NSW GOVERNMENT | Planning & Infrastructure

ASSESSMENT REPORT: Crawfords Ammonium Nitrate Storage and Distribution Facility (SSD-5119)

Director-General's
Assessment Report
Section 89E of the
Environmental Planning and Assessment Act 1979

June 2013

ABBREVIATIONS

AN	Ammonium Nitrate
Applicant	Crawfords Freightlines Pty Ltd, or any other person or persons who rely on this consent to carry out the development that is subject to this consent
BCA	Building Code of Australia
CIV	Capital Investment Value
CLM Act	*Contaminated Land Management Act 1997*
Consent	This development consent
Council	The Council of the City of Newcastle
DA	Development Application
Department	Department of Planning & Infrastructure
DGRs	Director-General's environmental assessment requirements
Director-General	Director-General of the Department, or his nominee
EIS	The Environmental Impact Statement titled *'Ammonium Nitrate Storage and Distribution Facility'* and accompanying appendices, prepared by Environmental Resources Management Australia and dated December 2012
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPI	Environmental Planning Instrument
EPL	Environmental Protection License
Minister	Minister for Planning & Infrastructure
NSW	New South Wales
Operation	The development as described in the EIS for the storage and distribution of more than 2,000 tonnes of ammonium nitrate at the site and associated works and infrastructure.
RMS	Roads and Maritime Services
RTS	Response to Submissions titled *'Ammonium Nitrate Storage and Distribution Facility'* and accompanying appendices, prepared by Environmental Resources Management Australia and dated April 2013
SEPP	State Environmental Planning Policy
SEPP 33	*State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SSD	State significant development
QLD	Queensland

Cover Photograph: Stacked Ammonium Nitrate for Transport by Truck at Crawfords Sandgate Site

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EXECUTIVE SUMMARY

Crawfords Freightlines Pty Ltd (Crawfords) is a privately owned transportation company that specialises in road and rail transportation of dangerous goods to service the mining, agricultural and manufacturing industries in NSW. Since 2009, Crawfords has operated an Ammonium Nitrate (AN) storage and distribution facility on its site at Sandgate in the Newcastle local government area (LGA).

AN is the main raw material used in commercial blasting products used by the mining industry. AN is also used to produce fertiliser for the agricultural industry and has additional uses for the manufacturing industry.

In December 2011, Crawfords was issued with a Notice of Intention (NOI) to give an order by Newcastle City Council as they were operating without a planning approval. The NOI directed Crawfords to obtain the relevant planning and environmental approvals by 31 August 2013 or cease the use of the premises as a chemical (including AN) storage facility. Crawfords was also issued with a Notice of Preventative Action (NPA) by the EPA to (among other things) reduce the quantity of AN stored at the site to below 2,000 tonnes (t).

Both the NOI (Council) and the NPA (EPA) were issued to Crawfords because it did not have the necessary planning and/or environmental approvals (including an Environmental Protection License) for its Sandgate operations.

Crawfords is now seeking to regularise its Sandgate site operations by seeking approval for the storage and distribution of AN at historical levels up to 13,500 t.

The proposal is State Significant Development under Part 4 of the *Environmental Planning and Assessment Act 1979* because it involves the storage of dangerous goods in quantities exceeding the criteria for a Major Hazard Facility and as such meets the criteria in Clause 10(3) of Schedule 1 in *State Environmental Planning Policy (State and Regional Development) 2011*. Consequently, the Minister for Planning and Infrastructure is the consent authority for the proposed development.

The proposed development has a capital investment value of $600,000 and would support the retention of approximately 65 full-time equivalent jobs.

The Department exhibited the Development Application and Environmental Impact Statement (EIS) for the proposal from Wednesday 6 February 2013 until Monday 11 March 2013. The Department received 24 submissions, including 9 from government agencies and 15 from the general public. Of the submissions received, no government agencies objected, 13 general public submissions objected and 2 general public submissions supported the proposal.

Key issues raised in objections related to potential hazards and risks, safety, flora and fauna impacts, flood risk management, evacuation and soil and water contamination. Key issues raised in supporting submissions were that the proposal would relieve a shortage of AN supply to industries in the Hunter Region and utilise existing site infrastructure such as a rail siding to transport AN which would remove trucks from local roads.

In its assessment of the proposal, the Department has fully considered all relevant matters under Section 79C of the EP&A Act, the objects of the EP&A Act and the principles of ecologically sustainable development. This assessment has concluded that with the implementation of the recommended conditions of consent, the impacts of the development can be mitigated and/or managed to ensure an acceptable level of environmental performance.

The Department's assessment found that the proposed development would result in a number of improvements to the facility which would have positive environmental and safety impacts. These include (but are not limited to):

- regulation of site operations in line with the current best practice for management of potential hazards and risks;
- the establishment of a 'buffer zone' (i.e. the Off-Site Restricted Access Area) extending approximately 250m west of the site to manage potential hazard and risk impacts on active open space;
- upgrading the stormwater management system at the site in line with current best practice;
- upgrading all structures that are used to store AN at the site so that they are flood proof;

- sealing all AN storage and trafficable areas at the site to prevent contamination of soil and groundwater and dust generation from trucks; and
- introducing robust environmental monitoring requirements.

The Department engaged SCANPOWER, a member of Lloyd's Register (Lloyd's), to independently review the proposal in terms of potential hazard and risk impacts. Lloyd's found that the Preliminary Hazards Analysis undertaken as part of the EIS applied a sound methodology to estimate the risks from the proposal, and that the development would comply with all risk criteria adopted in NSW for new developments, prior to operation.

Overall, the Department found that the proposed development would improve the environmental performance of the site and appropriately manage risks associated with the storage on AN in line with current best practice.

The proposal would allow for a large, centralised facility in the Lower Hunter that utilises existing long-haul rail infrastructure to ensure a reliable supply of AN to various mining, agricultural and manufacturing industries in NSW. Importantly, the proposal is also consistent with *NSW 2021* and the Lower Hunter Regional Strategy as it would promote economic growth and provide industrial employment opportunities in the Lower Hunter region by supporting the retention of approximately 65 full-time jobs.

The Department therefore considers that the proposed development is in the public interest, and should be approved, subject to conditions.

1. BACKGROUND

1.1 Development Background

Crawfords Freightlines Pty Ltd (Crawfords) is a privately owned transportation company occupying sites in Sandgate and Singleton in NSW and Gracemere in QLD. Crawfords specialises in road and rail transportation of dangerous goods to service the mining, agricultural and manufacturing industries in NSW.

