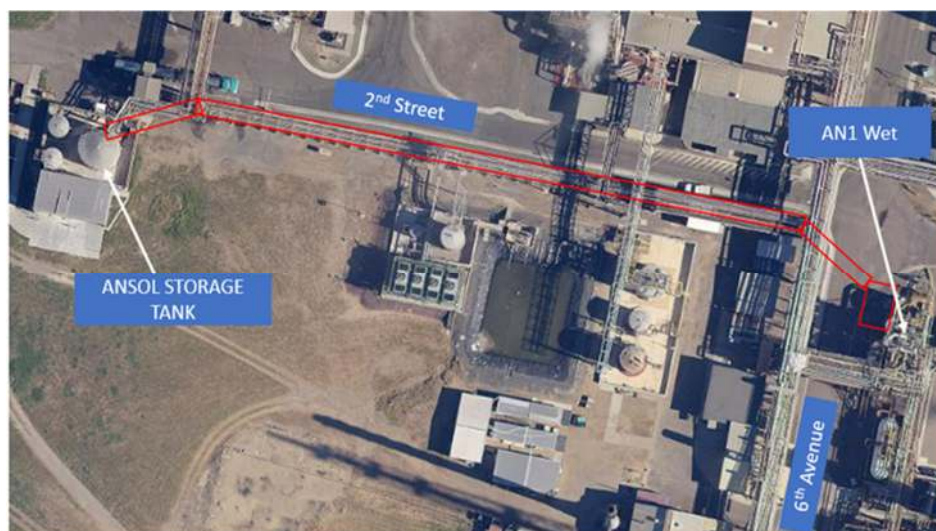


Figure 4 – Indicative Layout of integrated system into existing Plant

The short-term laydown areas will be located adjacent to the main ANP1 Wet construction area. Longer term storage may be available adjacent to NAP1.

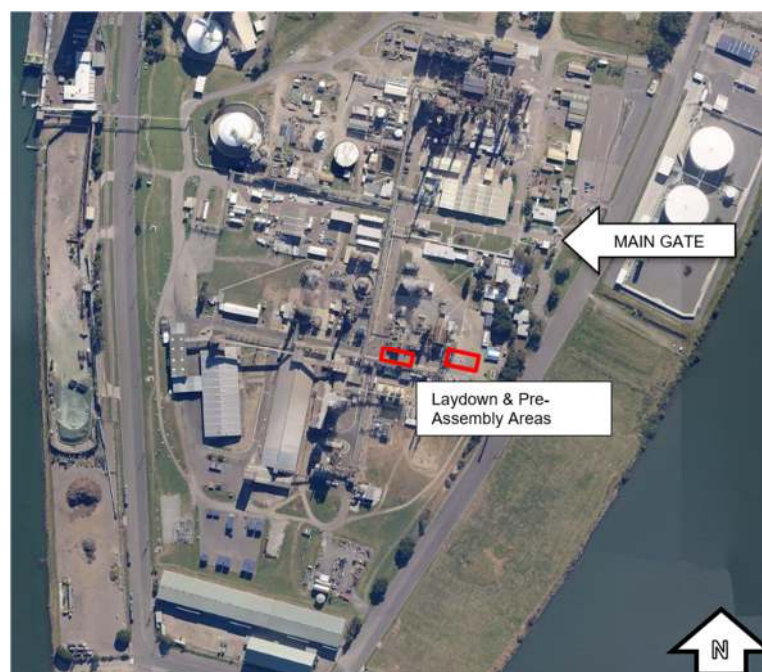


Figure 5 – Location of Laydown and Pre-Assembly Area

3.4. PROJECT WORK SCOPE

Orica is planning to undertake a project to increase the Ammonium Nitrate Solution (ANSOL) capability at its Kooragang Island (KI) facility. ANSOL is a key material for emulsion products supporting the mining industry.

This project upgrades KI's ANSOL production capability by drawing ANSOL from ANP1 to a storage tank in ANP2. This would result in an additional independent source of ANSOL over the existing ANP2 production. Successful implementation of the project would provide Orica KI with a more reliable ANSOL production, and hence allow Orica KI to cover production during maintenance tasks and periods of increased demand.

The summarised scope of the project is described in the following sections.

3.4.1. Mechanical Scope

- Installation of a new surge tank at ANP1 between the Neutraliser vessel and 83% tank, and associated structure and access,
- installation of a Centrifugal Pump suitable for AN1 ANSOL pumping,
- Installation of a new ANSOL cooler and self-contained cooling water cooler,
- All associated structural supports, access platforms, stairs, and ladders

3.4.2. Piping Scope

- Installation of a new traced and lagged ANSOL line from ANP1 to the 88% tank, including steam out points.
- Installation of new tracing steam supply pipework and condensate return pipework.
- Provision of a tie in point for a future connection of the ANSOL pipework directly to the truck loadout station.
- Relocate dosing points for Topan and reclaim from the Neutraliser to the 83% tank.
- Flushing water piping and collection.
- Compressed air and Instrument air piping.
- Protection and / or relocation of underground services as applicable to facilitate Civil works.

3.4.3. Coatings and Insulation

- Coating of all carbon steelwork items as per "NSW20193R2 Nap Tower"
 - Steelwork topcoat colour – AS2700 N33 (Lightbox Grey).
 - Handrail topcoat colour – AS2700 Y14 (Golden Yellow)
- Insulation of applicable piping (i.e. ANS, Process Condensate) for heat retention or PPE purposes.
- Insulation of Surge Tank.

3.4.4. Civil and Structural Scope

- Piling Works – Driven Timber Piles.
- Construction of new concrete foundations.
- Repairs of permanent roadways and drainage damaged by construction activities, if occurred.
- Strengthening of existing pipe racks to accommodate new lines between AN1 and the 88% Tank.
- Construction of number of pipe racks to accommodate new lines between AN1 to 88% Tank.

3.4.5. Architectural Building Scope

- Nil applicable in scope.

3.4.6. Electrical Scope

- Electrical supply
- Cables and cable trays, including relocation where interfering with proposed structures.
- Earthing protection

3.4.7. Instrumentation, Control and Automation Scope

- Installation of a Redox pH sensor for improved pH measurement and control,
- Installation of process control and monitoring equipment, including flow control valves, flow meters, pressure transmitters, and temperature transmitters,
- Integration into the ANP1 control system as well as the ANP2 and ANP1 sources for concentration measurement & control.

3.5. EXISTING CONTAMINATION AT PROPOSED LOCATION

All excavated material will be sampled and assessed for reuse on Site. Should the material not meet the requirements, then material will be handled in accordance with **Section 3.6** and **3.7**.

Asbestos containing material may be found in pipe conduits and insulation around the works area. These locations have been periodically identified and are logged within the Orica KI - Asbestos Register - Nitrates (1974996).

3.6. POTENTIAL ENVIRONMENTAL IMPACT OF SUBSTANCES HANDLED

Disposal of asbestos contaminated soil, if required, will be undertaken in accordance with the NSW EPA Waste Classification Guidelines and disposal will be undertaken using licensed transporters and disposal facilities.

During construction, where potentially contaminated materials are stockpiled for testing prior to disposal, they should be stored in a manner to prevent contamination of underlying soil for example stored on builders' plastic and covered to ensure containment.

The site EPL requires the monitoring stormwater discharges for suspended solids and other chemical parameters, so management of the project area will be required to ensure these are not affected. Where there is the potential for sediment runoff to stormwater during rain due to earthworks, sediment controls will be implemented.

3.7. ENVIRONMENTAL REPORTING OF SUBSTANCES HANDLED

Any required any fill material brought onto the site for to project construction will be tracked. Imported fill material, if required, will be certified as 'clean' material in accordance with the Resource Recovery Order for excavated natural material 2014. Materials will be approved by the Senior Specialist - Environmental prior to use on site.

Any surplus fill material will need to be tested in accordance with the NSW EPA Waste Classification Guidelines and disposed of lawfully.

3.8. BIOPHYSICAL ENVIRONMENT

In general the site has a ground surface elevation of approximately 3 m Australia Height Datum (AHD) and maximum elevation of around 5 m AHD. The land gently slopes from the site centre to the east and west towards the North and South Arms of the Hunter River, respectively. A significant portion of the land is unpaved hardstand or grass, which allows significant infiltration from rainfall, which averages approximately 1,100 mm per annum.

