



SCOPING REPORT

PROJECT APPROVAL 08_0129 ORICA KOORAGANG ISLAND:

PROPOSED MODIFICATION APPLICATION

AMMONIA STORAGE IMPROVEMENT PROJECT (MOD 6)

MAY 2021

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ABBREVIATIONS

DA	Development Application
DoP	Department of Planning
DPIE	Department of Planning Industry and Environment
EA	Environmental Assessment
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
EP&A Act.	Environmental Planning & Assessment Act 1979
KI	Kooragang Island
Orica	Orica Australia Pty. Ltd
SEARs	Secretary's Environmental Assessment Requirements
POEO Act	Protection of the Environment Operations Act 1997
PoN	Port of Newcastle
SSD	State Significant Development
TPD	Tonnes per day

1. INTRODUCTION

Orica is proposing to increase ammonia storage at the Kooragang Island ammonium nitrate manufacturing facility (the site) via the installation of an additional 30,000 tonne double walled ammonia tank, to supplement the existing 12,000 tonne (9,000 tonne operational capacity) single walled tank. The site location is shown in **Figure 1**. No increase to current ammonia, nitric acid, or ammonium nitrate storage of manufacturing production limits are associated with the proposal. The project includes

- Installation of an approximately 46m high and 42m diameter cylindrical double walled ammonia tank immediately adjacent to the existing single walled 12,000 tonne ammonia tank (9,000 tonne operational capacity)
- Installation of ancillary services including pumps, refrigeration compressors, pipes and pipe racks to enable supply of ammonia to the existing Nitric Acid Plants, and to facilitate ship loading and unloading.
- Installation of an upgraded ammonia storage flare as part of the stair tower structure to the new ammonia tank to a height of approximately 50m
- Upgrade to the ammonia export/import infrastructure.

The modification application will be lodged under Section 4.55 2) of the EP&A Act (other modification). The purpose of this report is to seek the Secretary's environmental assessment requirements (SEARs) from the Secretary of the NSW Department of Planning, Industry and Environment (DPIE) for an environmental assessment (EA) to accompany the application to modify the development consent this report provides:

- Section 2 - an overview of the development consent history;
- Section 3 - details on the current operations at the site;
- Section 4 - an overview of the scope of the proposed modification;
- Section 5 - an overview of the statutory approval pathway for the proposed modification;
- Section 6 – a qualitative risk assessment to prioritise key environmental issues;
- Section 7 – the proposed approach for addressing environmental issues in the EA that will accompany the proposed modification application; and
- Section 8 – Orica's proposed approach to stakeholder engagement.



Figure 1 - Site location

2. BACKGROUND

Orca's Ammonium Nitrate Expansion Project (Application 08_0129) was subject to an Environmental Assessment (EA) prepared by AECOM. The project application was submitted to the Department of Planning (DoP), now DPIE, in June 2009 and was approved on 1 December 2009.

Subsequent modifications to 08_0129 have also been approved for:

- Amendments to the layout of the Site, approved in July 2012;
- Changes to the size and location of the proposed nitric acid storage tank and the addition of ammonia flares, approved in December 2014; and
- Administrative modification to increase the allowable annual production limit of ammonia at the site from 360,000t to 385,000t, approved in December 2015.

A further modification approval is pending for the proposed Nitrates Effluent Tank (to replace the Nitrates Effluent Pond) which will form MOD4. Approval is anticipated no later than June 2021. Orca has also lodged a separate modification, MOD5 for the Prill Tower Scrubber Project. This project therefore forms MOD6 of development consent 08_0129.

The Orca KI facility is a licensed premise (EPL: 828) pursuant to the POEO Act 1997

3. SITE DESCRIPTION

Orica's Kooragang Island (KI) site is located approximately 3.5km from Newcastle CBD, at 15 Greenleaf Road, Kooragang Island and covers an area of approximately 25 hectares and incorporates land parcels Lot 2 and 3 in DP234288. The site operates on a 24 hour per day, 7 day per week basis with approximately 200 direct employees, and more than 80 contractors and consists of:

- An Ammonia Plant;
- Three Nitric Acid Plants (NAP) being NAP1, NAP2 and NAP3 (nitric acid is used in the production of ammonium nitrate);
- Two Ammonium Nitrate (AN) Plants, namely AN1 which manufactures Nitropril (a porous prilled ammonium nitrate product) and AN2 which manufactures an 88% ammonium nitrate solution;
- Bagging and bulk dispatch facilities for anhydrous ammonia, solid ammonium nitrate, AN solution, nitric acid and prilled material;
- Shipping/wharf related operations;
- Ancillary/Site Services such as demineralised water production, instrument/factory air generation, laboratory and workshop facilities, and
- Offices and amenities located adjacent to Greenleaf Road on the eastern side of the plant.

