STATEMENT OF ENVIRONMENTAL EFFECTS

PROJECT APPROVAL 08_0129 ORICA KOORAGANG ISLAND:

MODIFICATION APPLICATION – MOD 4

NITRATES EFFLUENT POND REPLACEMENT PROJECT

MARCH 2021

ORICA

CONTENTS

1. INTRODUCTION

Orica is proposing to replace the existing Nitrates Effluent Pond at its Kooragang Island (KI) facility (the site). The site location is shown in **Figure 1**.

The pond liner is nearing the end of its design life and has no secondary containment. The project proposes to replace the existing pond with a bunded tank which would be located approximately 30m to the north east. **Figure 3** shows the location of the proposed location of the new tank in relation to the existing pond. The pond would be decommissioned following cutover to the new tank.

On 20 November 2020, Orica Australia Pty Ltd (Orica) met with the Department of Planning, Industry and Environment (DPIE) to discuss the use of Condition 7F of Project Approval 08_0129 for the replacement of the existing Nitric Acid Plant 1 (NAP1) stack (the project). DPIE indicated a statutory modification of the approval under the EP&A Act would be required under Section 4.55 of the EP&A Act.

This SEE supports a modification application under Section 4.55 1A) of the EP&A Act.

Figure 1 - Site location

2. BACKGROUND

Orica'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.

This project would form a fourth modification of consent 08_0129.

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.

The location of the operating areas of the facility and the project location are shown in **Figure 2**

Figure 2: Location of plant facilities and project

Under the current development consent 08-0129 and subsequent modifications, the site is approved to manufacture up to:

- Ammonia – 385,000 tpa
- Nitric acid – 605,000 tpa
- Ammonium nitrate – 750,000 tpa

The main raw materials used in production are natural gas, electricity and steam/water.

4. PROJECT DESCRIPTION

The Nitrates Effluent Pond is an in-ground clay pond, lined with a high density polyethylene membrane which was last replaced in 2010 and forms part of the effluent system associated with ammonium nitrate plants (AN1 and AN2) in the Ammonium Nitrate Production area of the site. The pond liner is now approaching end of life which requires a review of the arrangements for managing effluent in the Nitrates area. This project proposes to replace the existing Nitrates Effluent pond with an above ground Nitrates Effluent Tank located within a dedicated bund to provide secondary containment. The new tank will be located approximately 30m to the north east of the existing pond. The tank has a 410m3 capacity and would be approximately 5.5m high and 9.85m in diameter. The tank bund will be approximately 12.7m square, and will be installed immediately adjacent to an existing tank farm and bund.

The tank is prefabricated and is being repurposed from an existing spare tank on site and will be placed in position using suitable cranage. Installation of new pipework to tie into existing pipework would then occur,

and some minor associated infrastructure would be required including instrument power supply and 240 volt power, and instrumentation, control and automation equipment. This associated infrastructure would not constitute a new element to the Orica KI site, as connections would be made to existing process lines and internal utilities. No new or amended connections to offsite utilities would be required.

No change to the nature of the effluents managed by the system occurs as a consequence of the project. The project will involve a Capital Investment Value of approximately $1.5M. The construction works associated with the project will employ approximately 10 people over a 6 month period (5FTE's). Once operational no additional staff will be employed.

This report has been prepared to describe the works associated with this modification application, the processes involved, and the implications that the proposed modifications will have in terms of the approved development for the site and its impacts on the surrounding environment.

This Modification Application has been made pursuant to Section 4.55(1A) of the EP&A Act. The SEE concludes that the proposed modifications will have minimal environmental impact; and the proposed development will be substantially the same Development currently approved. A general arrangement of the project is supplied in Figures 3 and 4.