The soil profile generally comprises fill material (a mix of dredged sediment, gravels and steelworks wastes [e.g. slag] in some areas) and dredged sediments, underlain by natural alluvium and estuarine sediments, as summarised below:

Table 2 - Site Soil Profile Summary

Geological Layer No.	Name	Description	Typical depth to bottom (m bgl)
Layer 1	Reclaimed/ Dredged Sediment	Dredged estuarine sediments consisting of sands, fine to coarse grained, light brown to grey, some silt, shell fragments. Density is variable, though is typically very loose to loose.	3.8
Layer 2	Estuarine/ Alluvial Silty Sediments	Variably silts, sands and clays, some organic matter and shells, typically very soft/very loose. Clays range from low to high plasticity. Brown to grey.	6
Layer 3	Alluvial Sands	Predominantly sand with variable silt and some thin interbedded lenses of clay and minor peat. Loose to medium density, with lenses of soft to firm clay. Dark grey. Sands in Layer 3 become dense at approximately 12-13 m bgl	>20

As the area that the site is located on was reclaimed using dredged river sediments, there is no pre-existing flora or fauna on the site.

Groundwater is encountered between 1 and 3m bgl.

Groundwater under Kooragang Island is inferred to flow radially towards the North and South Arms of the Hunter River i.e. to the east, south and west of the Kooragang Island peninsula, with a groundwater divide located approximately in the centre of the peninsula. In the vicinity of the Project area, the groundwater flow direction is inferred to flow in a South- East direction towards to Stockton side of the Hunter River.

The Hunter Estuary National Park (formerly known as the Kooragang Nature Reserve) is located approximately 1km to the north of the site. In addition, parts of the park are recognised RAMSAR sites for migratory shorebirds.



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3.9. SURROUNDING LAND USE AND POTENTIAL RECEPTORS

The land surrounding the Kooragang Island site is used for industrial and port related activities.



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4. ROLES AND RESPONSIBILITIES

The following outlines the responsibilities for the effective implementation of the CEMP.

All project personnel are required to participate in the implementation of this CEMP and other environmental initiatives as directed by Orica.



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4.1. ORGANISATIONAL STRUCTURE

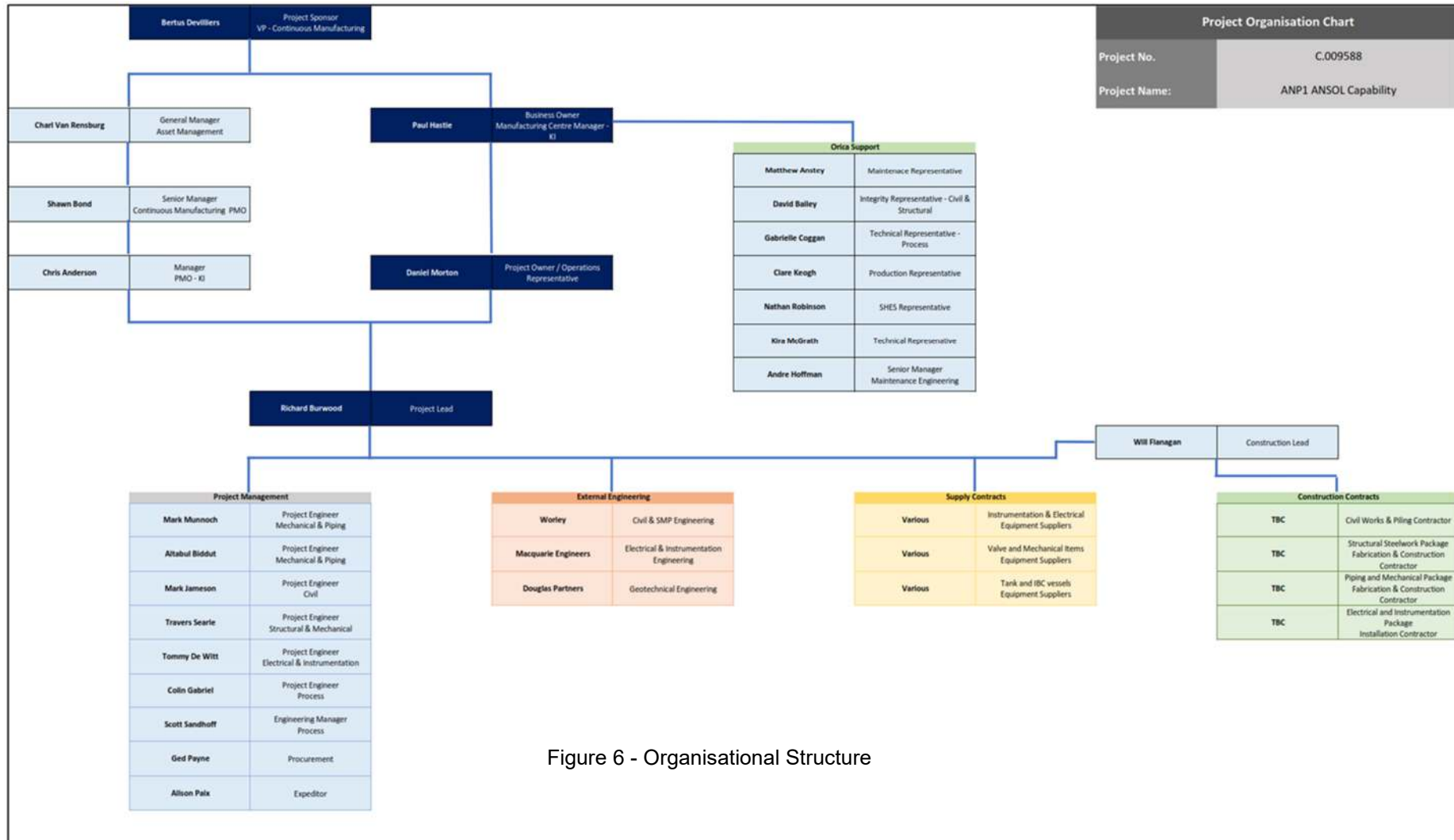


Figure 6 - Organisational Structure

4.2. RESPONSIBILITIES

The environmental responsibilities of the nominated managers are as follows:

4.2.1. Steering Committee

- Oversees all aspects of the project to ensure it meets business requirements, including SHES performance and compliance

4.2.2. Orica SHES Representative

- Ensure the CEMP is reviewed on a regular basis and updated as required
- Overall delivery of the project's agreed environmental and regulatory objectives
- Liaison with statutory authorities
- Communication with the community and external stakeholders
- Ensuring the project fits with the Site's SHES procedures, objectives, etc.
- Assisting in the implementation of relevant mitigation measures detailed in the CEMP
- Providing specialist advice in relation to issues associated with construction

4.2.3. Project Lead

- Delivery of the agreed project objectives of the project
- Compliance with Orica Investment Practice and Procedures
- Integration of the project with other Site projects
- Representing the project at the steering committee.
- Planning, organisation and management of the activities of the project team
- Ensure that Appropriate environmental requirements form part of any tendering and contract documentation and that all contractors understand and comply with these requirements
- Ensure the Orica SHES Management System is implemented during all phases of projects including construction, commissioning and start up
- Managing the development and implementation of environmental requirements detailed in the CEMP and its associated plans
- Ensuring adequate resources are available to manage environmental issues
- Reviewing environmental performance of construction activities against projects targets
- Initiating reviews of any plan if monitoring identifies an opportunity for improvement
- Ensuring the commissioning management and implementation teams understand and comply with the requirements of the CEMP
- Auditing contractor SHES plans.

4.2.4. Construction Supervisors

Construction Supervisors are accountable for the conduct of all work activities under their control, and for ensuring that all work is carried out in accordance with approved procedures and work practices.

They are also responsible for ensuring:

- Initiatives such as Job Safety Environment Risk Assessment's (JSERA's), Unsafe Act Prevention (UAP's) and Job Start Meetings are maintained
- All work activities under their control are carried out in accordance with the CEMP requirements
- Implementation of relevant mitigation measures detailed in the CEMP
- Advising the site's SHES Representative of any requirements to update the CEMP

4.2.5. General Responsibilities - All Employees and Contractors

All personnel working on the site have a responsibility to consider the environment at all times. More specifically all personnel associated with any works undertaken on site are required to:

- Comply with relevant statutory requirements;
- Comply with the requirements of the Permit to Work and the associated JSERA;
- Comply with the relevant requirements of this plan;
- Comply with environmental requirements detailed in the General Site Induction and any other specific construction inductions;
- Report to their immediate supervisor any incident, injury, near miss or opportunity for improvement which arises in the course of, or in connection with, their work; and
- Ensure that the environmental and housekeeping standards are maintained.

5. ENVIRONMENTAL ASPECTS AND IMPACTS

Table 3 provides a summary of the environmental aspects and potential impacts that have been considered in the development of this CEMP.