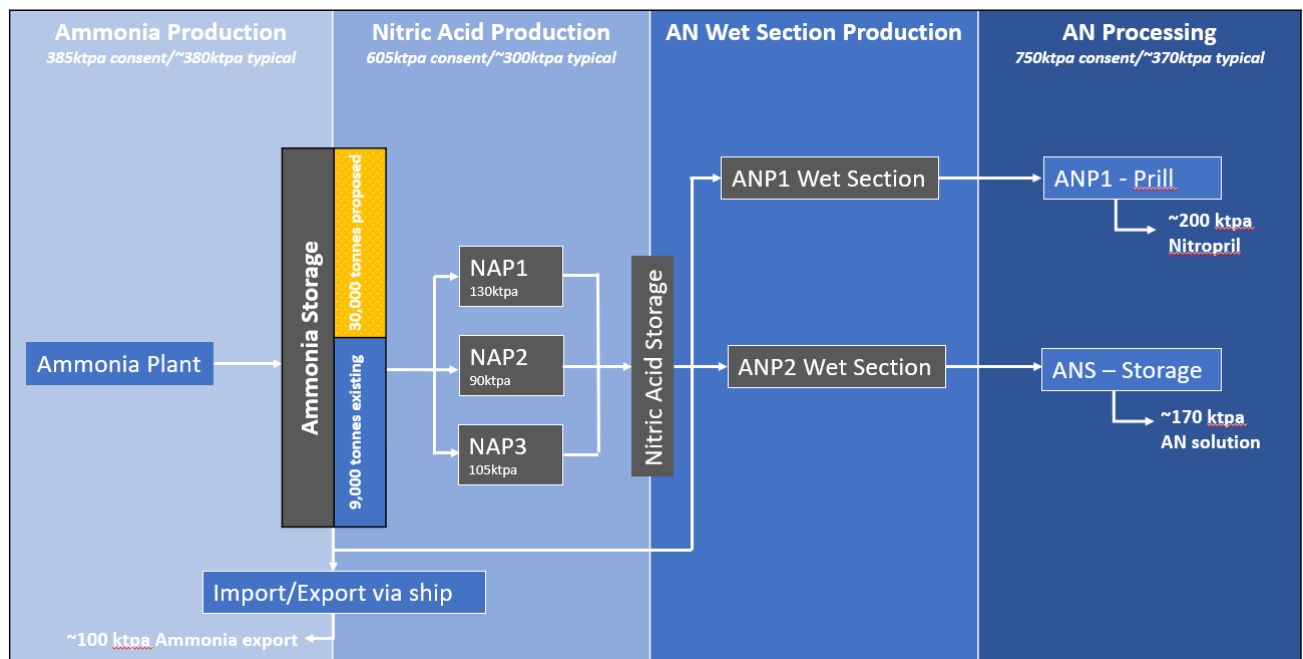


Figure 2 - Process flowchart - Orica Kooragang Island

4. PROJECT JUSTIFICATION AND DESCRIPTION

The existing ammonia storage tank (V101) has an operational capacity of 9,000 tonnes and is a single walled vessel with a bund. V101 ammonia storage is utilised for both:

- on-site ammonia storage which is consumed to manufacture nitric acid, with the remainder stored in the current 9000 tonne V101 tank and transported via ship to Gladstone in 5,400 tonne shipments.
- Loading and unloading of ammonia from ships in accordance with the plant's operational requirements

Installation of a separate double walled 30,000 tonne ammonia tank is proposed to provide additional operational flexibility through increased ammonia storage quantities as follows:

- During periods of low ammonium nitrate demand, ammonia storage requirements increase substantially, and in some circumstances result in the Ammonia Plant operating at reduced production levels (<1050tonnes per day) or being required to be turned off.
- Port constraints provide further logistical challenges to maintain efficient Ammonia Plant operations
- Allow the site to manage Ammonia export and import requirements.
- Enable the site to capture future ammonia market development opportunities to ensure that the site remains internationally competitive and sustainable.
- Ability to utilise larger ammonia shipping vessels for import or export. International Ammonia shipments typically range between 15,000T and 30,000T.
- Ability to operate the Nitrates Plants for longer periods with the Ammonia Plant offline
- Ability to empty the Ammonia Storage Tank for maintenance access while not disrupting plant operations.
- Improved loading/unloading rates of up to 1000tph (currently limited to approximately 500tph).

An overview of the ammonia production process and the context of the proposed ammonia tank is shown in Figure 4 below (proposed tank shown as light grey box).

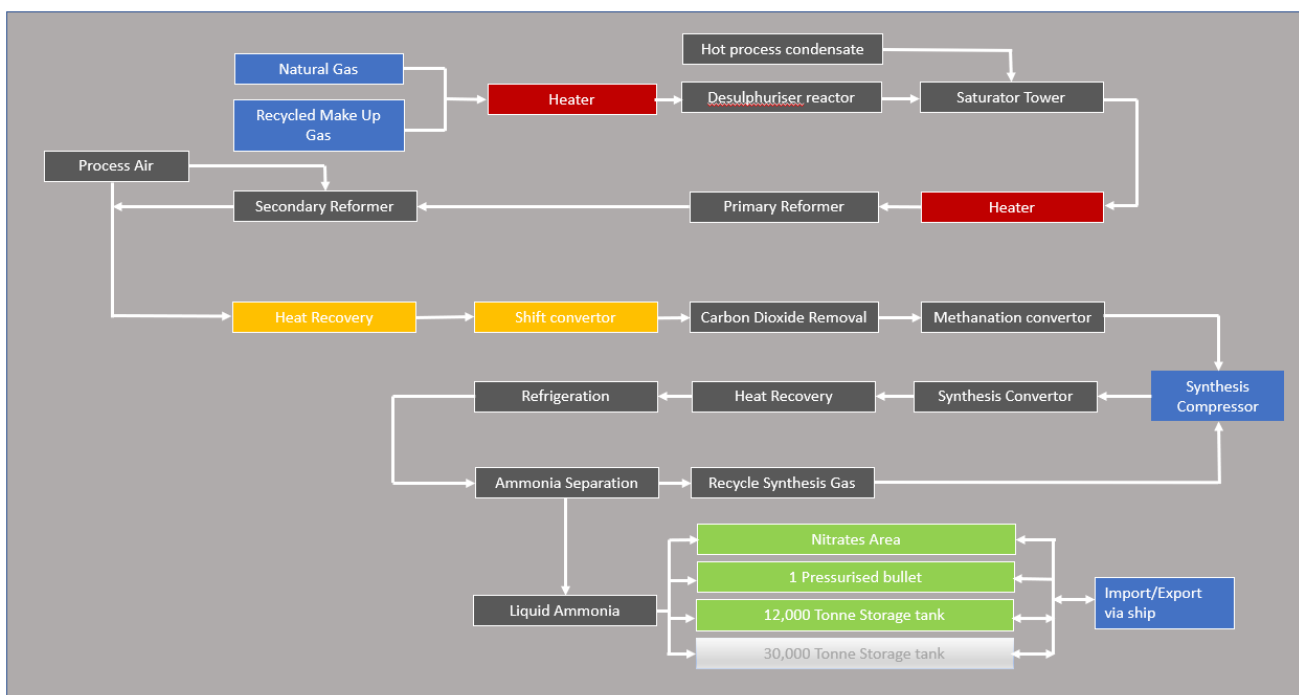


Figure 4 - Ammonia plant process schematic

The project consists of the following key elements.