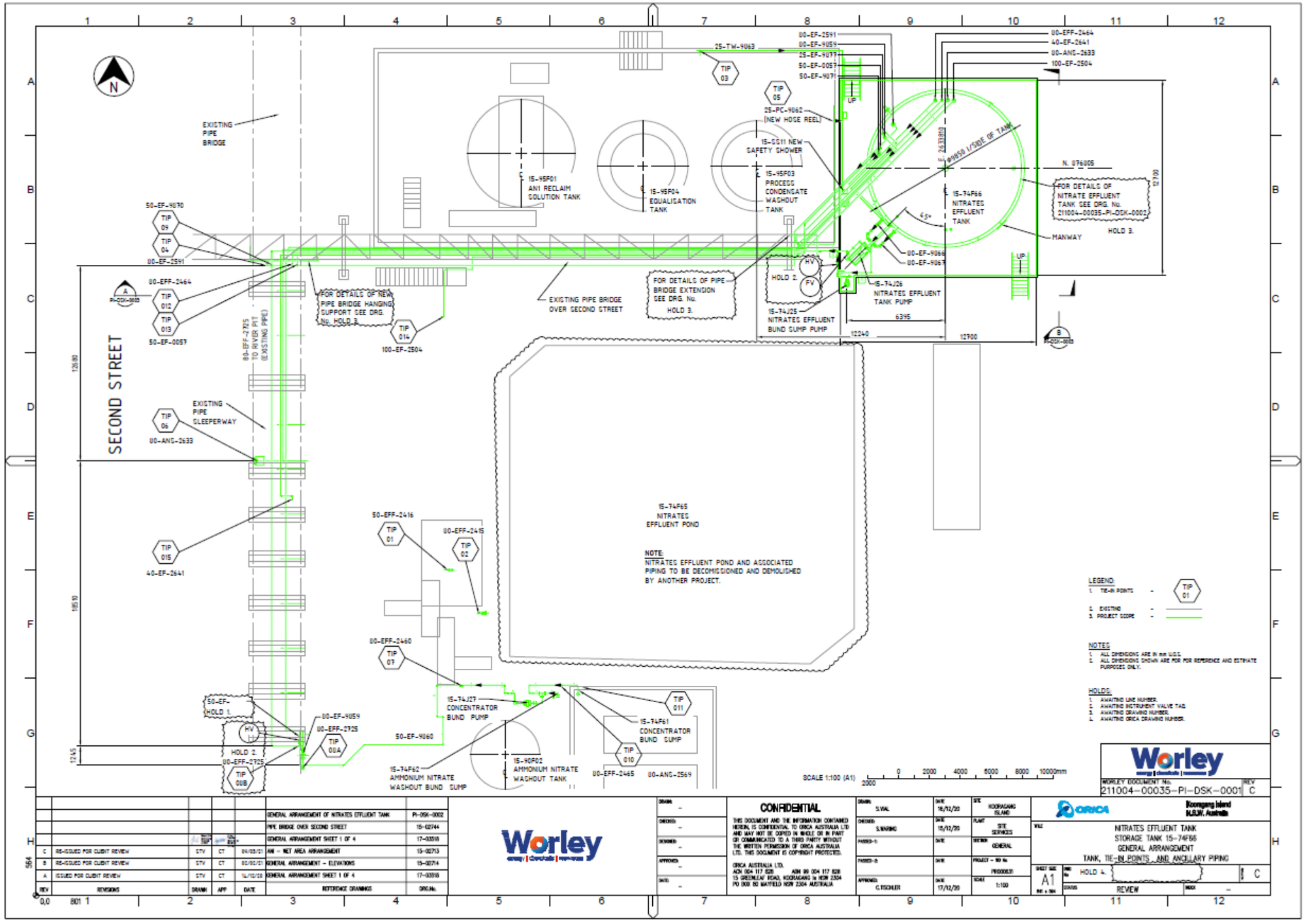

Figure 3 – General arrangement of proposed tank – plan view

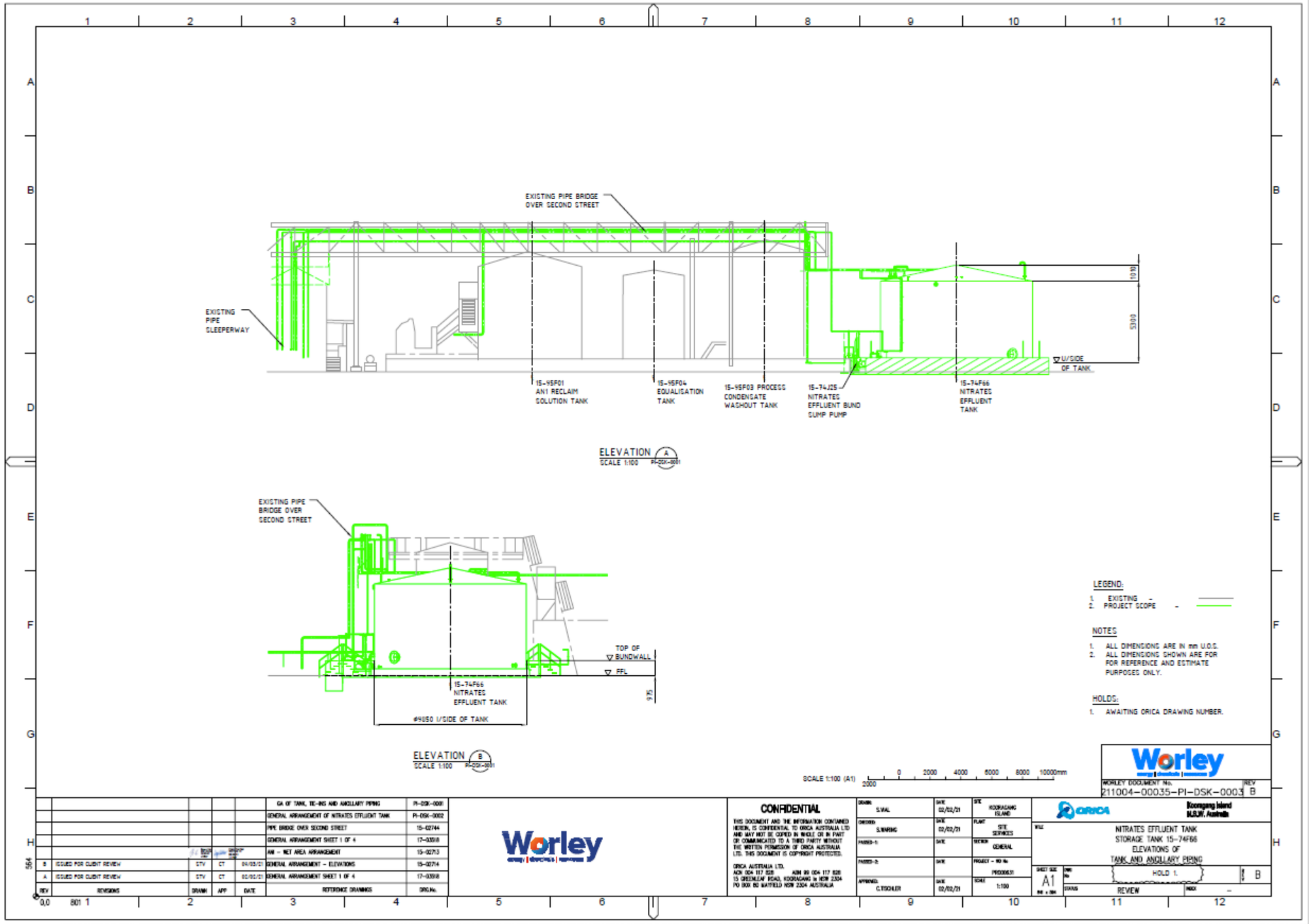

Figure 4 - General arrangement of proposed tank – elevatio

5. STATUTORY PLANNING

5.1 ENVIRONMENTAL PLANNING & ASSESSMENT (EP&A) ACT

5.1.1 SECTION 4.55(1A) EP&A ACT

This application is made under section 4.55(1A) of the EP&A Act. Section 4.55(1A) of the EP&A Act reads:

4.55 Modification of consents—generally

(1A) ***Modifications involving minimal environmental impact.*** *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 proposed modification is of minimal environmental impact, and*
> *(b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all), 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 any period prescribed by the regulations or provided by the development control plan, as the case may be.*

Subsections (1), (2) and (5) do not apply to such a modification.