Section 6 of this CEMP contains the control measures for each environmental aspect to reduce the risk of environmental impacts occurring due to the remediation work.

Table 3 - Environmental Aspects and Potential Impacts

Aspect	Potential Sources and Impact
Dust	<p>Potential sources of dust include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Excavation and backfilling for the rerouting of underground services <input type="checkbox"/> Construction equipment movements on unsealed area <input type="checkbox"/> Spoil management <input type="checkbox"/> Removal of soil <input type="checkbox"/> Reinstatement of area at completion of works <p>Dust generation is expected to be low as the soils on the site are predominantly sandy.</p> <p>The edge of the work area is expected to be as close as 100m to the Facility boundary and site offices.</p> <p>Measures will be put in place to manage dust</p>
Surface water	<p>Potential sources of surface water impacts include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Rainfall/stormwater <input type="checkbox"/> Construction water <input type="checkbox"/> Spills <input type="checkbox"/> Extraction from Excavation <input type="checkbox"/> Dust mitigation <input type="checkbox"/> Sediment <input type="checkbox"/> Concrete truck chute washdown <p>The works will be managed to prevent sediment and any liquids or other substances associated with the works other than clean rainwater from the construction site entering the stormwater systems.</p> <p>Consideration into surface water flow will be included in the arrangement and grade of working pads for the construction activities.</p> <p>No bulk liquids will be stored or generated. Fuels, oils and other liquids will be present in vehicles and equipment in small quantities only. Measures will be put in place to manage construction water, slurry and spills.</p> <p>There is the potential for sediment from the excavations, trenching and construction works to be transported to stormwater via slurry spills, vehicular tracking, wind or rain. Measures will be put in place to minimise the potential for sediment generation and transport.</p>
Groundwater	<p>The water table on site may be within 1.5m below ground level, however this will be subject to the weather conditions at the time.</p> <p>Potential sources of groundwater impacts include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Extraction from Excavation <input type="checkbox"/> Civil works and piling <input type="checkbox"/> Low pH groundwater <input type="checkbox"/> High rainfall events <p>All excavations are expected to be above the normal water table.</p>
Noise	<p>Potential sources of noise impacts include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Plant operation <input type="checkbox"/> Delivery and personnel vehicles <input type="checkbox"/> Excavation and Construction equipment, including reversing alarms <input type="checkbox"/> Pile Driving

Aspect	Potential Sources and Impact
	<ul style="list-style-type: none"> <input type="checkbox"/> Construction activities <p>Operation of excavation equipment and vehicles is not likely to increase the background noise by a measurable amount.</p> <p>Measures will be put in place to respond to noise complaints.</p>
Vibration	<p>Potential sources of noise impacts include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Piling Works <input type="checkbox"/> Compacting works <p>The effects are expected to be localized and have been utilised in the area previously with measures in place to manage.</p>
Solid waste	<p>Potential sources of solid waste include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Carbon and Stainless Steel <input type="checkbox"/> Soil <input type="checkbox"/> Asbestos contaminated material (not anticipated) <input type="checkbox"/> Geomesh (not anticipated) <input type="checkbox"/> Used personal protective equipment (PPE) <input type="checkbox"/> Used plastic sheeting from temporary soil covering, if required <input type="checkbox"/> Uncontaminated packaging waste. <input type="checkbox"/> Concrete truck chute washdown <p>Measures will be put in place to minimise waste generation, to securely store wastes and transport and dispose of wastes correctly.</p>
Liquid waste	<p>Potential sources of liquid waste impacts include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hydrovac excavations <input type="checkbox"/> Extraction from excavation <p>Measures will be put in place to minimise liquid waste generation, to securely store wastes and transport and dispose of wastes correctly</p>
Heritage	<p>Aboriginal: Assessment of the proposed works using the <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i> (Department of Environment, Climate Change and Water NSW 2010) indicates that the likelihood of encountering Aboriginal objects is low due to the long history of site disturbance and industrial use. Nonetheless all excavation works will be conducted so that appropriate action is taken should Aboriginal objects be encountered (Section 6).</p> <p>Non-Aboriginal: Due to the industrial nature of the site, no heritage items are expected to be uncovered during remediation.</p>
Traffic	<p>Potential sources of traffic impacts include, but are not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Deliveries of large equipment during mobilization and demobilization <input type="checkbox"/> Deliveries of construction materials <input type="checkbox"/> Light vehicles <input type="checkbox"/> Crane and construction equipment movements <input type="checkbox"/> Elevated work platforms <input type="checkbox"/> Personnel movements <p>The above should not be disruptive and no special provisions are envisaged.</p> <p>The construction work will not have any noticeable impact on traffic outside the Site.</p>
Flora and Fauna	<p>No Flora or Fauna are expected to be impacted by the construction works.</p> <p>Management measures for Fauna will be observed.</p>

6. CONTROL MEASURES

6.1. REPORTING AND RECORDS

This Construction Environmental Management Plan contains checklists that will be completed to demonstrate that the control measures are being adopted as appropriate. These are contained in **Appendix 1** and listed here:

- Investigation / action record
- Compliance Checklists
- Record of EMP compliance
- Training record.

The Project Manager may arrange audits to confirm work is being conducted in compliance with the control measures set out in this Plan.

6.2. AIR QUALITY

6.2.1. Objective

Whilst undertaking construction activities there is a greater potential to generate airborne emissions including dust, odour and vehicle emissions that can impact on the local amenity of the site. When undertaking excavation, demolition, transportation and stockpiling, air quality mitigation controls should be implemented prior to undertaking the work.

6.2.2. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
<p>Contingencies in event of Dust Generation</p> <p>The construction team will monitor weather forecasts and site conditions to proactively manage the potential for dust generation.</p> <p>In the event of excessive dust generation is observed or anticipated, the following measures are to be implemented, including where appropriate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Increased use of water sprays. <input type="checkbox"/> Reduction of speed on roads. <input type="checkbox"/> Halting of work in the area generating the dust until effective dust control measures can be applied 	<p>Construction Supervisor</p>
<p>On-site Dust Suppression Measures</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where required, water shall be applied through the use of water carts, sprays, sprinkler systems or similar, to reduce dust from stockpiles, roads or work area. <ul style="list-style-type: none"> ▪ The water spraying equipment shall be available at all times and regularly maintained to enable dust control when required. <input type="checkbox"/> Water use for dust suppression shall not create run-off that could enter surface water bodies or drains. <input type="checkbox"/> Where practicable, construction vehicle traffic will use existing sealed roads at all times. <input type="checkbox"/> Disturbed areas will be: <ul style="list-style-type: none"> ▪ Minimised during construction at all times. ▪ Sealed or revegetated as soon as practicable to minimise dust generation. <input type="checkbox"/> Excavation/fill works will only be undertaken during periods of low wind speed 	<p>Construction Supervisor</p>
<p>Stockpiles</p>	<p>Project Manager,</p>

Environmental Management Control/Mitigation Measures	Responsibility
<ul style="list-style-type: none"> <input type="checkbox"/> Stockpile location/s will be planned to minimise the number of potentially affected areas and in accordance with the measures outlined in Section 6.5 for the management of contaminated land. <input type="checkbox"/> Stockpiles will be managed to minimise dust generation, including water spraying, covering or temporary seeding as necessary. <input type="checkbox"/> Stockpiles shall be appropriated shaped to minimise the potential for wind erosion. <input type="checkbox"/> The duration for which stockpiles are to be located on the site should be minimised. 	<p>Construction Supervisor,</p>
<p>Vehicle Management</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where possible, construction vehicle traffic will use existing sealed roads or dust suppression measures will be implemented. <input type="checkbox"/> Loads will be covered when transporting material off-site. <input type="checkbox"/> Where there is material build-up, trucks associated with the project will wash down tyres prior to leaving site. <input type="checkbox"/> Speed restrictions to be limited to 15km/h on site, and 5km/h near control rooms. <input type="checkbox"/> Vehicles will be inspected prior to exiting the site to ensure they have been covered. <input type="checkbox"/> Should any vehicle or equipment be observed to be exhausting visible smoke for more than 10 seconds continuously it will be shut down until appropriate maintenance and repairs are conducted. <input type="checkbox"/> All construction vehicles and machinery will be operated and maintained in accordance with the manufacturers' guidelines in relation to exhaust emissions. 	<p>Construction Supervisor, Security Personnel, Environmental Representative</p>
<p>Asbestos Dust Management <i>(if identified)</i></p> <p>Use of a licensed asbestos removal contractor operating under an approved asbestos management plan including compliant SWMS which includes, but is not limited to the following controls:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Appropriate PPE <input type="checkbox"/> Occupational monitoring to be undertaken to ensure that asbestos levels are not elevated. <ul style="list-style-type: none"> ▪ E.g. Control air sampling – using a static, or fixed position, sampler to measure the airborne fibre concentration in an area. <input type="checkbox"/> Occupational hygiene measures and facilities to be in place to ensure hand washing occurs where appropriate <ul style="list-style-type: none"> ▪ E.g. before meal breaks, smoking etc. <input type="checkbox"/> All material captured will be disposed of in accordance with the waste classification guidelines <input type="checkbox"/> Review the adequacy of Construction Environmental Management Sub-Plan/s submitted by construction contractor/s. <input type="checkbox"/> Audit and document compliance with construction contractor Construction Environmental Management Sub-Plan/s. 	<p>Project Manager Construction Supervisor, Environmental Representative SHES Representative</p>

6.3. WATER

6.3.1. Objective

Whilst undertaking construction activities, there is a greater potential to impact the site's water quality. Water sources can be contaminated from accidental spills and poor construction management practices. Throughout construction, it is important that works maintain the environmental standard to minimise potential cross contamination of construction areas and receiving water bodies.