Crawfords has operated an Ammonium Nitrate (AN) storage and distribution facility on its site at Sandgate in the Newcastle local government area (LGA) since 2009 (see Figure 1).

AN is the main raw material used in commercial blasting products used by the mining industry. AN is also used to produce fertiliser for the agricultural industry and has additional uses for the manufacturing industry.

Figure 1: *Regional Context*

1.2 Development Setting

The site is located on 8.77 hectares (ha) of industrial land at Sandgate, approximately 9 kilometres (km) north-west of the Newcastle Central Business District (see Figures 1 and 2).

The site is owned by Sierra Sun Pty Ltd (Sierra) which leases the majority of the site to Crawfords (8.46 ha) and a small part of the site (0.31 ha) to Scafflink Australia (Scafflink) as a metal scaffolding storage facility (see Figure 3).

The site is zoned for heavy industrial purposes and based on historical records is thought to have been used as a storage and distribution facility since at least the early 1970's. In December 2008, Crawfords took over part of the site (Shed C) which was used by Toll Resources Pty Ltd for storage and distribution. In

late 2011, Crawfords also took over Sheds A and B from Impact Fertilisers Pty Ltd which were used for the storage and distribution of bulk fertiliser.

Road access to the site is via a service road off Old Maitland Road (see Figure 3).

The site is also serviced by the Sandgate Rail Siding which connects to the Main Northern Railway Line to facilitate the transportation of AN to and from Port Botany in Sydney and the Port of Newcastle by train (see Figure 3).

The site is surrounded by a range of commercial, industrial and infrastructure uses (see Figure 2) including:

- land owned by Sierra which is currently used to stockpile magnetite (northern boundary);
- the Newcastle Inner City Bypass (Sandgate to Shortland) corridor which is currently under construction (south-eastern boundary);
- the Sandgate Cemetery, approximately 90m south-east of the site, across the Newcastle Inner City Bypass corridor (currently under construction); and
- the Newcastle Golf Practice Centre and former Astra Street Landfill Site, less than 100m west of the site across the Main Northern Railway Line.