An application made under Section 4.55(1A) must demonstrate that *"the proposed modification will have minimal environmental impact; and 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 C*ouncil *[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 Serie*s 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 equipment located within the general confines of the site;
- The proposed modifications do not represent an expansion of the overall plant footprint;
- The proposal only seeks to substitute an alternate form of effluent storage ie. a tank instead of a pond
- There will be no change to the overall volumes, chemical characteristics or discharge arrangements for effluent associated with the proposal

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'.*

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 Modification Application seeks to modify elements of the process that have already been approved and will not change the scale or nature of those processes.

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:
The proposal will not represent any increase to effluent flows leaving the site, only an alternate form of storage with lower environmental risk. Qualitatively, the environmental and amenity impacts of the modification are insignificant in the context of the existing development as outlined in subsequent sections of the SEE.

The proposal will be located within the approved footprint of the Nitrates Plant. The proposed development will have a limited visual impact. 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 other similar tanks. The proposal:

- will not generate additional air quality impacts
- will not generate additional noise impacts
- will not alter the risk profile of the site, given the chemistry of the effluent does not change as a consequence of the proposal.

On the basis of the above, it is our view that the development will be substantially the same as the approved development. As such the modification proposal is considered consistent with provisions of Section 4.55(1A) 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, and as such no variation of the EPL would be required as a consequence of the proposal.

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

	Likelihood of adverse impact					
Potential Consequence		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
Air Quality and Odour	Dust and vehicle emissions during construction. Odours and emissions during operation.	4	D	Low
Noise and Vibration	Construction and operational noise and vibration impacts.	3	C	Low
Visual	Visual impacts of the proposed tank	4	D	Low
Soils and water	Erosion, sedimentation and contamination during construction and contamination during operation.	4	C	Low
Transport	Construction traffic generation	4	C	Low
Waste	Waste generated by the construction	4	B	Low
Flora and fauna	No vegetation in project footprint	5	E	Very Low
Hazards and Risk	Leaks/spills and interaction with materials and equipment.	4	E	Very Low
Greenhouse Gas	Emissions during construction due to plant operation. Ongoing operational emissions.	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:

Low:

- Air Quality and Odour;
- Noise and Vibration;
- Visual;
- Soil and water;
- Transport;
- Waste;

Very Low:

- Hazard and Risk; and
- Greenhouse Gas;
- Flora and fauna; and
- Heritage.

No significant issues (ie. medium or above) requiring detailed studies were identified by the risk assessment.

Environmental issues identified as either 'low' or 'very low' have been addressed in Section 6.

7 ENVIRONMENTAL ASSESSMENT

7.1 CONSTRUCTION PERIOD AND WORKING HOURS

The entire construction period is anticipated to span approximately 6 months, subject to weather and plant operation impacts. Early works would begin in Jan 2022 and installation of the new tank would be completed in approximately June 2022. Demolition of the existing pond is expected to be occur after completion of tank construction as a separate project.

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 would be used as required during the construction period, however not simultaneously:

- Up to 200 Tonne cranes
- Up to 135 foot knuckle boom lifts
- 20T excavators
- 22T loaders
- 10T rollers
- Piling rig
- Flat bed trucks

- Concrete trucks
- Hydrovac trucks
- Tip trucks

The construction crew would consist of existing Orica KI site employees, as well as up to an additional 12 contractors for the duration of the construction period.

7.3 CONSTRUCTION METHODOLOGY

The installation of the tank and bund would be carried out in 2 stages as described below.

7.3.1 CIVIL WORKS

The concrete foundations and bund for the new tank would be constructed as the first stage.