1. **Civil works and foundations** – A 50m diameter reinforced concrete foundation and tank platform would be installed. The tank platform would be supported on concrete reinforced pillars approximately 1-2m high above the foundation. This provides an air gap to ensure groundwater under the tank does not freeze (the ammonia in the tank is held at approximately -33 degrees Celsius).
2. **Tank installation** - The tank (approximately 46m high and 42m in diameter) and will be constructed on site using suitable craneage.
3. **Ancillaries** - Installation of new pumps, pipework and associated pipe racks/pipe bridges would be completed including a review of the adequacy of the current ship loading and unloading pipeline, and manifold for distribution of ammonia into the existing Nitrates Plants (the pipelines may be above or below ground depending on the outcomes of risk assessment under HIPAP4). A refrigeration system to maintain tank temperature along with scrubbing and flaring systems would also be installed to ensure venting from the proposed tank was controlled to ensure no unacceptable ammonia odours. Most of this equipment would be manufactured offsite as modules and installed using suitable craneage.

No change to existing production limits in the consent are proposed.

The project will involve a Capital Investment Value of approximately \$80M. The construction works associated with the project will employ approximately 50 people over a 24-month period (100FTE's). Once operational no additional staff will be employee.

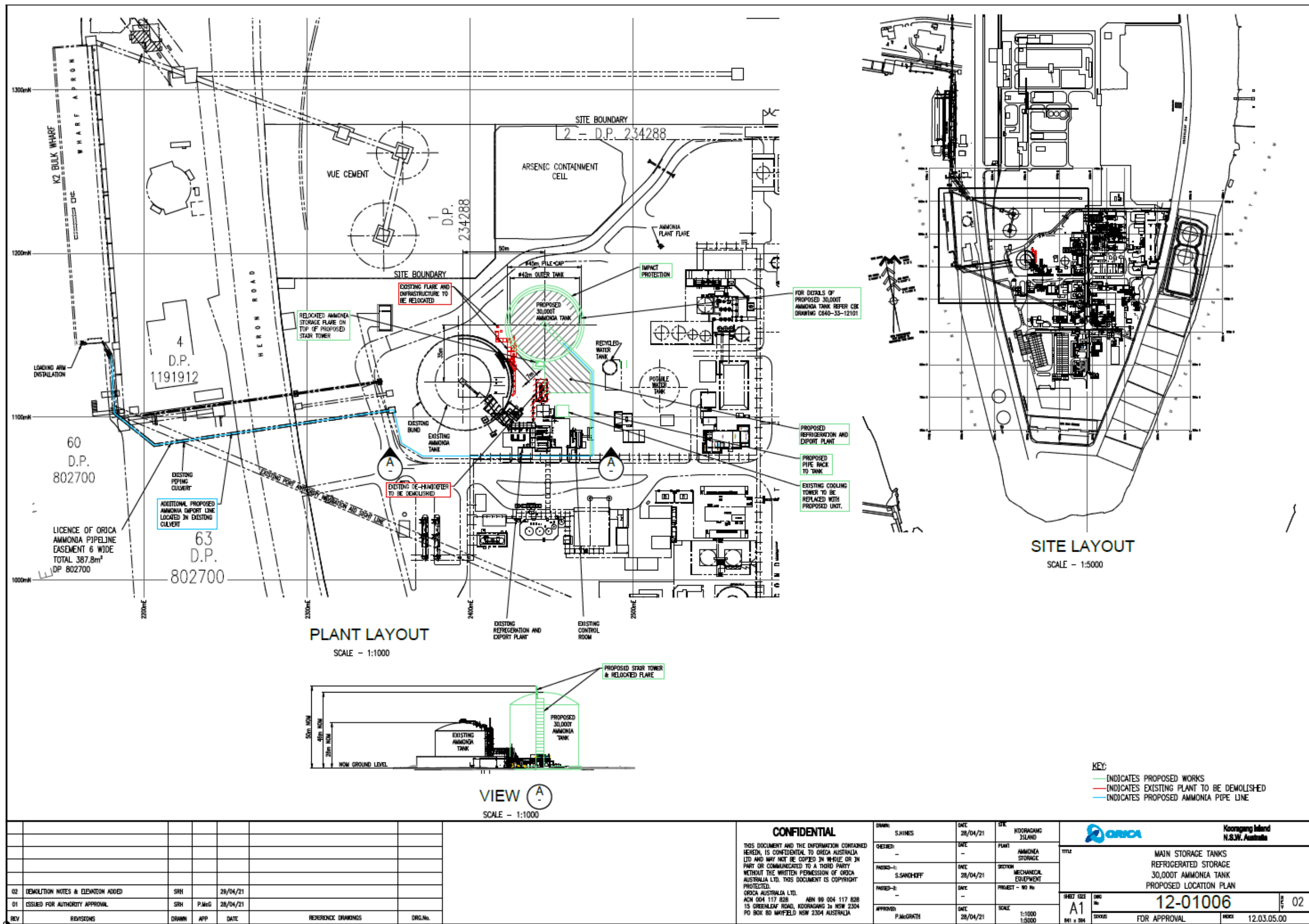


Figure 5 – Indicative general arrangement of proposed tank and ancillaries – plan view