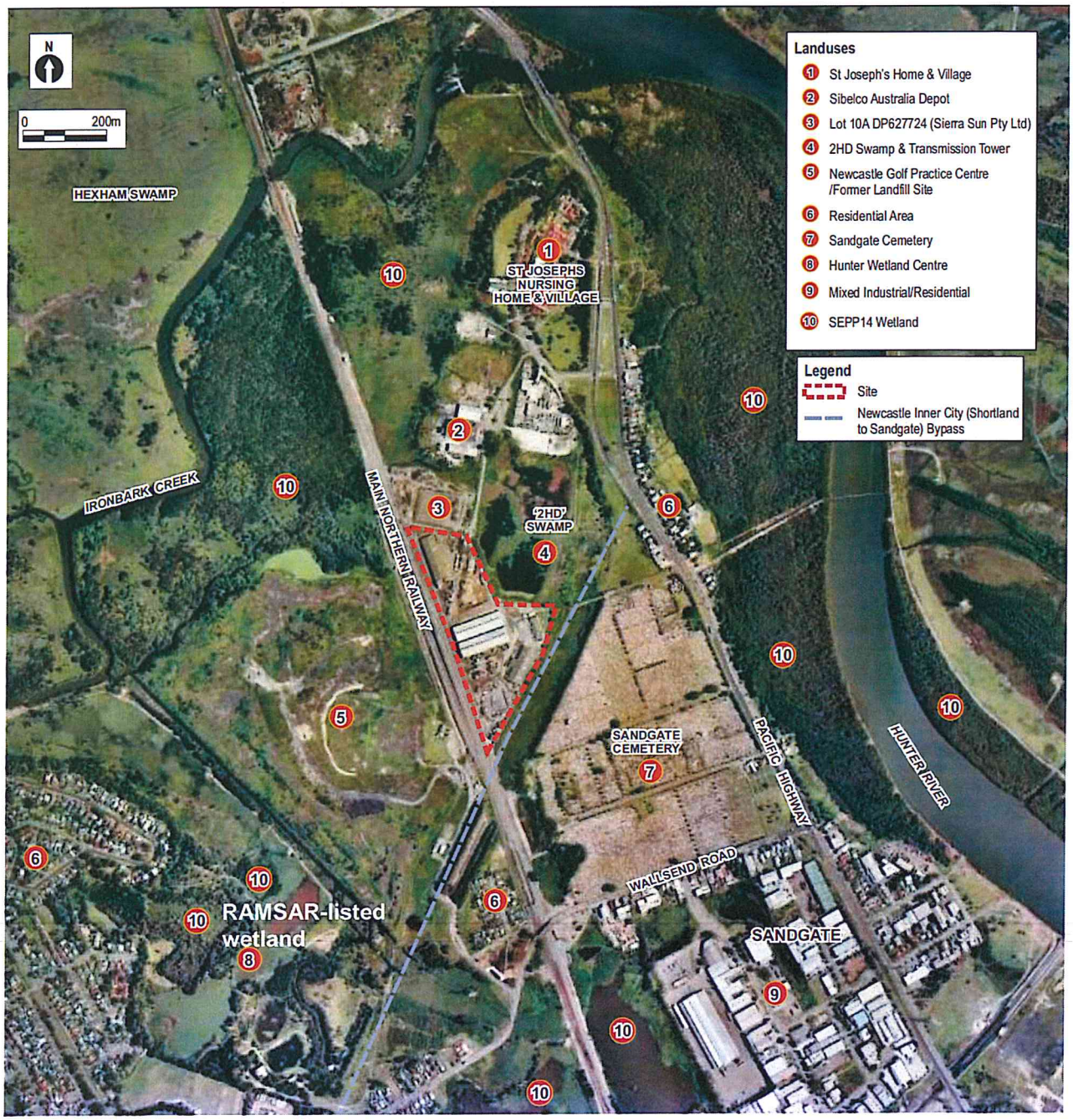

***Figure 2:** Local Context*

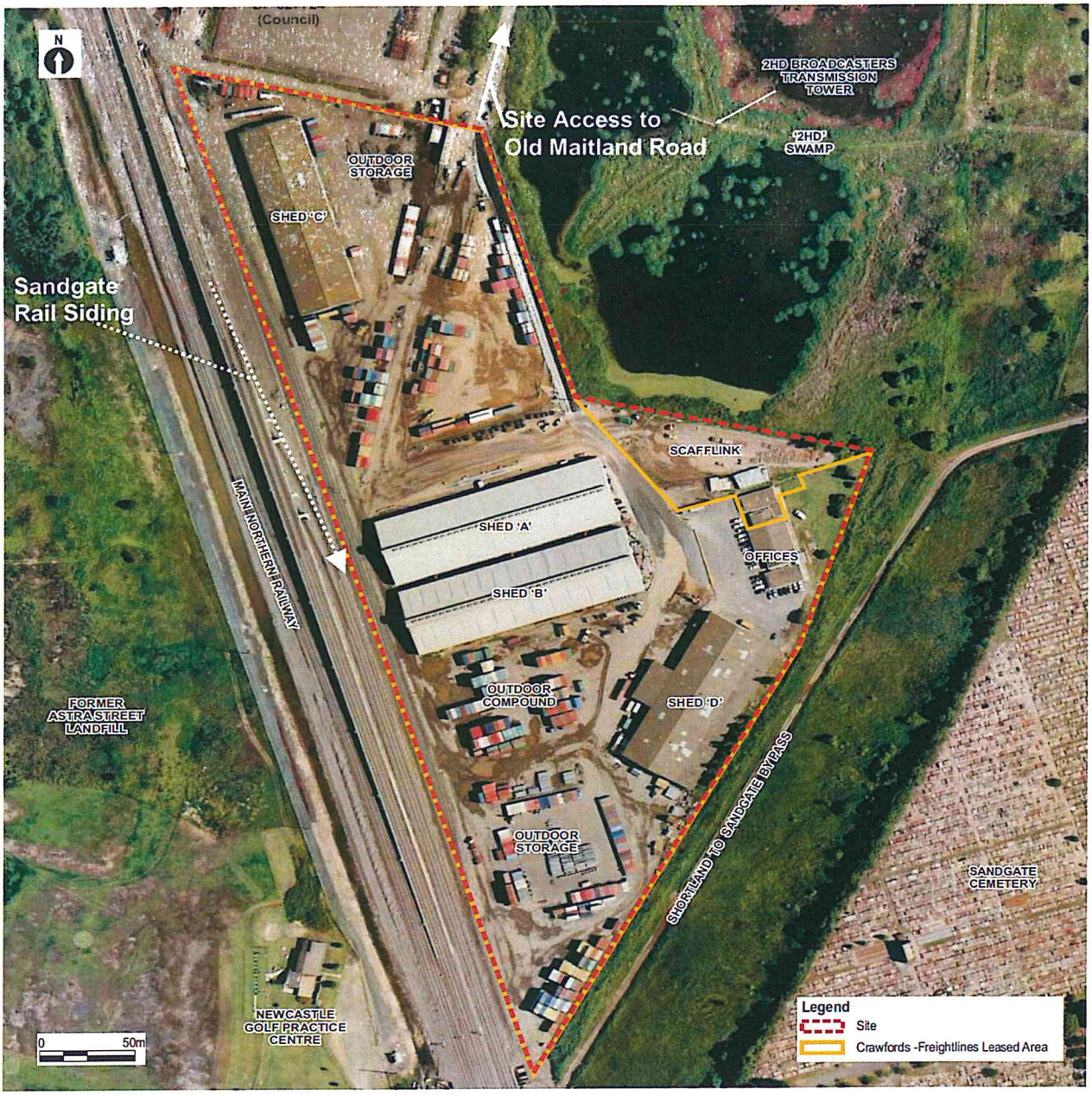

Figure 3: *Existing Site Layout*

Other natural features which are located in close proximity to the site include (see Figure 2):

- the '2HD swamp wetland' and the Hunter River (north-eastern boundary and beyond);
- a number of *State Environmental Planning Policy No. 14 – Coastal Wetlands* (SEPP 14) listed wetlands (located in the vicinity of the site in all directions); and
- a RAMSAR-listed Hunter Estuary Wetland site, located approximately 400m south-west of the site.

The site is highly disturbed from previous industrial uses and contains negligible vegetation cover which is limited to disturbed plantings and patches of exotic grassland.

The site is also considered to have been raised via the importation of fill material in the late 1960s or early 1970s to prevent water inundation of the site.

The nearest residential receivers are located approximately 260m east of the site across the 2HD Swamp on Maitland Road (see Figure 2). Residential receivers are also located in Astra Street at Sandgate approximately 300m south-west of the site and at the St Joseph's Nursing Home and Village which is also located approximately 550m north-east of the site (see Figure 2).

1.3 Regulatory Non-compliance

In December 2008, Crawfords obtained a license from WorkCover NSW (WorkCover) to store up to 10,000 t of AN at the site (5,000 t in Shed D and 5,000 t in shipping containers). After obtaining the lease of Shed C on the site in August 2010, Crawfords was granted an extended license by WorkCover in September 2010 to store up to 13,500 t of AN on the site (see Figure 3). This included AN storage of:

- 3,500 t in Shed C;
- 5,000 t in Shed D;
- 1,500 t in shipping containers in the Shed C outdoor storage compound; and
- 3,500 t in shipping containers in the outdoor storage compound south of Shed B.

However in December 2011, following site inspections from Newcastle City Council (Council) and the Environment Protection Authority (EPA), Crawfords was issued with a Notice of Intention (NOI) to give an order by Council to cease the use of the premises as a chemical (including AN) storage facility.

The NOI was issued to Crawfords because it did not have development consent for its Sandgate operations. Under the current NOI, Crawfords must comply with its requirements to cease operating by 31 August 2013, unless Crawfords obtain a development consent.

Crawfords was also issued a Notice of Preventative Action (NPA) by the EPA to:

- maintain an accurate and up to date record of all chemicals stored on the premises;
- reduce the quantity of AN stored at the site to below 2,000 t; and
- ensure the total quantity of all chemicals stored at the site is maintained below the thresholds specified under Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) for 'Chemical Storage' which would require Crawfords to hold a valid Environmental Protection License (EPL).

The NPA was issued to Crawfords because it did not have an EPL for its Sandgate operations.

Both the NOI and NPA remain in force at the time of writing this report. The Department understands that both Council and the EPA are currently investigating the matter and may decide to take compliance action (e.g. the issue of a penalty infringement notice/s) for the period of non-compliance, however, any action is separate to the consideration of this application.

Notwithstanding this, both Council and the EPA also recognise the steps taken by Crawfords since that time to rectify this situation by gaining the appropriate regulatory approvals in order to resume normal operations at its Sandgate site. The Department has consulted extensively with Council and the EPA throughout the assessment of this proposal. Both Council and the EPA did not object to the proposed development (see Section 4.1 of this report), and the EPA has indicated that it is in a position to issue an EPL for the storage of 13,500 t of AN.