7.3.2 NEW TANK INSTALLATION AND COMMISSIONING

The tank is prefabricated and is being repurposed from an existing spare tank on site and will be placed in position using suitable cranage. Installation of new pipework to tie into existing pipework would then occur, and some minor associated infrastructure would be required including instrument power supply and 240 volt power, and instrumentation, control and automation equipment. This associated infrastructure would not constitute a new element to the Orica KI site, as connections would be made to existing process lines and internal utilities. No new or amended connections to offsite utilities would be required. There are no EPL monitoring obligations associated with the operation of the effluent system that would be impacted by the change.

7.4 EXISTING POND

The existing pond liner will be removed and the area levelled. The area would then be capped compacted road base so that no remaining soil is exposed. These works will occur after completion of this project as a separate project.

7.5 TANK OPERATION

The operation of the new tank would be effectively identical to the existing pond and there would be no change to the process liquids entering the new tank. Consistent with existing site and plant operations as approved in Project Approval 08_0129, the replacement tank would operate whenever the NAP1 plant itself is operational, up to 24 hours per day, 7 days per week, 365 days per annum.

8.0 CONSISTENCY ASSESSMENT

An assessment of the proposed Nitrates Pond Replacement 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 air quality, noise, traffic and visual impacts.

The intent of the assessment of these key environmental aspects is to:

- Compare the impacts of the nitrates effluent pond with the proposed Nitrates Effluent Tank location; and
- Determine whether the impacts of the proposed Nitrates Effluent Tank are consistent with the impacts of the approved nitrates effluent pond.

Table 3 Environmental issues as assessed in the EA against the implications of the Nitrates Effluent 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	The effluent system does not generate greenhouse gas. Minor variations may occur in electricity consumption due to revised pumping arrangements to suit the new tank, however these would be trivial. During construction, earthworks and traffic involved with the installation of the new tank and decommissioning of the existing may liberate sediments and dust. The CEMP for the project will include measures for control of civil works and traffic related dust.	No
Noise and vibration	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. The closest residential receivers to the Orica KI site are approximately 800m east, in the suburb of Stockton. However, other industrial premises are adjacent to each boundary of the Orica KI site. The construction of the new foundations and bund 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.	**Yes**. Construction hour controls are outlined in Section 8.1.

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Hazard and risk	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. The new tank would be consistent with the pond and its operations as assessed within the PHA. However, it would be approximately 30m to the north-east. There is not expected to be any changes to the risk profile of the Orica KI site or any additional hazards introduced as a result of the replacement of the nitrates effluent pond. The project will reduce the risk of loss of containment from the effluent system. No further assessment required.	No
Traffic	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. During the construction period, a limited number of heavy vehicles would be required to deliver the components of the civil works required to construct the foundations and bund, as well as to remove the liner associated with the existing pond. There would no change in normal vehicle movements from the site once the construction period is complete. For construction traffic management within the site, a traffic movement plan would be developed for suitable access to the construction area and would be included within the CEMP. Potential construction traffic impacts associated with the new tank are discussed below.	Yes, in **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	The existing pond is located within stormwater catchment 4 at the Orica KI site. In this catchment, stormwater is captured via the first flush system and is either directed to the site effluent system or an effluent holding pond. In the event of significant rain stormwater is discharged to the Hunter River and is tested in accordance with the site's EPL requirements before being discharged. During construction, earthworks involved with the installation of the new tank and levelling of the existing pond may liberate sediments and dust. Appropriate erosion and sediment control mitigation measures as provided in the CEMP would be employed during the construction period to manage potential impacts. Within the operational phase, the new tank would still be situated within catchment 4 and there would be no changes to the existing stormwater arrangements. No further assessment required.	No
Resource implications and interfaces	As the new tank would replace the existing pond, it would not introduce any requirements for additional resources that are not already needed in its existing operation. There may be a slight change in terms of demand on electricity due to head differences, however this would be negligible in the context of the site. 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 source. The tank itself is being repurposed which is an efficient and cost-effective use of otherwise redundant equipment. No further assessment required.	No