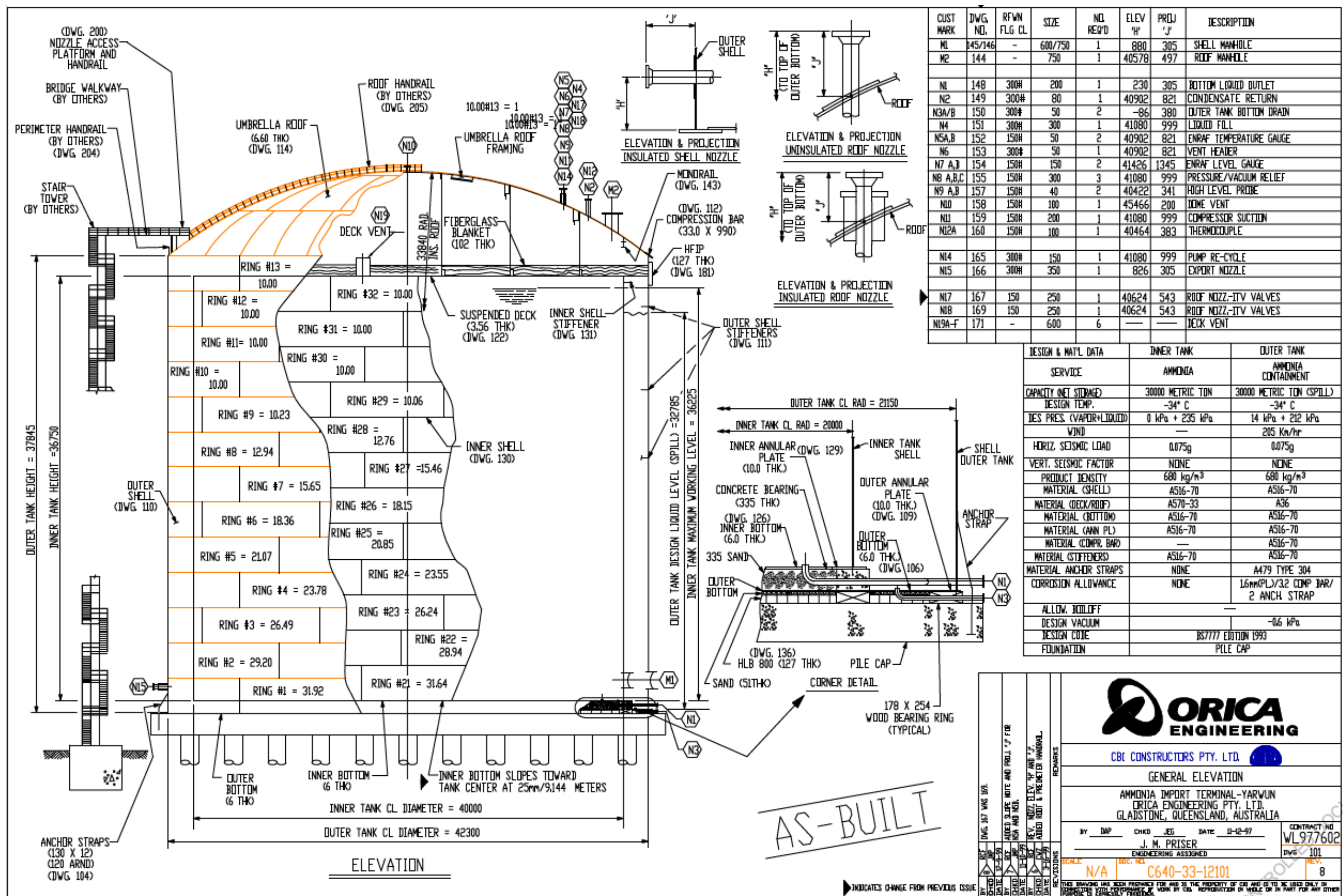


Figure 6 - Indicative schematic arrangement of proposed tank – elevation (Based on Yarwun design)

5. STATUTORY PLANNING

5.1 ENVIRONMENTAL PLANNING & ASSESSMENT (EP&A) ACT

5.1.1 SECTION 4.55(2) EP&A ACT

Section 4.55(2) of the EP&A Act deals with modification of consents and reads as follows:

4.55 Modification of consents—generally

(2) **Other modifications** - A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if--

- (a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and
- (b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and
- (c) it has notified the application in accordance with--
 - (i) the regulations, if the regulations so require, or
 - (ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and
- (d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.

Subsections (1) and (1A) do not apply to such a modification.

An application made under Section 4.55(2) must demonstrate that “the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified”.

The assessment needs to appreciate both the qualitative and quantitative aspects of the development being compared in its proper context as described by Bignold J at paragraphs 54 to 56 in *Moto Projects (No.2) Pty Ltd v North Sydney Council* [1999] NSWLEC 280. This judgment included the following comments:

54. The relevant satisfaction required by s 96(2)(a) to be found to exist in order that the modification power be available involves an ultimate finding of fact based upon the primary facts found. I must be satisfied that the modified development is substantially the same as the originally approved development.

55. The requisite factual finding obviously requires a comparison between the development, as currently approved, and the development as proposed to be modified. The result of the comparison must be a finding that the modified development is “essentially or materially” the same as the (currently) approved development.

56. The comparative task does not merely involve a comparison of the physical features or components of the development as currently approved and modified where that comparative exercise is undertaken in some type of sterile vacuum. Rather, the comparison involves an appreciation, qualitative, as well as quantitative, of the developments being compared in their proper contexts (including the circumstances in which the development consent was granted).