6.3.2. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
<p>Dewatering Management <i>(Dewatering is not anticipated to be required)</i></p> <p>All extracted groundwater is required to be laboratory tested and disposed of appropriately depending on groundwater quality</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where necessary a licence from the NSW Office of Water, under Part 5 of the Water Management Act 2000, shall be obtained for work involving groundwater extraction. <input type="checkbox"/> All excavation pump-out water shall be analysed periodically during the pump-out. Analytes should include suspended solids, pH, ammonium (NH₄⁺), nitrates (NO₃⁻), phosphate and heavy metals including but not limited to arsenic, chromium and zinc, <input type="checkbox"/> A dewatering plan will be developed based on the results of the pre-construction testing. The plan will be developed for each excavation requiring dewatering to identify the approach to be implemented to manage the groundwater. <input type="checkbox"/> Options for extracted water disposal include <ul style="list-style-type: none"> ▪ Discharge to the site effluent system if the water quality meets the requirements of the EPL and any associated regulatory requirements, ▪ Offsite disposal by a licensed liquid waste transporter for treatment/disposal at an appropriate waste treatment / processing facility. ▪ Extracted water disposal method requires approval from site environmental representative prior to commencement of dewatering 	<p>Project Manager Construction Supervisor, Environmental Representative</p>
<p>Stormwater Management</p> <ul style="list-style-type: none"> <input type="checkbox"/> The location of existing stormwater drains located in the facility of project work areas should be identified prior to undertaking any construction works. <input type="checkbox"/> Stormwater drains should be clear of debris and sediment prior to commencing construction activities. If construction activities are being undertaken in close proximity to stormwater drains, erosion and sediment controls should be installed prior to commencing the work. <input type="checkbox"/> Stormwater quality from a construction area should be monitored during discharge <p>In the event of identification of contaminants in stormwater discharge during the works the site's stormwater isolation valves will be closed to prevent the stormwater from discharging to the river. All work is to cease and an investigation undertaken to identify the material and any actions required to address the issue.</p>	<p>Project Manager Construction Supervisor, Environmental Representative</p>
<p>Surface Water Protection</p> <ul style="list-style-type: none"> <input type="checkbox"/> Store and mix bulk products inside the construction zone <input type="checkbox"/> Deploy and maintain sediment controls (such as sediment fence sausages, drain protection, etc.) at low points around the perimeter of the work site and at drains that could be vulnerable to sediment runoff. <input type="checkbox"/> Store all liquids (fuels, oils, contaminated wash water) within sealed, secondary containment areas. 	<p>Project Manager, Construction Supervisor,</p>
<p>Spills</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide, and keep stocked, spill kits suitable for sediment laden water and hydrocarbons. <input type="checkbox"/> Train staff and contractors in spill prevention and management measures including: <ul style="list-style-type: none"> ▪ types of spills possible for this work ▪ measures for preventing spills ▪ location and use of spill kits ▪ documenting spills and near misses. 	<p>Project Manager, Environmental Representative</p>

Environmental Management Control/Mitigation Measures	Responsibility
<p>Site Effluent Management</p> <ul style="list-style-type: none"> <input type="checkbox"/> No wash-down, construction process water or equipment decontamination liquor will be discharged into the site's effluent system without the approval of a site environmental representative. <input type="checkbox"/> Excavation pump-out water is only permitted to be discharged to the site's effluent system if the water quality meets the requirements of the EPL. Approval from site environment representative and operations personnel is required prior to undertaking the task. 	<p>Project Manager, Construction Supervisor, Environmental Representative</p>
<p>Contractor management</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review the adequacy of Construction Environmental Management Sub-Plan/s submitted by construction contractor/s. <input type="checkbox"/> Audit and document compliance with construction contractor Construction Environmental Management Sub-Plan/s. 	<p>Project Manager Environmental Representative</p>
<p>Concrete Truck Washdown Bund</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bunds shall be plastic lined to prevent water leakage to ground <input type="checkbox"/> Water volumes to be minimal and left to evaporate <input type="checkbox"/> Should the bund accumulate volumes risking LOC (i.e. due to rainfall events), water shall be removed via vac-truck or other method approved by the Environmental Representative. <input type="checkbox"/> The bund shall be inspected at regular intervals, and remediated / cleaned as necessary to ensure appropriate containment of contents. <input type="checkbox"/> The bund shall not be used for purposes other than the concrete truck washdown. 	<p>Project Manager Construction Supervisor, Environmental Representative</p>

If required, sediment fences should be constructed using heavy duty geotextile. If freestanding, they should be installed in a manner similar to **Figure 7** below.

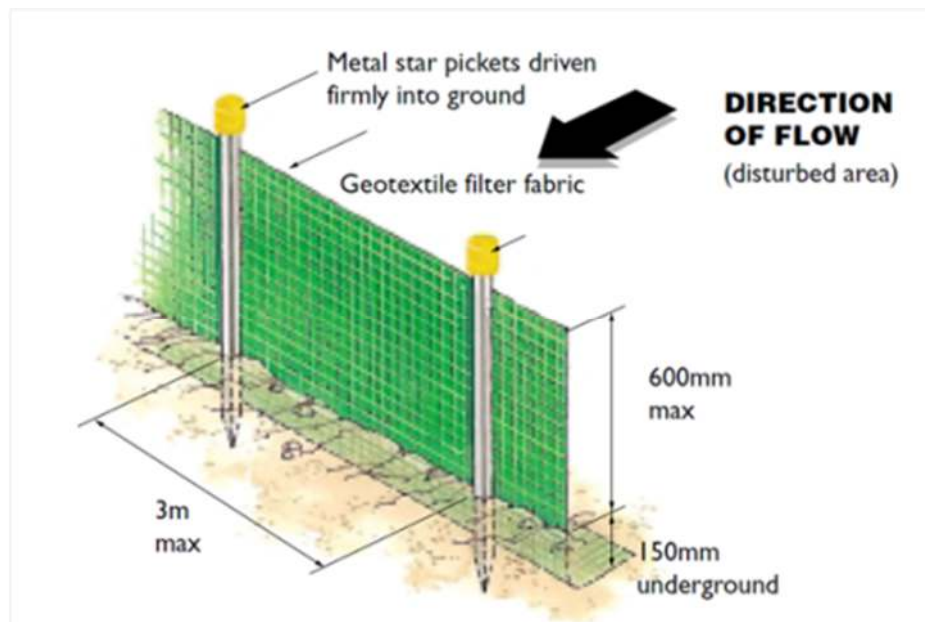


Figure 7 - Typical sediment fence configuration

Source: Southern Sydney Regional Organisation of Councils Fact Sheet 14: Sediment Controls

6.4. NOISE AND VIBRATION

6.4.1. Objective

Whilst undertaking construction activities it is important that they do not cause any potential noise impacts on nearby work areas or within the community. Workers need to make all reasonable efforts to minimise noise such as limiting construction works to the appropriate construction hours and by promoting good work practices.

Furthermore, the site includes a number of vibration-sensitive equipment that may trip in excessive vibration. Workers are required to make all reasonable efforts to minimise the practices inducing high levels of vibration.

6.4.2. Construction Times

Project personnel are restricted to operate within the days and times shown below in **Table 4**.