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Soil and groundwater quality	The EA identified three key potential soil and groundwater contaminants/ constraints at the KI site including arsenic, nutrients and acid sulfate soils. 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. 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. Elevated nutrient levels were identified to occur in groundwater onsite from the discharge of solution from the Ammonia Storage Scrubber also in the north of the site. Source control activities have been carried out onsite to stop discharges from the Ammonia Storage Scrubber and ongoing monitoring is required as part of the site EPL. None of the above areas of contamination affect the footprint of the project. All earthworks are anticipated to be above the water table. 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. No further assessment required.	No
Visual	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. The new tank has a height of less than 6m, and would fall below the line of existing buildings and tanks in the area and consequently would have no impact on visual amenity.	No
Flora and fauna	No vegetation is present within the footprint of the new tank project. Given no vegetation would be removed to accommodate the new tank no impact to terrestrial biodiversity will be associated with the project. Impacts to aquatic biodiversity in the Hunter River via accidental spills or from increased sediment load during construction would be prevented by the existing first flush system and control measures outlined in the CEMP. No further assessment required.	No

Environmental issue	Consideration of the relative environmental impacts of the proposed modification compared to the approved Project	Assessed further?
Heritage	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. 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. A protocol for unexpected finds, including non-Aboriginal and Aboriginal heritage items will form part of the CEMP. No further assessment required.	No
Climate change	As the replacement of the pond would not introduce additional greenhouse emissions, it will not exacerbate climate change impacts or make the Orica KI site more susceptible to climate change impacts. The relative environmental impact of the replacement of the nitrates effluent pond on climate change is considered consistent with that assessed in Application 08_0129.	No
Aviation Safety	The height of the proposed tank (approximately 6m) does not trigger this requirement	No
Waste	Waste from the project would only be generated during the construction period. The anticipated waste types include: • Scrap metal; • Concrete waste • General waste Scrap metal would be recycled. All waste material would be managed in accordance with the CEMP and existing site waste disposal practices. No further assessment required.	No

8.1 NOISE

There would be some noise generation as a result of construction activities such as piling and plant and equipment and additional vehicle movements as described in **Table 3** and installation of the new tank. Construction activities would be carried out in standard work hours in accordance with the ICNG (refer to **Section 4.0**) and Condition 33 of the Existing Approval. The proposed construction hours in accordance with the ICNG have been opted for over the construction hours as assessed in the EA (Monday to Saturday between the hours of 7:00am – 5:00pm) to be consistent with current guidelines and the Existing Approval.

The closest residential receivers are about 800m away from the site and given this distance, they are unlikely to be affected by noise generated from the construction period. Additional noise mitigation measures for the project would be included in the CEMP and implemented during the construction period.

When the new tank is operational, it is not anticipated to change the noise profile from the site. As the new tank would only be 30m north-east of the existing, it is not considered to be moved any closer to residential

receivers and would not introduce any additional noise producing equipment. On this basis, the noise levels associated with the relocated effluent storage would be consistent with the existing effluent pond.

8.2 TRAFFIC

During the 6 month construction period, there would be up to an additional 5 light vehicle movements on the public road network from the 5 additional staff members travelling to and from the site each day. Parking for the additional 5 staff would be accommodated in the on-street parking on Greenleaf Road. It is anticipated that the 5 light vehicle movements per day would equate to 200 light vehicle movements per month when based on a 5 day working week.

Additional heavy vehicle movements would also be required for deliveries and for the waste disposal of soil, concrete and steel of up to 20 vehicles per month. All vehicles entering the site are required to enter via the KI Security Gatehouse and would follow the site's traffic management procedure. An indicative number of additional heavy and light vehicle movements per month as well as total additional vehicle movements per month is provided in **Table 4**.

During construction, earthworks and traffic involved with the installation of the new tank and removal of the existing may liberate sediments and dust. The CEMP for the project will include measures for control of civil works and traffic related dust.