The *Modifying an Approved Project* draft guidelines produced as part of the *Draft Environmental Impact Assessment Guidance Series* by the NSW Department of Planning and Environment in June 2017, provides some guidance when assessing modifications of State Significant development:

For SSD, a proponent must demonstrate that the change, if carried out, would result in a development that would be substantially the same development as the original development. In order to draw this conclusion, a proponent must have regard to the following considerations, which have been established through decisions of the NSWLEC:

- *“Substantially” means “essentially or materially” or “having the same essence.”*
- *A development can still be substantially the same even if the development as modified involves land that was not the subject of the original consent (provided that the consent authority is satisfied that the proposal is substantially the same).*
- *If the development as modified, involves an “additional and distinct land use”, it is not substantially the same development.*
- *Notwithstanding the above, development as modified would not necessarily be substantially the same solely because it was for precisely the same use as that for which consent was originally granted.*
- *To determine whether something is “substantially the same” requires a comparative task between the whole development as originally approved and the development as proposed to be modified. In order for the proposal to be “substantially the same”, the comparative task must:*
 - *result in a finding that the modified development is “essentially or materially” the same*
 - *appreciate the qualitative and quantitative differences in their proper context*
 - *in addition to the physical difference, consider the environmental impacts of proposed Modification Applications to approved developments.*

Assessment:

It is considered the modification proposal will be substantially the same as that approved and is development that could be considered *“materially the same as that previously approved”*. Furthermore, it is considered that the modifications proposed are of the same ‘essence’ as the approved development given that:

- the proposal maintains the current approved land use and does not seek to alter the character of development;
- the proposed built form will be substantially the same as that already approved, in that development is to consist of a tank, plant and ancillary equipment located within the general confines of the site;
- The proposed modifications do not represent an expansion of the overall plant footprint;
- There will be no change to existing production limits.

A development can still be substantially the same even if the development as modified involves land that was not the subject of the original consent (provided that the consent authority is satisfied that the proposal is substantially the same).

Assessment:

The proposal does not involve land that was not the subject of the approval.

If the development as modified, involves an “additional and distinct land use”, it is not substantially the same development.

Assessment:

The proposal does not involve an *“additional and distinct land use”*, in that development is to consist of a tank, plant and ancillary equipment located within the general confines of the site storing material that is already stored on site;

Notwithstanding the above, the development as modified would not necessarily be substantially the same solely because it was for precisely the same use as that for which consent was originally granted.

Assessment:

This proposal seeks to modify elements of the process that have already been approved and will not change the scale or nature of those processes, but will increase the maximum volume of ammonia stored on the site.

To determine whether something is “substantially the same” requires a comparative task between the whole development as originally approved and the development as proposed to be modified. In order for the proposal to be “substantially the same”, the comparative task must:

- o **result in a finding that the modified development is “essentially or materially” the same**
- o **appreciate the qualitative and quantitative differences in their proper context**
- o **in addition to the physical difference, consider the environmental impacts of proposed Modification Applications to approved developments.**

Assessment:

The proposal does not require an increase in existing production limits but will increase the on-site storage of ammonia from 9,000 tonnes to 39,000 tonnes. The proposal will be located within the approved footprint of the Ammonia Plant. While the proposed development is of significant scale and bulk, it will have a limited visual impact given its location amidst similar scale structures at Vue Cement to the north west, the adjacent existing ammonia storage tank to the south and west and the Ammonia Plant to the east. The bulk, character and scale of the structure associated with this modification application will be consistent with the existing development and sited in the existing plant area adjacent to the existing tank. The proposal:

- will not generate significant additional air quality impacts
- will not generate significant additional noise impacts
- will require reassessment of the hazard assessment for the site in accordance with HIPAP4, but does not introduce a new hazard to site operations
- will be visible from certain locations near the site, but consistent with surrounding buildings, and not readily visible from residential areas.
- will potentially generate minor additional greenhouse gases associated with the flare, and indirectly via electricity use for the refrigeration system and pumps.
- will generate minor construction waste consistent with typical development of this nature

On the basis of the above, it is suggested the while the development can be considered to be substantially the same as the approved development, it is unlikely to be considered of minimal environmental impact by DPIE given the sensitivity of storage associated with AN production. As such the likely approval pathway would be modification via Section 4.55(2) of the Act.

5.2 ENVIRONMENTAL PLANNING INSTRUMENTS

5.2.1 NEWCASTLE LOCAL ENVIRONMENTAL PLAN 2012

The Site is located within the Newcastle City Local Government Area where the relevant Local Environmental Planning instrument is the Newcastle Local Environmental Plan 2012 (LEP 2012). However, the proposed Site is within the boundary of the Three Ports Site as shown on the Newcastle Port Site – Land Zoning Map – LZN 001 and thus falls under the provisions of the *State Environmental Planning Policy (Major Development) 2005* (Major Development SEPP). By virtue of Part 20(4) of Schedule 3 Major Development SEPP, environmental planning instruments other than State Environmental Planning Policies do not apply to the Site as it is located within Three Ports land. Therefore the provisions of the LEP 2012 do not apply to the Site.

5.2.2 NEWCASTLE DEVELOPMENT CONTROL PLAN

The planning controls within the Newcastle Development Control Plan (DCP) have been reviewed as they relate to the proposed development. Due to the nature of the proposed modification, no specific controls from the DCP apply to the proposal.

5.2.3 STATE ENVIRONMENTAL PLANNING POLICY (MAJOR DEVELOPMENT) 2005

The Major Development SEPP was used to identify developments that were considered to be Major Developments under the EP&A Act before the EP&A Act was amended to remove this definition. Orica KI approved transitioning of project approval 08_0129 to a Part 4 State significant development (SSD) so that a modification application can be lodged under Section 4.55 of the Environmental Planning & Assessment Act 1979. This transition order was gazetted on 22 January 2021. This SEPP no longer applies to the site.