Table 4 Construction and Operation Times

Activity	Day	Time
Construction	Monday-Friday	7:00am to 6:00pm
	Saturday	8:00am to 1:00pm
	Sunday and Public Holidays	Nil
Operation	All days	24 hours

(Source: Project Approval, Orica Ammonium Nitrate Expansion Project. NSW Government Department of Planning 2014)

Construction works outside of the work hours identified in the table above may be undertaken in the following circumstances (taken from the Project Approval Development Consent).

- Works (excluding piling) generating airborne noise that is inaudible at any residence beyond the accordance with the Interim Construction Noise Guideline;
- Works that are consistent with the Proponent’s existing maintenance procedures and are in accordance with the existing EPL;
- For the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons;
- Where it is required in an emergency to avoid the loss of life, property and/or to prevent environmental harm; or,
- Exceptional circumstances with the written agreement of the Secretary.

6.4.3. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
<p>Construction Noise Management</p> <ul style="list-style-type: none"> <input type="checkbox"/> All construction vehicles and machinery fitted with manufacturer supplied noise suppression devices will be operated and maintained in accordance with the manufacturers’ guidelines. <input type="checkbox"/> Community liaison phone number and permanent site contacts available via existing site community line so that noise and/or vibration related complaints, if any, can be received and addressed in a timely manner. <input type="checkbox"/> Work methods will be reviewed with a preference for quieter and non-vibration generating methods, particularly when planning any for any out-of-hours and night-time activities. 	<p>Project Manager Construction Supervisor, Environmental Representative</p>

Environmental Management Control/Mitigation Measures	Responsibility
<ul style="list-style-type: none"> <input type="checkbox"/> When selecting plant and equipment low noise rated equipment will be investigated for use where practicable. <input type="checkbox"/> Restrict levels of reversing alarms and audible warning devices. <input type="checkbox"/> Orica's complaint management procedure will be used in the event of a noise and/or vibration complaint. The complaint will be recorded, investigated and where required corrective actions implemented. <input type="checkbox"/> Where possible, no plant or equipment will be left idling. <input type="checkbox"/> Should evidence of excessive noise be identified then targeted monitoring may be recommended to identify the source/s of the offensive noise and the management measures would be reviewed to include any additional noise mitigation measures required. <ul style="list-style-type: none"> ▪ Where required or requested, noise monitoring will be undertaken upon receipt of a noise complaint. The results of any monitoring will be recorded. ▪ As part of the Communication Strategy, neighbours will be provided with details of the construction works and a phone number to call should they experience noise or vibration impacts. 	
<p>Construction Hours Management</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where practicable, all typically noisy construction activities will be kept within the daytime working hours (Monday to midday Saturday). <input type="checkbox"/> Where work outside approved construction hours, which could be audible at any residence, is undertaken a noise assessment will be completed and a plan developed to manage the works, including notification of potentially affected residents and monitoring where required. <input type="checkbox"/> Work methods will be reviewed with a preference for quieter and non-vibration generating methods, particularly when planning for any out-of-hours or night-time activities. 	<p>Project Manager Construction Supervisor, Environmental Representative</p>

6.5. SOIL AND SOLID WASTE

6.5.1. Objective

Whilst undertaking construction activities it is important that impact on the receiving environment is minimised. This includes ensuring that the appropriate erosion and sediment controls are implemented and that any contaminated soils are managed. In addition, it is important that impact on the receiving environment is minimised through the appropriate management of waste, including chemical waste which needs to be handled separately to general waste and stored correctly.

6.5.2. Potential Solid Wastes

Appendix 2 contains a listing of potential solid wastes that will be generated by the project.

6.5.3. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
<p>Management of Waste Soil</p> <ul style="list-style-type: none"> <input type="checkbox"/> Excavated material is tested and classified to determine its suitability for reuse onsite. All material not suitable for reuse onsite must be disposed of to a licensed facility offsite. Wherever practicable materials would be reused onsite. <input type="checkbox"/> Soil and/or rock material proposed to be re-used on site in areas where it was not originally excavated from are to be tested to determine whether it is suitable for the proposed land use. The potential contaminants of concern are to be 	<p>Project Manager Environmental Representative</p>

Environmental Management Control/Mitigation Measures	Responsibility
<p>determined following a review of land use activities in the area. (Consult with SHES team)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where soil wastes are to be removed from site, they shall be classified for waste disposal purposes in accordance with the NSW EPA Waste Classification Guidelines, 2014 (NSW EPA, 2014), and disposed in accordance with the requirements of the Protection of the Environment Operations (Waste) Regulation 2014. <input type="checkbox"/> The material selected for permanent stockpiling on site must not exceed 50mm particle size in any dimension. 30mm is preferred. 	
<p>Stockpile Management</p> <ul style="list-style-type: none"> <input type="checkbox"/> Refer Project Stockpile Management Plan <input type="checkbox"/> All stockpiles of soil or other materials shall be placed away from drainage lines, gutters or stormwater pits or inlets. <input type="checkbox"/> Where required, controls shall be implemented to minimise the potential for erosion or sedimentation of the stockpiles, including covering of stockpiles or use of sediment fences <input type="checkbox"/> Stockpiles of any contaminated soils shall be placed on a sealed area or similar impermeable material (eg. plastic) with appropriate controls as above implemented to minimise the potential for erosion or sedimentation. 	<p>Project Manager Construction Supervisor, Environmental Representative</p>
<p>Contaminated Soil Management <i>(Note - no known contamination in project area)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> In the event of identification of previously unidentified types of contaminants or waste materials during the works all work is to cease and an investigation undertaken to identify the material and any actions required to address the issue. <input type="checkbox"/> All work is to cease and the Project Manager, Construction Supervisor and Project Environment Representative would all be notified. <input type="checkbox"/> In the event that potentially contaminated soil is identified a management plan will be developed to ensure that the material is managed in accordance with regulatory requirements. <input type="checkbox"/> The management plan should consider the following control measures; <input type="checkbox"/> The construction area (excavation and stockpile zones) to be secured and appropriately defined and controlled to manage access to the work area or stockpiles. <input type="checkbox"/> Access arrangements to the work area shall be identified and shall include a specific induction/ equivalent briefing, on any specific access requirements. <input type="checkbox"/> A review of erosion and sediment control measures, as identified in the Erosion and Sediment Control Plan prior to the commencement of excavations in the given area. <input type="checkbox"/> Measures to ensure that all excavation works are carried out in a manner that minimises the mixing of different material types, i.e. contaminated fill and “clean” underlying natural soils. <input type="checkbox"/> Potentially contaminated material shall be segregated and stockpiled separately. <input type="checkbox"/> Removal of any in-ground or underground structures should be undertaken in conjunction with, or following excavation of contaminated soil, to avoid potentially mixing contaminated and uncontaminated materials. In addition removal of these structures may reveal additional areas of contamination requiring remediation. <input type="checkbox"/> Upon completion of the excavation the plant and equipment shall be cleaned and decontaminated <input type="checkbox"/> All stockpiles shall be sampled and analysed for potential contaminants of concern which may include nitrate/nitrite, ammonia, total petroleum hydrocarbons (TPH), heavy metals (As, Cd, Cr, Cu Ni, Pb, Zn). Sampling and analysis shall be undertaken in accordance with the EPA Sampling Design Guidelines (EPA 1995) and NEPM 1999. Sampling will generally be at a rate of one sample per 25 m³, or a minimum of 3 samples per “batch” of material. 	<p>Project Manager Construction Supervisor, Environmental Representative</p>