Table 4 Indicative additional vehicle movements per month during the construction period

Month	Additional heavy vehicles movements per month	Additional light vehicle movements per month	Total additional vehicle movements per month
Stage 1 - Civils			
January 2022	20	200	220
February 2022	20	200	220
March 2022	20	200	220
Stage 2 – Tank Installation, Tie-ins and ancillaries			
April 2022	10	200	210
May 2022	10	200	210
June 2022	10	200	210

At the peak of the construction period, the 2009 EA assessed the impact of an additional 250 construction personnel on site per day, which when considering movements to and from the site, this would equate to about 13000 light vehicle movements per month (based on a six-day working week). The heavy vehicle contribution was assessed at up to 30 heavy vehicles per day, and in terms of movements, this would produce 1560 heavy vehicle movements per month during the peak construction period (based on a six-day working week). The peak light, heavy and total vehicle movements per month as assessed in the 2009 EA are summarised below in **Table 5**. It is noted that these numbers are conservative and have been extrapolated from the numbers presented in the 2009 EA for comparative purposes.

Table 5 Peak vehicle movements as assessed in the 2009 EA

Month	Peak additional heavy vehicles movements per month	Peak additional light vehicle movements per month	Total additional vehicle movements per month (during construction peak)
	1560	13000	14560

Based on the scheduling of the project, additional vehicle movements would peak in January-March 2022 at 220 total vehicle movements per month. This is significantly less than the 14560 additional vehicle movements per month predicted to occur during the peak construction period in the 2009 EA. Further, the construction period of the project is only about 6 months, whereas the construction period for the 2009 EA was 28 months in duration. Potential construction traffic impacts for the project will therefore be well below those assessed in the 2009 EA, given the total additional vehicle movements per month are much smaller and would be of a much shorter duration.

Greenleaf Road is a private road and is built to industrial road standard with an overall width of about 15m to accommodate heavy vehicles. As construction traffic volumes required for the replacement of the Nitrates Effluent Pond would be much less than those considered acceptable in the 2009 EA and would only occur for about nine months, construction traffic impacts are minimal in comparison to the 2009 EA, and would not strain the existing road network. For construction traffic management within the site, a traffic management plan would be developed for access to the construction area and would be included within the CEMP.

Operation of the new tank would not contribute to any increase in operational traffic.

8.3 OTHER ENVIRONMENTAL ASPECTS

Besides the environmental issues discussed above including noise and traffic there are no other key impacts anticipated as a result of the tank replacement.

Due to the proposed tank location being on an area which has been heavily impacted by past industrial uses and is currently maintained primarily as hardstand for storage, the impacts on other environmental factors will be negligible. There are no items of ecological, heritage or other significance that would be impacted by the tank replacement.

Management measures regarding the installation and operation of the new tank as required by Project Approval 08_0129 would continue to be suitable to manage the tank replacement and would be documented in a CEMP for the project. No amendments to the existing approval are considered necessary.

8.3.1 CONSULTATION

Orica has commenced consultation with key stakeholders to provide information regarding the tank replacement, including timing of construction. The consultation as the project progresses and utilises existing communication avenues and relationships, including:

- The NSW Environment Protection Authority; and
- The Orica Community Reference Group (CRG);

Evidence of consultation can be provided to DPIE if required.

9. CONCLUSION

Orica is proposing to replace the existing Nitrates Effluent Pond with a bunded tank, by constructing a new tank adjacent to the existing pond and then decommissioning the pond, once the new tank has been brought online. No changes to effluent will occur as a consequence of the project. The only changes proposed include:

- Use of a tank instead of a pond to reduce the risk of loss of containment
- Relocation of effluent storage approximately 30m north-east of the existing location

The operation of the new tank would be consistent with the existing effluent pond, such that it would:

- Have negligible impact on the emissions from the KI site;
- Have negligible impact on noise generated from the KI site; and

- Have negligible impact on the visual amenity of the KI site.

Due to the minor nature of the proposed change in relation to Project Approval 08_0129, it is considered that the Nitrates Effluent Pond replacement will have minimal environmental impact, and the proposed development will be substantially the same as the Development currently approved, and as such constitutes a minor modification under Section 4.55 1A) of the EP&A Act.