5.2.4 STATE ENVIRONMENTAL PLANNING POLICY 33 – HAZARDOUS AND OFFENSIVE DEVELOPMENT (SEPP 33)

SEPP 33 was designed to ensure that sufficient information is provided to consent authorities to determine whether a development is hazardous or offensive. Conditions can then be imposed on the development to reduce or minimise adverse impacts. Any development application for a potentially hazardous development must be supported by a Preliminary Hazard Analysis (PHA).

As the proposed modification will not introduce any new materials or processes to the site and will be undertaken in a manner which includes appropriate safety systems, it does not constitute an additional hazardous or offensive development that would require further consideration under SEPP 33. Further consideration of project specific hazards and risk is provided in **Section 8**.

5.3 COMMONWEALTH MATTERS

5.3.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

In addition to State-based approvals, actions that may significantly affect matters of National Environmental Significance (NES) require assessment and/or approval from the Commonwealth under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. The EPBC Act lists eight matters of NES that must be addressed when assessing the environmental impacts of a proposal.

A review of the potential for the proposed modification to impact on NES matters was undertaken. Due to the proposed location of the tank within the boundaries of the already highly modified plant area, it is considered no NES matters would be impacted by the proposed modification. No referral to the Commonwealth Department of Environment is considered necessary.

5.4 OTHER APPROVALS REQUIRED

Orica's KI facility currently operates under Orica's existing Environmental Protection License (EPL) No. 828. The proposed modification would not seek to increase annual approved production limits, discharge limits or impact monitoring requirements. There are reporting obligations under the EPL and Consent 08_0129 associated with the Ammonia Flares which would need to be updated to reflect any upgrade or change to the existing flare arrangement, however no amendment to consent conditions would be required.

The Project Staging Plan under the consent (Condition 7) would need to be updated to reflect the works (Phase 8) and the associated reporting requirements satisfied, for example:

- Project Staging Plan revision requiring approval from DPIE (Condition 7C)
- Pre-construction revisions to Fire Safety Studies, HAZOPs, FHA's and CSS's requiring approval of DPIE (Condition 14)
- Pre commissioning requirements for revision and approval of the site's Emergency Plan and Safety Management System by DPIE (Condition 15)

- Compliance reports required for “Pre-Start Up” and “Post-start Up” phases of the project (Condition 16)
- Preparation of a project CEMP (Condition 49A)

In addition to the pre-construction reporting obligations there will be post project obligations, for example:

- Compliance reports required for the “Post start Up” phase of the project (Condition 17)
- Air Quality Verification Study requirements (Condition 23)
- Revision of the site’s EMP (Condition 49B)

6. PRIORITISATION OF ISSUES

A risk analysis was completed to rank potential environmental risks associated with the proposed modification.

6.1 RISK MATRIX

The prioritisation of issues for the Proposed Project was based on the need to recognise that a higher degree of assessment is required for the issues with the highest severity and greatest possible consequences. **Table 1** shows the issues prioritisation matrix used to identify priorities.

Each issue was given a ranking for both consequence and likelihood in accordance with the Issues Prioritisation Matrix shown in Table 1 below. These two numbers provide a numerical ranking for the issue that was used to categorise each issue into high, medium and low or very low priorities.

Table 1 Issues Prioritisation Matrix

Potential Consequence	Likelihood of adverse impact					
		A – Almost Certain	B - Likely	C - Possible	D - Unlikely	E - Rare
	1 – Broad scale	High	High	Medium	Low	Very Low
	2 - Regional	High	High	Medium	Low	Very Low
	3 - Local	Medium	Medium	Medium	Low	Very Low
	4 - Minor	Low	Low	Low	Low	Very Low
	5 - Insignificant	Very Low	Very Low	Very Low	Very Low	Very Low

6.2 ASSESSMENT

The prioritisation of environmental issues related to the Proposed Project is provided in **Table 2**.

This environmental risk analysis prioritises environmental issues in the absence of appropriate safeguard measures to manage environmental effects. This analysis was then used to inform the environmental assessment and the engineering and environmental design of the Project and in the identification of appropriate safeguards.

Table 2 Prioritisation of Environmental Issues

Issue	Potential Environmental Issue	Consequence	Likelihood	Priority
Hazards and Risk	Leaks/spills and interaction with materials and equipment.	3	C	Medium
Visual	Visual impacts of the proposed flare	3	B	Medium
Air quality and odour	Air emissions from operation or construction	3	C	Medium

Issue	Potential Environmental Issue	Consequence	Likelihood	Priority
Waste	Waste generated by the construction	4	A	Low
Greenhouse Gas	Emissions during construction due to plant operation. Ongoing operational emissions.	4	B	Low
Transport	Construction traffic generation, ship movements	4	B	Low
Noise and Vibration	Construction and operational noise and vibration impacts.	4	C	Low
Soils and water	Erosion, sedimentation and contamination during construction and contamination during operation.	4	E	Very Low
Flora and fauna	Impact on vegetation or fauna	5	E	Very Low
Heritage	Impacts to unidentified indigenous or non-indigenous heritage items.	5	E	Very Low

6.2 FINAL ASSESSMENT

In summary, the final prioritisation of issues identified for the Proposed Project is:

Medium:

- Hazard and Risk; and
- Visual;
- Air Quality and odour;

Low:

- Greenhouse Gas;
- Noise and Vibration;
- Transport;
- Waste;

Very Low:

- Soil and water;
- Flora and fauna; and
- Heritage.

Three significant issues (ie. medium or above) have been identified as requiring detailed studies by the risk assessment, namely Hazard and Risk, Visual and Air Quality and Odour. Environmental issues identified have been discussed in Section 8.

7 ENVIRONMENTAL ASSESSMENT

7.1 CONSTRUCTION PERIOD AND WORKING HOURS

The entire construction period is anticipated to span approximately 24 months, subject to weather and plant operation impacts. Early works would begin in Jan 2023 and installation of the new tank would be completed in approximately Jan 2025.