1.4 Existing Operations

As above, Crawfords are currently restricted to storing up to 2,000 t of AN at the site by the EPA's NPA, however, in the past have stored up to 13,500 t.

Crawfords import the majority of AN as a porous prill (i.e. pellet sized crystals) product (see Figure 4) to Australia via ship from various sources in South America, Scandinavia and Asia. The importation of AN via sea transport is strictly controlled under (and must comply with) the International Maritime Dangerous Goods Code (IMDGC).

Under the IMDGC, the receiving country must not accept delivery of AN unless the intermediate bulk containers (IBCs) carry the United Nations (UN) packaging symbol. This symbol demonstrates that the containers have been manufactured and tested in accordance with the code. Each IBC received must also contain a certificate of analysis to verify the properties of AN supplied.

The imported bagged product is typically received in 1 to 1.25 t IBCs in shipping containers (see Figure 4) at Port Botany (Sydney) and the Port of Newcastle before being transported by road (Port of Newcastle) or rail (Port Botany) to the site. Some product is also sourced locally on an ad hoc basis from Orica's manufacturing facility at Kooragang Island. A typical breakdown of inbound AN supply to the site is provided in Table 1 below.

Table 1: Typical Breakdown of Inbound AN Supply to the Site

Supply Source	AN Product Type	Average Tonnes Per Annum	Delivery Method
Port Botany, Sydney	Bulka bags in containers	21,000	Train
Newcastle Port (M4 berth)	Bulka bags as bulk break cargo	18,000	Truck
Kooragang K2 and K3 berths	Bulka bags as bulk break cargo	18,000	Truck
Orica Kooragang	Bulka bags	As required on ad hoc basis	Truck

Once received at the site, AN is stacked and stored in accordance with the Australian Standard *AS4326-2008 'Section 9 – Specific Requirements for Ammonium Nitrate'*, before final distribution by truck to various mining, agricultural and manufacturing industries within NSW and interstate. Some AN is also re-distributed in shipping containers by truck or rail to the Port of Sydney or Port of Newcastle for export.

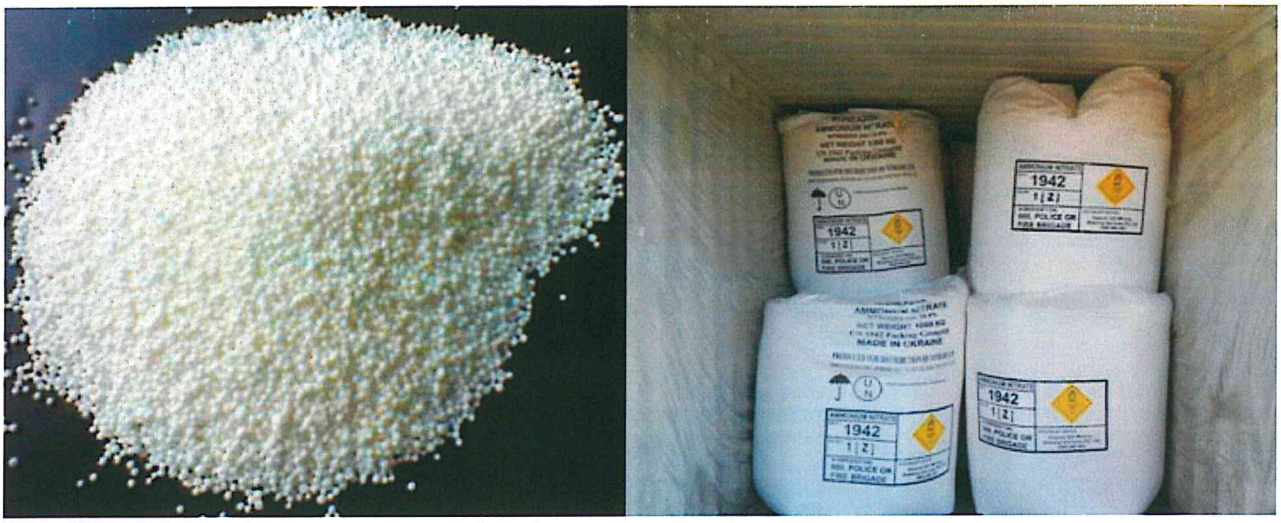

Figure 4: *Example of AN prill (left) and AN IBC storage in a shipping container (right)*

1.4 Development Need

Crawfords is now seeking to regularise its Sandgate site operations by obtaining development consent from the Minister for Planning and Infrastructure for the storage and distribution of AN at historical levels (i.e. up to 13,500 t). The proposed development is needed to ensure a reliable supply of AN to service various mining, agricultural and manufacturing industries in NSW.

The proposed development is known as the 'Crawfords Ammonium Nitrate Storage and Distribution Facility' and is summarised in Section 2 of this report.

2. PROPOSED DEVELOPMENT

2.1 Description

The Applicant, Crawfords Freightlines Pty Ltd (Crawfords), is now seeking approval for the storage and distribution of ammonium nitrate (AN) at historical levels at its site in Sandgate, NSW.

The proposal includes the storage of up to 13,500 tonnes (t) of AN which is classified as a Dangerous Good (Class 5) under the Australian Dangerous Goods Code. This substantially exceeds the threshold for a Major Hazard Facility (MHF) for the storage of 2,500 t of a Schedule 15 listed material, as defined in Chapter 9 of the *Work Health and Safety Regulation 2011*, and as such meets the criteria in Clause 10(3) of Schedule 1 in *State Environmental Planning Policy (State and Regional Development) 2011*.

Consequently, the proposal is classified as a SSD, and requires approval under Part 4 of the EP&A Act from the Minister for Planning and Infrastructure.

The major components of the development are summarised in Table 2, and depicted in Figure 5. The proposed development is described in full in Environmental Resource Management's (ERM's) Environmental Impact Statement (EIS), which is attached as Appendix C.