Environmental Management Control/Mitigation Measures	Responsibility
<p>Importation of Fill</p> <ul style="list-style-type: none"> <input type="checkbox"/> All fill material required to be imported on to the site shall be assessed, classified and managed in accordance with the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (<i>NSW EPA 2014</i>) for virgin excavated natural material. <input type="checkbox"/> Imported fill should be accompanied by documentation from the supplier which certifies that the material is not contaminated based upon analyses of the material or the known past history of the site where the material is obtained. <input type="checkbox"/> The Sampling and analysis of fill material should be in accordance with the EPA <i>Sampling Design Guidelines</i> (1995) to ensure that the material is not contaminated, with samples analysed for chemicals of concern based on the previous site usage / site history of the source site. 	<p>Project Manager, Construction Supervisor, Environmental Representative</p>
<p>Hazardous Materials</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hazardous wastes arising from the construction works shall be removed and disposed of in accordance with the regulatory requirements 	<p>Project Manager, Construction Supervisor, Environmental Representative</p>
<p>Potential Acid Sulfate Soil (PASS) acid water treatment and management <i>(Note – No PASS in the project area)</i></p> <p>Optional where the Site has not already conducted similar surveys in the area historically and established soil PASS characteristics</p> <ul style="list-style-type: none"> <input type="checkbox"/> Prior to construction a soil sampling program will be employed to assist in characterising the potential extent and severity of ASS at the Site in accordance with the ASSMAC guidelines (1998). <input type="checkbox"/> A management plan, including a contingency plan shall be developed if the preliminary investigation or assessment during excavation identifies the presence of PASS that acid sulphate soils are potentially present in the work area. The requirements for the plan include: <ul style="list-style-type: none"> ▪ Securing site access to only approved persons ▪ Personnel working in the designated area have been properly inducted regarding PASS and its management ▪ Keep accurate records of inducted personal and personal accessing the site <input type="checkbox"/> Details of proposed acid soil and water treatments and proposed lime dosing rates to neutralise acids and stockpiles methods including: <ul style="list-style-type: none"> ▪ Placing the stockpile on an impervious surface. ▪ Establishing diversion banks upslope to prevent run-off water. ▪ Stockpile liming areas should be appropriately bunded with non-acidic soils to prevent the migration of leachate and stormwater runoff. ▪ Establishing catch drains down slope to capture any runoff water. ▪ Establishing basin or enclosed storage tank to ensure all potentially contaminated water is contained. ▪ Pumping water that has accumulated at the bottom of excavations to an adjacent basin or enclosed storage tanks and treating with hydrated lime (or equivalent) prior to release back to the water table. ▪ The pH, EC and turbidity of all runoff and leachate water collected from the stockpiles and excavation areas shall be monitored. Water will be treated, where required, to achieve acceptable water quality before being released. 	<p>Project Manager Construction Supervisor, Environmental Representative</p>

Environmental Management Control/Mitigation Measures	Responsibility
<ul style="list-style-type: none"> ▪ If the quality of water collected from excavations or dewatering spears is within the required water quality parameters set for discharge, this water can be released without the need for treatment or storage. ▪ A monitoring program would be put in place for the monitoring of PASS and water or leachate generated from PASS. ▪ Measures for the appropriate handling and management of lime in accordance with Safety Data Sheet and product requirements. ▪ A contingency plan shall be prepared that includes remedial actions to be implemented in the event that monitoring indicates management measures are not meeting performance requirements and includes measures for restoration of areas if soil or waters become impacted by acid. 	
<p>Recyclable and waste materials</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recycling of solid and liquid waste materials shall be undertaken where possible <input type="checkbox"/> Classification of all non-recyclable wastes in accordance with EPA Waste Classification Guidelines and disposed to approved waste disposal facilities by licensed contractors <input type="checkbox"/> Monitoring of recycling and waste disposal systems to assess the overall effectiveness of the plan shall be undertaken during the project activities <input type="checkbox"/> Demolition waste materials are to be recycled and/or reused on site, or transported to an approved recycling or waste management facility, as appropriate <input type="checkbox"/> Construction materials shall be sourced and ordered in appropriate quantities to avoid the creation of excess waste <input type="checkbox"/> Suitable waste bins/receptacles shall be provided throughout the work site to capture all waste/recycling streams <input type="checkbox"/> Waste shall be transported from the site when storage facilities are filled. The waste storage area shall be kept tidy and well maintained 	<p>Project Manager Construction Supervisor, Environmental Representative</p>
<p>Waste Disposal</p> <ul style="list-style-type: none"> <input type="checkbox"/> Disposal of materials shall be undertaken by licensed contractors and materials taken to an approved waste disposal / recycling facilities. 	<p>Project Manager Construction Supervisor,</p>
<p>Waste Transport</p> <ul style="list-style-type: none"> <input type="checkbox"/> Wastes shall only be removed for off-site treatment or disposal after the material has been classified. Written approval shall be required from the receiving facility for the disposal of any contaminated soil at the nominated treatment or disposal site and is to be provided by the site waste contractor. <input type="checkbox"/> Waste tracking shall be undertaken in accordance with NSW EPA requirements (under the requirements of the POEO Act 1997), ie. where any waste is transported offsite, a copy of the waste depot's weight-bridge docket (and corresponding EPA docket - if relevant) for each load delivered shall be retained by the Construction Supervisor. <input type="checkbox"/> Where any contaminated material is transported offsite test records and precise quantities must be kept together with all other waste transport tracking records. <input type="checkbox"/> Any vehicles used to transport contaminated materials from the site must be operated by a waste transporter who is licensed in accordance with NSW EPA licensing requirements for the class of waste transported. <input type="checkbox"/> Where necessary drivers transporting contaminated materials from the site shall be given a safety instruction brief, detailing the procedures to be followed should spillage of loads or other incidents occur. 	<p>Project Manager Construction Supervisor,</p>
<p>Concrete Truck Washdown Bund</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bunds shall be plastic lined to prevent contents leaving the designated area. <input type="checkbox"/> Waste volumes are to be minimised, and restricted to concrete chute washdown volumes. <input type="checkbox"/> Concrete waste shall be left to set prior to removal 	<p>Project Manager Construction Supervisor,</p>

Environmental Management Control/Mitigation Measures	Responsibility
<input type="checkbox"/> The bund shall be inspected at regular intervals, and remediated / cleaned as necessary to ensure appropriate containment of contents. This includes the removal of plastic liner and concrete contents, with the liner replaced to reinstate the bund.	Environmental Representative

6.6. LIQUID WASTE

6.6.1. Objective

Whilst undertaking construction activities it is important that impact on the receiving environment is minimised. This includes ensuring the appropriate management of liquid waste, including chemical waste.

6.6.2. Potential Liquid Wastes

Appendix 2 contains a listing of potential liquid wastes that will be generated by the project.

6.6.3. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
<p>Chemical Storage and Spills</p> <ul style="list-style-type: none"> <input type="checkbox"/> SDS's for all chemicals utilised on the relevant construction stages of the project shall be reviewed and approved prior to being brought onsite in accordance with the site procedure for chemical assessment. A copy of the SDS will be retained in the project SDS Register and/or the online system ChemAlert <input type="checkbox"/> Approved chemicals will be stored within a labelled bunded area in accordance with the requirements of the Storing and Handling Liquids: Environment Protection Participant's Manual (DECC, 2007), the product's Safety Data Sheet and any relevant OH&S requirements <input type="checkbox"/> Each project should have access to an appropriately sized spill kit for emergency spills of fuel, oil and other chemicals. The location of spill kits should be communicated to the construction team. 	Project Manager Construction Supervisor
<p>Demolition and Equipment Decontamination Management</p> <ul style="list-style-type: none"> <input type="checkbox"/> Decontamination is required when process equipment (eg. process pipes) is removed from process areas for modification, storage, transport, sale or disposal. <input type="checkbox"/> These items should be identified prior to works commencing <input type="checkbox"/> Prior to removal from a plant, each item of equipment must be assessed for potential contamination. The site decontamination procedure is to be used for all assessments and management of equipment requiring decontamination. <input type="checkbox"/> The decontamination process is to consider: <ul style="list-style-type: none"> ▪ Disposal of waste generated during the decontamination process. For example wash water collected in temporary bunds during water blasting. ▪ Location where the decontamination is to be undertaken and its suitability in preventing land or water contamination. Approval from relevant operations personnel is required prior to use of the area for decontamination activities. 	Project Manager Construction Supervisor, Environmental Representative

6.7. HERITAGE PROTECTION

6.7.1. Objective

To prevent the construction works from having a negative impact on any heritage items.