The proposed construction hours would comply with the standard working hours as recommended by the *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) and Condition 33 of the Existing Approval which are as follows:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 1pm
- Sundays and public holidays: no work.

7.2 CONSTRUCTION EQUIPMENT AND STAFF

The following plant and equipment is anticipated to be used as required during the construction period, however not simultaneously:

- Up to 750 Tonne cranes
- Up to 135 foot knuckle boom lifts
- Up to 50T excavators
- Up to 22T loaders
- 10T rollers
- Piling rig
- Flat bed/Concrete/Hydrovac/Tip trucks

The construction crew would consist of existing Orica KI site employees, as well as up to an additional 50 contractors for the duration of the construction period.

7.3 CONSTRUCTION METHODOLOGY

The installation of the ammonia tank is anticipated to be carried out in 3 stages as described below.

7.3.1 CIVIL WORKS

The concrete foundations and tank platform, in addition to any ancillary foundations required for pumping, piping, refrigeration and flaring systems for the new tank would be constructed as the first stage.

7.3.2 NEW TANK INSTALLATION AND COMMISSIONING

Tank installation - The tank will be constructed on site using suitable craneage.

7.3.3 ANCILLARIES AND TIE INS

Installation of new pipework and associated piperacks/bridges would be completed including the addition of a modified ship loading and unloading pipeline, a new pump manifold for distribution of ammonia into the existing Nitrates Plants and connection to existing pipework as necessary, and refrigeration systems to maintain tank temperature. Scrubbing and flaring systems would also be installed to ensure venting from the proposed tank was controlled to ensure no unacceptable ammonia odours.

Most of this equipment would be manufactured offsite as modules and installed using suitable craneage.

7.4 TANK OPERATION

The operation of the new tank would be consistent with the operational conditions of the existing tank and there would be no change to the process liquids entering the new tank ie. ammonia. Consistent with existing site and plant operations as approved in Project Approval 08_0129, the additional tank would operate up to 24 hours per day, 7 days per week, 365 days per annum.

8.0 CONSISTENCY ASSESSMENT

An assessment of the proposed Ammonia Tank against the environmental aspects considered in the EA prepared for Application 08_0129 has been carried out and is summarised below in **Table 2**. Where environmental issues require further discussion to demonstrate consistency with the Project as approved by 08_0129, these have been expanded further in the following sections of this correspondence. These environmental issues include hazard and risk, visual impacts and air quality and odour.

The intent of the assessment of these key environmental aspects is to determine whether the impacts of the proposed Ammonia Tank are consistent with the impacts outlined in the 2009 EA and the existing consent.

Table 3 Environmental issues as assessed in the EA against the implications of the Additional Ammonia Tank

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Air quality and greenhouse gases	<p>The proposed Ammonia Storage Tank itself will not generate additional greenhouse gases. In the context of the site, minor additional electricity consumption will occur associated with ancillary pumping and refrigeration systems.</p> <p>Minor increases in natural gas consumption would also be associated with the operation of the flare pilot lights.</p> <p>During construction, earthworks and traffic involved with the installation of the new tank may liberate sediments and dust. The CEMP for the project will include measures for control of civil works and traffic related dust.</p>	Yes. A brief summary of these emissions in the context of overall site would be included in the relevant section of the SEE.
Noise and vibration	<p>A Noise Impact Assessment (NIA) was prepared by Atkins Acoustics to support Application 08_0129 in 2009. This assessment included a construction noise and vibration assessment, as well as an operational noise assessment.</p> <p>The closest residential receivers to the Orica KI site are approximately 1000m east, in the suburb of Stockton. However, other industrial premises are adjacent to each boundary of the Orica KI site, for example Vue Cement and Incitec Pivot Limited.</p> <p>Assuming piling is required, construction of the new foundations has the potential to contribute to background noise levels in the vicinity of the site. The contribution of the new tank to the operational noise profile of the Orica KI site would be negligible compared to existing noise emissions.</p>	Yes. Construction hour controls are outlined in Section 8.1. A vibration assessment would be prepared if the construction methodology included driven piles.

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Hazard and risk	<p>Application 08_0129 was for the purpose of increasing the allowable ammonium nitrate production at the site through the provision of an additional nitric acid plant and ammonium nitrate plant. A Preliminary Hazard Assessment (PHA) prepared by GHD identified that the new plant and equipment risks associated with the additional nitric acid plant and ammonium nitrate (as well as other supporting infrastructure) complied with Hazardous Industry Planning Advisory Paper No.4, Risk Criteria for Land Use Safety Planning (HIPAP 4 (DoP 1992/2002)). Further, the operation of the new plant and equipment in addition to normal operations was assessed against HIPAP4 criteria for intensification of hazardous activities on an existing site. This was also compliant with HIPAP4 criteria.</p> <p>The project would represent an additional risk to the site. Compliance with HIPAP 4 would need to be reassessed in light of the project.</p>	Yes. Compliance with HIPAP 4 would need to be reassessed considering the project.
Traffic	<p>The existing access to the Orica KI site is via Greenleaf Road, which is approximately 15m wide and approved for B-double use. Greenleaf Road is a private road owned by the Port of Newcastle and is generally only trafficked by vehicles entering industrial premises in this area.</p> <p>During the construction period, additional light and heavy vehicles would be associated with the contractor workforce and associated delivery of plant, equipment and materials associated with the project. There would no change in normal vehicle movements from the site once the construction period is complete.</p> <p>Construction traffic management within the site would be managed via a traffic management plan would be developed for suitable access to the construction area and would be included within the CEMP.</p> <p>Where large equipment (e.g. equipment modules) were delivered to site a task specific traffic management plan would be developed.</p> <p>Potential construction traffic impacts associated with the project are discussed below.</p>	Yes, a simple analysis in the SEE would be required confirming that the project impacts were within those assessed in the 2009 EA per Section 8.2