Table 2: Main Development Components

Aspect	Description
Development Summary	The development involves the storage and distribution of up to 13,500 t of AN from existing warehouses at the Sandgate site, retention of ancillary buildings and infrastructure, minor building modifications and upgrades to the existing stormwater management system.
Shed A	• storage of 4,500 t of AN (indoor only)
Shed B	• storage of 4,500 t of AN (indoor only)
Shed C	• storage of 4,500 t of AN (4,000 t indoor and 500 t outdoor in shipping containers in the outdoor compound)
Shed D	• use of this shed for general storage (no AN)
Ancillary Buildings and Infrastructure	Retention of: • central and southern administration buildings, offices and amenities; • outdoor storage areas and compound; • wash bay and workshop; and • storage yard and rail siding.
Building Modifications	Minor building modification to Sheds A, B and C in response to flooding including: • retrofitting precast concrete doors to the openings at the front of Sheds A and B; • application of an impervious sealant to the walls (timber panelling on the inside and outside) of Sheds A and B; • sealing of the concrete floor expansion joints/voids of Sheds A and B with an impervious epoxy resin to prevent a potential surface/groundwater contamination pathway; and • casting of concrete panels fitted between and secured to building columns of Shed C and sealing the joints with an impervious sealant product.
Stormwater Management System	Existing stormwater management system to be retained and upgraded including: • minor site regrading and surface stabilisation; • as above, sealing the joints of the floors in Sheds A and B with epoxy resin; • roof water capture and storage; • layering of aggregate; • installation of a wheel wash; and • installation of water sensitive urban design measures stormwater treatment devices including pre-treatment sediment (x5) and biofiltration basins (x5).
Flood Hazard Management	In response to a 2% Annual Exceedence Probability flood: • encasement of store perimeters with 250 micron 4m wide polythene construction membrane leaving no gaps and allowing 2m overlap at joints; • supply of pre-filled sand bags sufficient to construct a 2m by 8m by 1m high internal seepage dam and additional supply of 250 micron 4m wide polythene construction membrane to line the dam; and • use of diesel powered water sump pumps. In response to a 1% Annual Exceedence Probability flood: • all of the above listed measures for the 2% AEP flood event; and • construction of internal seepage dams adjacent to each sheds vehicular access door with internally and externally positioned diesel powered water sump pumps to prevent water

Aspect	Description
	pooling in dams. Flood proofing AN storage structures by: • completion of all of the abovementioned building modifications (see points 1 to 4); and • obtaining structural certification from a suitably qualified engineer that storage Sheds A, B and C are flood proofed to withstand up to a 1% AEP plus 500mm freeboard flood event.
Road Access	• via a service road off Old Maitland Road, Sandgate
Rail Access	• via dedicated rail siding off the Main Northern Railway Line
Plant and Equipment	• 47 trucks; • 2 conveyors; and • 11 forklifts.
Operational Traffic Generation	• up to 65 light vehicle movements a day; • up to 100 heavy vehicles movements a day; and • up to 3 train movements a week.
Car Parking	• 61 car parking spaces for staff and visitors
Hours of Operation	• 6.00am to 10.00pm (Monday to Friday); • 6.00am to 10.00pm (Saturdays and Sundays), where required; and • Truck deliveries would occur 24 hours, 7 days a week.
Capital Investment Value	• $600,000
Employment	• 65 full-time jobs during operation.
Environmental Management Plans	• Construction Environmental Management Plan including; - Site Security Plan; - Site Emergency (Flood) Plan; - Acid Sulphate Soils Management Plan; - Surface Water Management Plan; - Air Quality Control Plan; - Waste Management Plan; - Safety Management System; - Soil and Erosion Control Plan; - Flora and Fauna Management Plan; - Noise and Vibration Control Plan; - Groundwater Management Plan; and - Traffic Management Plan.
	• Operational Environmental Management Plan including: - Site Security Plan; - Site Emergency (Flood) Plan; - Surface Water Management Plan; - Waste Management Plan; - Safety Management System; - Flora and Fauna Management Plan; - Groundwater Management Plan; and - Traffic Management Plan.

2.2 Staging

Crawfords anticipate that the completion the above minor building modifications and stormwater management system upgrades would take approximately 5 weeks. These works would commence as soon as possible after (if) development consent is granted. Given the short duration of work, no staging is proposed.

Figure 5: *Proposed Development*

3. STATUTORY AND STRATEGIC CONTEXT

3.1 Strategic Context

The project is consistent with the goals and priorities of *NSW 2021*, particularly Chapter 1 as it would contribute to building the NSW economy by promoting economic and employment growth in the Lower Hunter Region through the retention of around 65 full-time operational jobs.

The *Lower Hunter Regional Strategy 2006* (LHRS) is the NSW Government's key strategic planning strategy for the Lower Hunter region. The LHRS guides and informs planning, service and infrastructure delivery in this region. The LHRS applies to land in the Newcastle local government area and therefore applies to this project.

In particular, the LHRS was developed to ensure that adequate land is available and appropriately located to sustainably accommodate the projected housing, employment, and associated support services and infrastructure, over the next 25 years.

The project is consistent with the LHRS by providing industrial employment opportunities (as above) during operation, as well as long-term economic benefits such as ensuring a reliable supply of AN to service the multi-billion dollar mining industry in the Hunter, as well as mining, agricultural and manufacturing industries throughout NSW.

3.2 State Significant Development

The proposal is SSD under Part 4 of the EP&A Act because it involves the storage of dangerous goods in quantities exceeding the criteria for a Major Hazard Facility as defined in the *Work Health and Safety Regulation 2011*, and as such meets the criteria in Clause 10(3) of Schedule 1 in the SRD SEPP. Consequently, the Minister for Planning and Infrastructure is the consent authority for the proposed development.

On 27 February 2013, the Minister delegated his functions to determine SSD applications to the Executive Director, Development Assessment Systems and Approvals, of the Department where:
- the relevant local council has not made an objection, and
- there are less than 25 public submissions in the nature of objections, and
- a political disclosure statement has not been made.

There have been 13 public submissions objecting to the proposed development and Council has not objected to the proposed development. In addition, no political disclosure statement was made for this application or any previous related application, and no reportable political donations disclosures were made by any persons who have lodged a submission.

Accordingly, the application is able to be determined by the Executive Director under delegation.

3.3 Permissibility

The site is zoned 'IN3 Heavy Industrial' under the *Newcastle Local Environmental Plan 2012* (NLEP).

The proposed development involves the storage and distribution of AN. The proposal is permissible with consent on the subject site as a 'heavy industrial storage establishment'.

3.4 Integrated Approvals

Under Section 89K of the EP&A Act, a number of further approvals are required to be obtained, but must be approved in a manner that is consistent with any Part 4 approval for the SSD under the EP&A Act.

In this case, the proposal requires an Environmental Protection Licenses (EPL) under the *Protection of the Environment Operations Act 1997.*

The Department has consulted with the Environment Projection Authority (EPA) and considered the relevant issues relating to the issue of an EPL in the assessment of the proposal (see Section 5 of this report).

The EPA has indicated that it is able to issue an EPL for proposed development.

3.5 Other Approvals

The Applicant also requires a separate approval for a Major Hazards Facility license under the *Work Health and Safety Regulation 2011* for the proposed development.