6.7.2. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
<p>Aboriginal Heritage:</p> <p><i>(Note - There are no known Aboriginal Heritage Items in the project area so these controls form an unexpected finds protocol)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> In the event that heritage items are identified the following activities will be undertaken <ul style="list-style-type: none"> ▪ No further material will be removed from the area and work in the vicinity of the find shall promptly cease ▪ Temporary fencing or similar will be installed to mark the location of the artefact/ site ▪ Appropriate signage would be installed to ensure that inadvertent impacts do not occur ▪ All relevant personnel would be made aware of the location of the artefact/ site ▪ As soon as practicable, the finds shall be reported to the OEH (NSW Office of Environment and Heritage (ph 131 555) and advice sought as to the appropriate course of action. ▪ A qualified archaeologist will be engaged to ensure that the heritage item(s) are managed in accordance with OEH and Aboriginal stakeholder requirements <input type="checkbox"/> The relevant procedures and safeguards will be included in a site construction induction or similar with contractors to ensure they are aware of their responsibilities in identifying of any items of aboriginal heritage significance and adhering to procedures of the management of these items. <input type="checkbox"/> Upon identification of any previously unrecorded Aboriginal heritage evidence, including Aboriginal sites or objects (other than skeletal), all work in the immediate vicinity shall immediately cease and the Orica Construction Supervisor and Contractor Supervisor and Project Manager are notified immediately. <input type="checkbox"/> Should any skeletal remains be detected during the course of construction, work in that location shall cease immediately and the finds would be reported to the appropriate authorities, including NSW Police, OEH and Local Aboriginal Land Council (LALC). <input type="checkbox"/> Orica will facilitate, in cooperation with the Police, LALC and OEH, the identification of the skeletal remains by an appropriately qualified person. 	<p>Project Manager Construction Supervisor, Environmental Representative</p>
<p>Non-Aboriginal Heritage:</p> <p><i>(Note - There are no known Non-Aboriginal Heritage Items in the project area so these controls form an unexpected finds protocol)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> The relevant procedures and safeguards will be included in a site construction induction or similar with contractors to ensure they are aware of their responsibilities in identifying of any items of heritage significance and adhering to procedures for the management of these items. <input type="checkbox"/> Should any previously unrecorded non-Aboriginal heritage items be detected during construction, the following activities will be undertaken: <ul style="list-style-type: none"> ▪ Work in the immediate vicinity of the find shall promptly cease ▪ As soon as practicable, the find will be reported to the NSW Heritage Office/ Department of Planning (Heritage Branch) ph: 9873 8500 ▪ A qualified archaeologist will be engaged to ensure that the heritage item(s) are managed in accordance with Department of Planning (Heritage Branch) 	<p>Construction Supervisor, Environmental Representative</p>

Environmental Management Control/Mitigation Measures	Responsibility
<ul style="list-style-type: none"> ▪ Works in the vicinity shall only continue following consultation with Heritage Branch and the implementation of required actions and approvals 	

6.8. TRAFFIC MANAGEMENT

6.8.1. Objective

To minimise disruption and impact to the environment due to vehicular movements that are related to the construction works.

6.8.2. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
<p>Construction Vehicle access</p> <ul style="list-style-type: none"> <input type="checkbox"/> A work activity traffic management plan and risk assessment shall be prepared for key activities associated with the project to ensure that traffic both offsite and onsite is managed to ensure appropriate management of vehicles associated with construction work <input type="checkbox"/> Port of Newcastle and adjacent affected neighbours who utilise Kooragang Island shall be advised of the proposed significant construction traffic periods during the development of the traffic management plan. Confirmation of the timing of the activities shall occur prior to the commencement of the activities. 	Project Manager Construction Supervisor
<p>Heavy and oversize vehicles</p> <ul style="list-style-type: none"> <input type="checkbox"/> A work activity traffic management plan and risk assessment shall be prepared for oversize and/or overweight loads <input type="checkbox"/> The plan shall be prepared in accordance with RMS requirements and RMS approval shall be obtained prior to the loads being transported <input type="checkbox"/> Consultation with Port of Newcastle and adjacent affected neighbours who utilise Kooragang Island shall be undertaken <input type="checkbox"/> All oversized and special loads will travel along approved routes only in accordance with the RMS approval. 	Project Manager Construction Supervisor SHES Representative
<p>Internal Traffic Routes</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where construction activities will require modification to the existing traffic routes, such as blocking of roads, a risks shall be assessed to ensure that appropriate controls are implemented to minimise risk and identify any environmental risks <input type="checkbox"/> The existing site processes for the control of change (Plant Modification Process) shall be used to assess the proposed changes 	Project Manager SHES Representative
<p>Emergencies and incidents</p> <ul style="list-style-type: none"> <input type="checkbox"/> Access to Gates 1, 2, 3, or 6 could be required in the event of an emergency and access to these gates shall be maintained during the construction period. <input type="checkbox"/> If access to one of these gates is restricted then a risk assessment will be undertaken to identify any controls required to ensure emergency access to the site is maintained. <input type="checkbox"/> The Plant Modification Process and site risk assessment systems will be used to assess the proposed change to documents such as the site Emergency Response Plan. 	Project Manager Construction Supervisor, SHES Representative

6.9. FLORA AND FAUNA

6.9.1. Objective

Construction works can result in the spread of weeds, dependent on the type of weeds present on site, and the activities being undertaken. Appropriate weed management and disposal minimises the risk of spreading weeds to surrounding areas.

Furthermore, the construction works should not have a negative impact on fauna.

6.9.2. Proposed Controls and Responsibilities

Environmental Management Control/Mitigation Measures	Responsibility
Tree Removal <i>(No trees exist in the project footprint)</i> <ul style="list-style-type: none"> <input type="checkbox"/> Where existing trees which are to remain are located in the construction areas, they shall be protected with fencing or similar to define “No go” areas under the drip zone of the canopy of the trees <input type="checkbox"/> No stockpiling of material is to occur in the no go zone defining the drip zone of trees <input type="checkbox"/> An arborist shall be present onsite during the removal of council nominated significant trees to ensure appropriate management. <input type="checkbox"/> No trees shall be removed unless council approval is granted 	Project Manager Construction Supervisor, Environmental Representative
Weed Management <i>(No trees exist in the project footprint)</i> <ul style="list-style-type: none"> <input type="checkbox"/> Identify all noxious weed populations in the areas to be cleared prior the works being undertaken <input type="checkbox"/> Remove from site the top 100mm of topsoil in these areas to prevent spread of weed contaminated topsoil <input type="checkbox"/> If stockpiling of this material is required ensure that this material is stored separately 	Construction Supervisor, Environmental Representative
Fauna Management <i>(No trees exist in the project footprint)</i> <ul style="list-style-type: none"> <input type="checkbox"/> Should animals (native or otherwise) be located injured or requiring relocation during the remediation works the local vet (non-native animals) or WIRES (native animals) will be contacted. 	Construction Supervisor, Environmental Representative

6.10. CONTINGENT MEASURES

In specific circumstances where the control measures described in **Section 6** cannot be practically implemented or the control measures are not considered adequate or appropriate to achieve the stated objectives, then the Project Manager shall arrange for a risk assessment to be conducted to identify the hazards and potential consequences and the preventative measures that should be employed to prevent or mitigate those hazards and consequences.

6.11. EMERGENCY RESPONSE

The current site emergency response plan will apply to the project site.

- Kooragang Island - EMERGENCY PLAN - [KIW-1020 / OEL: 1972391](#)

7. TRAINING AWARENESS & COMPETENCE

7.1. INDUCTIONS

All personnel who are required to work on the projects, except occasional or short duration visitors (visitor induction), will attend the formal induction program described below prior to commencing work on the site. The purpose of induction is to ensure that all employees who will be actively involved on the project sites, including those of sub-contractor organisations, are provided with the information and advice necessary to integrate the relevant environmental controls into all of their operations and activities.

7.2. ORICA SITE INDUCTION

Prior to commencing any work on the site, all contractors shall attend the Kooragang Island Site Induction.

7.3. PLANT SPECIFIC INDUCTION

Where appropriate, all personnel must complete a job specific induction prior to working on the site, which will cover health, safety and environmental matters. The purpose of these inductions is to ensure that all construction personnel are familiar with the construction specific site rules, project risk management processes, project environmental requirements, local cultural heritage and community relations aspects. These inductions expire after 12 months requiring refresher inductions to be done.

The environmental management component of the training will contain the following topics:

- Reason for having a Construction Environmental Management Plan and a brief overview of the control measures contained within it;
- Procedures for and necessity of advising the Project Manager if control measures are not working;
- The importance of and reasons for controlling dust during the project;
- The importance of keeping excavation surfaces covered and careful management of contaminated materials;
- Location of stormwater inlets and the reasons for control measures;
- Importance of notifying the Project Manager if any stormwater protection measures are failing or damaged;
- Types of liquid and solid waste on site and the importance of careful management; and
- Noise and vibration minimisation.

7.4. COMPETENCE

7.4.1. General

All personnel engaged to carry out work at Orica KI must have the necessary skills and knowledge, and be competent to perform the tasks for which they have been employed. Contractors and new employees will be required to furnish proof by way of licences, permits, certificates or by recognition of prior learning (RPL) and/or by written certification by a qualified assessor of their skills, competencies and knowledge of their work tasks.

All records shall be stored within the Orica Pegasus database, unless noted otherwise by the Orica representative.

7.4.2. Records

All training and competency records shall be stored within the Orica Pegasus database, unless noted otherwise by the Orica representative.

Records of the environmental monitoring and actions taken in regards to the CEMP will be kept to enable possible auditing. The records will allow auditing and encourage the use of preventative action as well as corrective action following non-compliance. The environmental records will be kept as objective evidence of compliance with environmental requirements. The records will be maintained according to Orica's record keeping procedure.