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Surface water quality	<p>The project footprint located within stormwater catchments 1 and 3 at the Orica KI site. In the event of rain stormwater is discharged to the Hunter River and is tested in accordance with the site's EPL requirements before being discharged.</p> <p>During construction, appropriate erosion and sediment control mitigation measures as provided in the CEMP would be employed during the construction period to manage potential impacts.</p> <p>Within the operational phase, the new tank would still be situated within Catchments 1 and 3 and there would be no changes to the existing stormwater arrangements.</p> <p>No further assessment required.</p>	No. A description of the CEMP
Resource implications and interfaces	<p>Materials required to build the new foundations and bund would be sourced locally where possible and is not expected to place an unreasonable demand on the sources.</p> <p>Ancillary items will be sourced locally where possible, however given the specialist nature of the equipment a significant proportion is likely to be imported.</p> <p>No further assessment required.</p>	No

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Soil and groundwater quality	<p>Historic arsenic contamination was identified to be in the north-western portion of the site, in the former sludge disposal pit. The plume was delineated to occur in a north-west direction towards the Hunter River and therefore away from the proposed footprint of the project. Arsenic contamination impacted both groundwater and soil.</p> <p>Orica was granted consent for State Significant Development (SDD) application SSD_7831 on 10 December 2018 for a cap and containment remediation system for the arsenic contamination. The remediation work was completed in August 2019.</p> <p>Elevated nutrient (ie. nitrogen) levels in groundwater were present historically in the footprint of the proposed project due to the discharge of solution from the Ammonia Storage Scrubber. However this issue was remediated via source removal and natural attenuation, and would not affect the proposed project.</p> <p>All earthworks are anticipated to be above the water table, however if dewatering were to be required given the construction methodology a dewatering management plan would be prepared as part of the CEMP for the project.</p> <p>During the construction period, potential impacts to soil would be generally the same as assessed in the EA and would relate to encountering potentially contaminated soil during earthworks. The CEMP will include provisions for unexpected finds including contaminants.</p>	No. However Dewatering management plans may be required depending on the footing design.
Visual	<p>The Orica KI site is situated in an industrial area, with neighbouring properties also containing industrial or commercial operations. The closest sensitive receivers are located at Stockton, which is over 800m east of the site. While the proposed development is of significant scale and bulk, it will have a limited visual impact given its location amidst similar scale structures at Vue Cement to the north west, the adjacent existing ammonia storage tank to the south and west and the Ammonia Plant to the east. The bulk, character and scale of the project will be consistent with the existing development and sited in the existing plant area adjacent to the existing tank.</p>	Yes. A simple visual amenity assessment would be prepared as part of the SEE showing how the tank would appear from relevant view points.

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Flora and fauna	<p>No vegetation is present within the footprint of the project. Given no vegetation would be removed to accommodate the new tank no impact to terrestrial biodiversity would be associated with the project.</p> <p>Impacts to aquatic biodiversity in the Hunter River via accidental spills or from increased sediment load during construction would be prevented by the control measures outlined in the CEMP.</p> <p>No further assessment required.</p>	No
Heritage	<p>The Orica KI site does not hold non-Aboriginal heritage significance and is formed on reclaimed land, therefore there is a very low likelihood that items of non-Aboriginal heritage significance would be encountered.</p> <p>The EA also determined that no specific Aboriginal cultural values have been identified at the KI site and it is considered to be of low archaeological potential. Consistent with the EA, both non-Aboriginal and Aboriginal heritage is not considered a constraint for the replacement of the nitrates effluent pond.</p> <p>A protocol for unexpected finds, including non-Aboriginal and Aboriginal heritage items will form part of the CEMP.</p> <p>No further assessment required.</p>	No
Climate change	<p>In the context of the site the project would result in minor additional electricity and gas usage associated with pumping, refrigeration and flaring.</p> <p>A summary of the green ammonia potential associated with larger storage capacity may form part of this component of the assessment, and the projects role in improving the flexibility of site operation and therefore its economic sustainability should AN demand reduce due to reduction in coal demand.</p>	No.
Aviation Safety	The height of the proposed tank (approximately 46m) would trigger this requirement. Notification would be provided to Williamtown RAAF base in accordance with local requirements.	No. But noted as a requirement in SEE
Waste	<p>Waste from the project would only be generated during the construction period. The anticipated waste types include:</p> <ul style="list-style-type: none"> • Scrap metal; • Concrete waste • General waste 	No

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
	<p>Scrap metal would be recycled. All waste material would be managed in accordance with the CEMP and existing site waste disposal practices.</p> <p>No further assessment required.</p>	

8.1 OTHER ENVIRONMENTAL ASPECTS

8.1.1 CONSULTATION

Orica would undertake consultation with key stakeholders as part of preparation of the SEE. The consultation would utilise existing communication avenues and relationships, including:

- NSW Department of Planning, Infrastructure and Environment
- NSW Environment Protection Authority; and
- Orica Community Reference Group (CRG);
- Newcastle Community Consultative Committee on the Environment (NCCCE)
- Port of Newcastle;
- Industrial Neighbours, including Park Fuels, Vue Cement and Incitec Pivot Limited.

A description of the consultation process would be included in the SEE, in addition to the proposed consultation/communications plan during the construction phase of the project.

8.1.2 SOCIO-ECONOMIC IMPACTS

Given the likely scale and cost of the project, the SEE would incorporate a simple socio-economic review of the impacts of the proposal.

9. CONCLUSION

As noted in Section 5.1.1, the Ammonia Storage Improvement Project satisfies the requirement for modification of 08_0129 under Section 4.55 2) of the EP&A Act. Orica has identified the key environmental considerations for environmental assessment as hazard and risk, visual amenity and air quality and odour.

Orica requests SEARs associated with the proposal to confirm Orica's prioritisation of environmental assessment considerations (as outlined above in Section 6 and detailed in Section 7).