A number of other separate approvals may also be required to be obtained by the Applicant for the proposed development including:

- a licence for groundwater monitoring bores under the *Water Act 1912*; and
- a licence under the *Explosives Act 2003*.

The Department has consulted with the NSW Office of Water (NOW) and WorkCover NSW and considered the relevant issues relating to the issue of these licenses in the assessment of the proposal (see Section 5 of this report).

3.6 Considerations under Section 79C of the EP&A Act

Under Section 79C of the EP&A Act, in determining a development application, a consent authority is required to take a number of matters into consideration in relation to the proposed development. The Department has given due consideration to the matters prescribed by Section 79C.

The Department's detailed consideration of the proposed development against the provisions of Section 79C of the EP&A Act is contained within Appendix B of this report.

3.7 Exhibition and Notification

Under Section 89F(1) of the EP&A Act, the Director-General is required to make the DA and any accompanying information of an SSD proposal publicly available for at least 30 days.

After accepting the Environmental Impact Statement (EIS) for the proposal, the Department:

- made it publicly available from **Wednesday 6 February 2013** until **Monday 11 March 2013**;
  - on the Department's website;
  - at the Department's Head Office (Sydney);
  - at the Department's Regional Office (Newcastle);
  - at the Nature Conservation Council's Head Office (Sydney); and
  - at Newcastle City Council.
- notified landowners in the vicinity of the site about the exhibition period by letter;
- notified relevant State government authorities and Newcastle City Council by letter; and
- advertised the exhibition in the Newcastle Herald.

3.8 Environmental Planning Instruments

Under Section 79C of the EP&A Act, the consent authority, when determining a development application, must take into consideration the provisions of any environmental planning instrument (EPI), draft EPI (that has been subject to public consultation and notified under the EP&A Act) and development control plan/s (DCPs) that apply to the proposal.

DCPs do not apply to SSD under Clause 11 of the SRD SEPP. Notwithstanding this, the Department has considered the relevant provisions of *Newcastle Development Control Plan 2012* in its assessment of the proposal in Section 5 of this report.

The Department has also assessed the proposal against the relevant provisions of several EPIs and is satisfied that, subject to the implementation of the recommended conditions of approval, the proposal is generally consistent with the aims, objectives and provisions of these instruments (see Appendix F).

3.9 Objects of the EP&A Act

In determining the application, the consent authority should consider whether the proposal is consistent with the relevant objects of the EP&A Act. These objects are detailed in Section 5 of the Act, and include:

(a) to encourage:
- *(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- *(ii) the promotion and co-ordination of the orderly and economic use and development of land,*
- *(iii) the protection, provision and co-ordination of communication and utility services,*
- *(iv) the provision of land for public purposes,*
- *(v) the provision and co-ordination of community services and facilities, and*
- *(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- *(vii) ecologically sustainable development, and*
- *(viii) the provision and maintenance of affordable housing, and*

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The Department has fully considered the objects of the EP&A Act, including the encouragement of Ecologically Sustainable Development (ESD), in its assessment of the application.

The Department considers that objects 5(a) (i), (ii), (vi) and (vii) are most relevant to the merit assessment of this application. The Department has given due consideration to these objects in its assessment of the proposal (see Table 3 below).

Table 3: Objects of the EP&A Act and relevance to the development

Object	Consideration
5(a)(i)	The proposal would ensure the proper management and development of suitably zoned (i.e. industrial) land for the economic welfare of the community including the retention of approximately 65 full-time equivalent jobs at Sandgate. Further, the proposal would improve the current environmental management of the site.
5(a)(ii)	The subject site is located on suitably zoned land that has been strategically identified for industrial use. As above, the site would be used economically to employ approximately 65 full-time staff and would ensure a reliable supply of AN to the mining, agricultural and manufacturing industries in NSW.
5(a)(vi)	The Department's assessment in Section 5 of this report demonstrates that with the implementation of recommended conditions of consent, the impacts of the development can be mitigated and/or managed to ensure the environment is protected.
5(a)(vii)	The proposal is unlikely to have an adverse impact on native flora or fauna, including threatened species, populations and ecological communities, and their habitats and is therefore consistent with the principles of ESD (see Section 3.9 below).

3.10 Ecologically Sustainable Development

The EP&A Act adopts the definition of ESD found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) the precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:
- *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
- *(ii) an assessment of the risk-weighted consequences of various options,*

(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

As demonstrated by the Department's assessment in Section 5 of this report, the proposal would have no adverse impacts on native flora or fauna, including threatened species, populations and ecological communities, and their habitats and is therefore consistent with the principles of ESD.

4. CONSULTATION AND SUBMISSIONS

The Department exhibited the DA and EIS for the proposal between **Wednesday 6 February 2013** and **Monday 11 March 2013**. During the exhibition period, the Department received **24** submissions on the proposal:

- **9** from public authorities (the City of Newcastle Council (Council), the Environment Protection Authority (EPA), WorkCover NSW (WorkCover), the Office of Environment and Heritage (OEH), the Department of Primary Industries (DPI), Roads and Maritime Services (RMS), Australian Rail Track Corporation (ARTC), the NSW Department of Trade & Investment (DTIRIS - Minerals) and Hunter Water Corporation (HWC); and
- **15** from the general public.

A summary of the issues raised in submissions is provided below.

4.1 Public Authorities

Council did not object to the proposal but requested that the Applicant submit a revised Preliminary Hazards Analysis demonstrating that the proposal would comply with the Department's quantitative risk criteria for active open space.

Council also raised concern about the potential release of Ammonium Nitrate (AN) into the local environment during a flood event. Council requested confirmation that the proposed flood mitigation measures would be effective in containing AN on site and that there would be sufficient time to evacuate the site during an impending major flood event.

Council also raised concern about the generation of dust on site from AN handling and vehicle movements.

The **EPA** did not object to the proposal, but noted the Applicant's obligations to formally notify them about groundwater contamination (Ammonia) present at the site under Section 60 of the *Contaminated Land Management Act 1997*. The EPA recommended that, at the very least, AN storage and trafficable areas be upgraded to hardstand to prevent further contamination from AN, and that a surfacewater monitoring program be undertaken to determine the effectiveness of the proposed stormwater management system with trigger values for the implementation of further improvements.

The EPA also recommended draft Environmental Protection License (EPL) conditions for air quality, water, noise and waste management for incorporation into any development consent.

WorkCover did not object to the proposal and recommended a condition of consent to ensure that specified post-approval hazards and risk studies for the development address both on site and off-site hazards and risks.