Monitoring for each value located in **Sections 5, 6, 7, 8 and 9** is to include details of the implementation of management and corrective actions. Orica environmental staff may use this information to verify the implementation of the CEMP.

8. COMMUNICATION, CONSULTATION & PARTICIPATION

8.1. INTERNAL SITE COMMUNICATION

8.1.1. General

Regular structured meetings are required to ensure that effective communication occurs between project management, contractor management and the project's workforce on health safety and environmental matters as this is one of the key elements in achieving compliance.

8.1.2. Safety Health, & Environment Meetings

Where appropriate, a project SHES team will be established to determine strategic planning, assisting and working constructively with site management representing the health and safety interests of the project workforce. The team will include a senior person, an employee representative from each contractor, and representatives from the Orica and construction management team. The team will meet weekly and deal with overall site safety, health and environmental management issues and procedures.

Day-to-day SHES management issues will be addressed immediately through the site leadership structure. The project and contractors' management will ensure that team representatives allocate sufficient time to devote to matters related to the team's activities.

Minutes of the team meetings will be made available and distributed to all participants and non-represented contractors involved in projects for communication throughout the sites.

8.1.3. Toolbox Meetings

Each project will hold toolbox meetings at weekly intervals or more frequently if necessary. All site personnel will be involved in these meetings where issues arising at other management and health and safety meetings will be communicated. Toolbox meetings will focus discussion on hazards specific to the relevant area of the projects, as well as any recent incidents in the workplace. They may be used as a forum for SHES-related training. Toolbox meetings will be minuted.

Members of the Principal's and Contractor's management team will periodically attend contractors' toolbox meetings to reinforce commitment to health, safety and environment, as well as providing an opportunity for direct contact with personnel and monitor that the quality of the meetings is adequate.

8.1.4. SHES Alerts

SHES Alerts will be the official means of notification to site personnel for the reporting of significant hazards, incidents or accidents that have occurred and any site activities that have the potential to affect and safety, health, or the environment. All SHES alerts will be co-ordinated by the Contractor's project team, and displayed on SHES notice boards and distributed electronically, as required.

8.1.5. Pre-Start Meetings

Contractors will be required to conduct brief, pointed job safety awareness and planning meetings with their work crew at the start of every shift and job. Hazards specific to the day's work and their control measures are to be discussed, including review of any JSERA's that apply.

8.1.6. JSERA Preparation

All JSERA's shall be prepared in conjunction with representatives of personnel undertaking the activity. All personnel shall sign the JSERA to acknowledge that they have reviewed the hazards and understand the controls to be utilised during the activity.

8.1.7. External Communication & Community Consultation

A communication and consultation process will advise and liaise with the community regarding relevant projects via the Kooragang Island Community Reference Group. The group meets four times per year. This group consists of representatives from nearby residential suburbs such as Stockton, Fern Bay, Mayfield, Maryville and Carrington. Where relevant information will also be included in the bi-monthly newsletter or website. All external communications will be coordinated by the site Senior Communications Advisor.

9. COMMUNITY, COMPLAINTS AND ENQUIRIES MANAGEMENT

Orica's complaints and enquiries management processes will be applied to all site works and is generally outlined below.

Orica has in place a procedure to ensure that community or regulatory agency complaints regarding operation at the site are investigated, corrective actions implemented and records of the complaint retained within Enablon, the site's SHES Reporting and Management Information System. Complaint records are retained for at least 7 years.

The procedure involves the notification of key plant, environment and site management personnel, if required, to enable investigation of the complaint to commence. Where provided, the complainant's details are obtained to enable Orica to provide details of the outcome of the investigation to the complainant.

The results of the investigation are included in Enablon and, where required, actions to minimise the recurrence of the incident are identified and included in the SHES Action Management Database and referred to appropriate site personnel.

A 24 hour contact number is operated to ensure that members of the public are able to contact the site to discuss issues of concern. The number is publicised in the Community Calendar, on the site's website and the phone directory. In addition Orica maintains an Emergency Response Service for all of its operations, with the number published in the local directory.

Contact can be made through Orica's 24 hour feedback line regarding construction by:

Telephone: 1800 789 044

Email: kooragang@orica.com



No.: C.009588-SH-PLN-0002

Rev: 0

Title: Construction Environmental Management Plan

Date: 7 June 2023

Appendix A Compliance Checklists



No.: C.009588-SH-PLN-0002

Rev: 0

Title: Construction Environmental Management Plan

Date: 7 June 2023

Investigation and Action Record

Kooragang Island

ANSOL CAPABILITY PROJECT

Construction Environmental Management Plan

Investigation / action record

Date: Time:

Investigation or action triggered by:

- Spill of liquids or contaminated materials
- Complaint received (circle): dust, noise, vibration, other
- Dust present during construction
- Emission of visible smoke for 10 seconds or more from vehicle or equipment
- Other:.....

Provide details of the trigger:

.....

.....

.....

Was work stopped? Time work stopped: Time work recommenced:

Summary of investigation, if applicable (attach documents as required):

.....

.....

.....

.....

Action taken (attach documents as required):

.....

.....

.....

.....

Record completed by:

(Name and position)

Signature: **Date:** **Time:**



No.: C.009588-SH-PLN-0002

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Date: 7 June 2023

Compliance Checklist

Kooragang Island

ANSOL CAPABILITY PROJECT

Construction Environmental Management Plan

Compliance Checklist

Observation	Action Taken
Has spoil from the project remained contained within the construction site and appropriate materials tracking and control process been implemented? <div style="text-align: right;">Yes / No</div>	
Are all stored liquids (fuels, oils, contaminated water) located within sealed, secondary containment areas? <div style="text-align: right;">Yes / No</div>	
Are structural fill materials stored in designated areas? Are they covered or wetted down if dry and potentially dusty? <div style="text-align: right;">Yes / No</div>	
Does the spill kit contain all the contents listed on the lid? <div style="text-align: right;">Yes / No</div>	
Are partial or complete road closures clearly delineated? <div style="text-align: right;">Yes / No</div>	
Is there any wastewater that might need to be treated in the site effluent system? <div style="text-align: right;">Yes / No</div>	
Are vehicles following the established routes? <div style="text-align: right;">Yes / No</div>	
Are all contaminated materials stored in bins and covered? <div style="text-align: right;">Yes / No</div>	
Are all roadways and hardstand areas free of soil and waste materials? <div style="text-align: right;">Yes / No</div>	
Are all sediment control measures correctly installed, intact and clear of buildup? <div style="text-align: right;">Yes / No</div>	
Have vehicles taking material off site been given a safety briefing? <div style="text-align: right;">Yes / No</div>	

Record completed by:

(Name and position)

Signature: **Date:** **Time:**



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Record of CEMP Compliance

Kooragang Island

ANSOL CAPABILITY PROJECT

Construction Environmental Management Plan

Record of CEMP compliance

Page of

Compliance with which section/s of the CEMP is being checked?

- | | |
|--|---|
| <input type="checkbox"/> Air Quality Management | <input type="checkbox"/> Solid Waste Management |
| <input type="checkbox"/> Surface Water Protection | <input type="checkbox"/> Heritage Protection |
| <input type="checkbox"/> Soil and Groundwater Protection | <input type="checkbox"/> Traffic Management |
| <input type="checkbox"/> Noise and Vibration Management | |

Based on the CEMP Control Measures list observations of compliance or non-compliance.

Indicate with an asterisk () which observations are recorded by photograph.*

Corrective Actions – list the corrective actions taken include the communication method used if reporting a corrective action to another person.

Record completed by:

(Name and position)

Signature: **Date:** **Time:**

Appendix B List of Potential Waste

Material	Source	Quantity	Comments
Structural Steel / Cladding	Construction Offcuts		
	Existing Asset Modifications		
Stainless Steel	Construction Offcuts / Bolts		
	Redundant Piping		
	Existing Asset Modifications		
Concrete / Asphalt	Concrete Spoil		
	Redundant Constructions		
	Asphalt		
Soil (Fill, Clay and Sand)	Perimeter dig		
	Construction / working pad		
	Civils / Excavation spoil		
Asbestos	Pipe Insulation		
Lead	Misc Paintwork		
Geomesh	Construction / Working Pad		If required
Plastic	General construction waste		
	Used plastic sheeting from temporary covering		If required
	Uncontaminated packaging waste		
Insulation	Construction / Lagging Offcuts		
General / Misc	Cable / Wire Offcuts		
	Packing Waste		
	Used PPE		
	Construction Materials (welding rods, spare bolts etc)		