The **OEH** did not object to the proposal and considered that the current condition of the adjoining 2HD Swamp needs to improve as a result of the proposed development. The OEH recommended the implementation of a detailed surfacewater monitoring program with trigger values for the implementation of further improvements to the proposed stormwater management system.

The OEH also recommended measures for dealing with Aboriginal cultural heritage finds and flooding.

DPI did not object to the proposal but raised concern regarding the potential for the release of AN during a flood event and the potential impacts on the downstream environment. DPI requested that the Applicant be required to 'flood proof' all AN storage structures on site. DPI also supported the development of an upgraded stormwater management system to improve water quality leaving the site.

RMS did not object to the proposal as it considered the proposal would not have a significant impact on the classified (State) road network.

ARTC did not object to the proposal but considered that no additional stormwater should flow towards the rail corridor as a result of the proposal. In relation to hazards and risks, ARTC requested that the Applicant ensure the proposal does not adversely impact on the operations of the Main Northern Railway Line.

DTIRIS noted the site is within Petroleum Exploration Lease (PEL) area 458, held by Macquarie Energy Pty Ltd, but raised no concerns with the proposal.

HWC did not object to the proposal and did not raise any issues of concern.

4.2 General Public

13 submissions from members of the general public objected to the proposal and **2** submissions supported the proposal.

A summary of the issues raised in objecting public submissions by proportion is provided in Table 4 below and illustrated in Figure 6. Table 4 also shows where each issue has been addressed in Section 5 of this assessment report.

Table 4: Summary of Issues Raised by Objectors in Public Submissions and Relevant Section of Assessment Report

Issue	Approximate Proportion of Submissions (%)	Relevant Section of Assessment Report
Hazards, Risks and Safety	24	Section 5.1
Flora and Fauna	15	Table 6
Flood Risk Management and Emergency Evacuation	15	Section 5.3
Contamination	13	Section 5.2
Air Quality	9	Table 6
Traffic	9	Table 6
Site Security	6	Table 6
Site Suitability	6	Table 6
Noise	3	Table 6

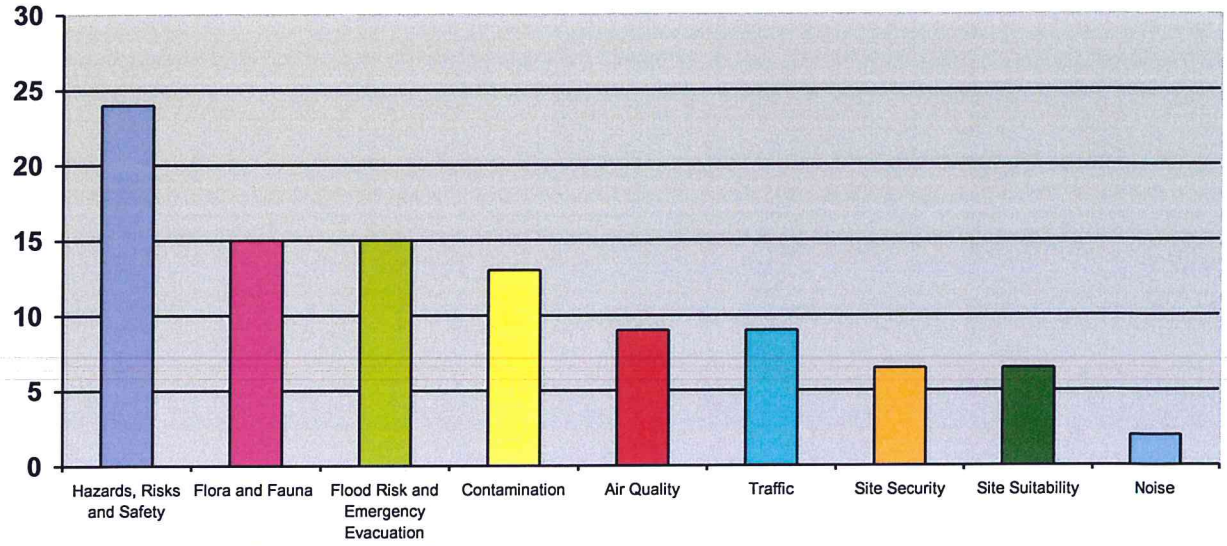

Figure 6: Issues Raised by Objectors in Public Submissions by Proportion

Submissions from members of the general public which supported the proposal did so because it would:

- rectify a shortage of AN supply to industries in the Hunter Region (many AN storage facilities are restricted to owner/use only);
- simplify regulatory control over AN storage and distribution by having a large, single and centralised facility;
- take trucks off roads in the Newcastle region through the use of rail for transport of AN;
- utilise a secure site with the majority of infrastructure already in place; and
- involve staff who are professionally trained in the handling of AN.

4.3 Response to Submissions

The Applicant has provided a response to the issues raised in submissions (see Appendix E). This response has been made publicly available on the Department's website.

5. ASSESSMENT

The Department has considered the EIS, the issues raised in submissions, and the Applicant's response to these issues, in its assessment of the proposal. The Department considers the key issues to be potential hazards and risk, contamination and surface water.

All other environmental impacts are considered to be minor. The Department's assessment of all other issues is provided in Table 6 below.

5.1 Hazards and Risk

Issue

The proposed development is a "potentially hazardous industry" as defined under the provisions of *State Environmental Planning Policy No. 33 Hazardous and Offensive Development* (SEPP 33).

Consequently, there is a potential for human fatality or injury as a result of accidental fires and/or explosions as well as damage to property and the biophysical environment from the storage of AN.

Consideration

A Preliminary Hazard Analysis (PHA) was prepared and included as Annexure B of the EIS to assess the risk to people, property and the environment from the proposed development.

The Department engaged SCANPOWER, a member of Lloyd's Register (Lloyd's), to independently review the proposal in terms of its potential hazard and risk impacts and to undertake a detailed review and assessment of the PHA. The Department has carefully considered Lloyd's review and accepts its findings. Lloyd's final detailed technical report is attached as Appendix G.

Methodology

The methodology of the PHA as required by the Department's *Hazardous Industry Planning Advisory Paper* (HIPAP) *No. 6 Hazard Analysis* incorporates the following elements:

1. *Identification of the nature and scale of all hazards at the facility, and the selection of representative incident scenarios;*
2. *Analysis of the consequences of these incidents on people, property and the biophysical environment;*
3. *Evaluation of the likelihood of such events occurring and the adequacy of safeguards; and*
4. *Calculation of the resulting risk levels of the facility and comparison of these risk levels with established risk criteria and identification of opportunities for risk reduction.*

The Department is satisfied that all of the above elements were adequately addressed in the PHA.

As part of the assessment process, a detailed comparison of this PHA and other similar AN establishments in NSW was conducted by the Department. The Department's assessment of the PHA against each of the four (4) elements listed above is provided below.

1. Hazard Identification

The PHA identified the following as major hazardous materials with the potential for off-site safety or environmental effects:

1. ammonium nitrate (AN); and
2. nitrogen oxides.

Hazardous incidents involving these materials have the potential to cause injury or fatalities to people, damage to property or the biophysical environment. This includes events such as fires, explosions and release of toxic gas from AN fires.

A public submission raised concern that the hazards from the transfer of AN flexible bags in shipping containers by rail was absent from the PHA. In the RTS, additional modelling was undertaken by Crawfords to estimate the impact of these hazards on the overall risk contour and it was demonstrated that accidents related to rail operations would not impact on the overall risk as already identified.

The Department considers that the hazard identification in the PHA is comprehensive. The PHA includes the causes, consequences, control and mitigation measures for each identified hazardous incident. These were then used to develop accident scenarios that were considered as part of the consequence and frequency analysis (see points 2 and 3 below) within the PHA report.

As Crawfords handles materials on site which are security sensitive in nature, parts of the PHA were segregated as confidential. These parts are not included in the public document but were provided to the Department. The Department's findings are based on assessment of both the public and confidential PHA reports.

2. Consequence Analysis

The consequence analysis was calculated mainly using SAFEX's International's *Good Practice Guide: Storage of Solid Technical Grade Ammonium Nitrate* (SAFEX Guide). This Guide was prepared by the International Industry Working Group and provides guidance on risk analysis for the storage of AN.

Ammonium Nitrate Explosion

The consequence of an AN explosion (i.e. overpressure) was calculated using a TNT (trinitrotoluene) equivalency method. This is an industry standard approach for determining consequence modelling from AN explosions.

During the assessment process, the Department requested justification for Crawfords interpretation of the SAFEX Guide with regards to the equivalent TNT mass to AN mass assumed in the PHA for an AN explosion. Crawfords provided justification and amended its analysis.

The Department considers that Crawfords assessment of the selection of the overall TNT equivalency and overpressure consequence distance results are comparable to the values used in other studies and in most cases, the results are marginally more conservative.

The Department questioned Crawfords proposed AN stack separation of 3 metres. Although this meets the requirements of *AS 4326 - 2008 'The Storage and handling of Oxidizing Agents'* and WorkCover's requirements in relation to the storage of Dangerous Goods, it is not as conservative as the distances specified in the SAFEX Guide or by what is required by other Australian states. The Department also sought additional information from WorkCover for the rationale behind the 3 metre separation and was advised that the quoted separation distance does not eliminate the possibility of propagation from another explosion.

Subsequently, Crawfords revisited its proposed arrangement of AN stacks and amended its calculations. The worst case scenario was increased from an explosion involving one stack, to an explosion involving half the storage in a warehouse, which is a more conservative approach.

The Department is therefore satisfied with the approach and results of the consequence modelling for AN explosion.

Toxic Gases From a Fire Involving Ammonium Nitrate

The consequence analysis for the impact of the release of toxic gases from an AN fire was determined using AUSPLUME modelling software. Based on the modelling results presented in the PHA, this event was found not to be a major contributor to off-site fatality risk. The Department noted that this is consistent with the findings of other AN Quantitative Risk Assessments (QRAs) and is acceptable.

Overall, the Department considers the methodology and results of the consequence analysis to be appropriate for this development.

3. Frequency Analysis

The frequency analysis for the development was conducted using the data and methods suggested in the SAFEX Guide and from other internationally recognised bodies such as the UK Health and Safety Executive.

During the assessment process, the Department requested clarification on Crawfords estimation of explosion frequencies for each AN stack. Additionally, the Department questioned Crawfords justification for reducing the frequencies on the basis that its site is a storage facility and not a manufacturing facility. In response to these questions, Crawfords made adjustments to its assumptions and recalculated its results.

The Department also sought further clarification regarding the use of AN storage accident frequencies for AN truck incidents. Crawfords provided justification that in the absence of reported frequencies specifically for AN truck incidents, the AN storage accident frequencies were used as an indicative value and adjusted to reflect truck operations. The Department considers this to be appropriate as the resulting value is conservative with respect to historical data and consistent with other similar AN QRAs.

The Department considered that the total explosion frequency used in the PHA for Crawfords is more conservative than some other sources reported in the public domain.

The Department also considers the calculated frequency based on values reported in the SAFEX Guide is already conservative at four times the historical average. Therefore, the Department considers the total combined frequency for Crawfords is justifiable.

Overall, the Department is satisfied that the frequency analysis undertaken by Crawfords for the proposal is within reasonable limits of the historical average and is appropriate for the proposed development.

4. Off-site Risks and Results

The off-site risks posed by potential hazardous incidents have been estimated using the results of the consequence and frequency analysis.

The following risks were estimated and presented in manner to assess compliance against the relevant criteria from HIPAP No. 4 *Risk Criteria for Land Use Safety Planning*:

1. individual fatality risk;
2. risk of injury from toxic releases of gas from an AN fire and explosion overpressure;
3. risk of irritation from toxic releases of gas from an AN fire;
4. risk of property damage and accident propagation; and
5. societal risk.

The risk to the biophysical environment was qualitatively assessed.

Some of the key risk reduction measures proposed by Crawfords include:

1. optimising AN storage arrangements (i.e. maximising appropriate segregation of AN stacks wherever practicable to prevent an explosion involving the entire store);
2. fire protection systems;
3. procedures for preventing the contamination of AN; and
4. refurbishment of the storage buildings with existing timber to be coated with concrete.

As illustrated by Figure 7 below, the individual fatality risk criteria contours for the proposed development would comply with the Department's landuse risk criteria for sensitive landuses (e.g. schools or aged care

facility), residential, commercial and industrial uses. However as illustrated by Figure 7, the proposed development would not meet the criteria for active open space.

The individual fatality risk contour for active open space [i.e. the orange line at 10 per million per year (pmpy) criterion] extends approximately 250m beyond the western boundary of the site and onto land on the western side of the Main Northern Railway Line corridor (see Figure 7).

Part of the land (Lot 33 DP 118637) on the western side of the rail corridor within the active open space contour is leased by Council (as the landowner) to a private entity for the purpose of a Golf Driving Range (see Figure 7). The individual fatality risk criterion for active open space is therefore exceeded on part of the Golf Driving Range site (see area shaded green in Figure 7).

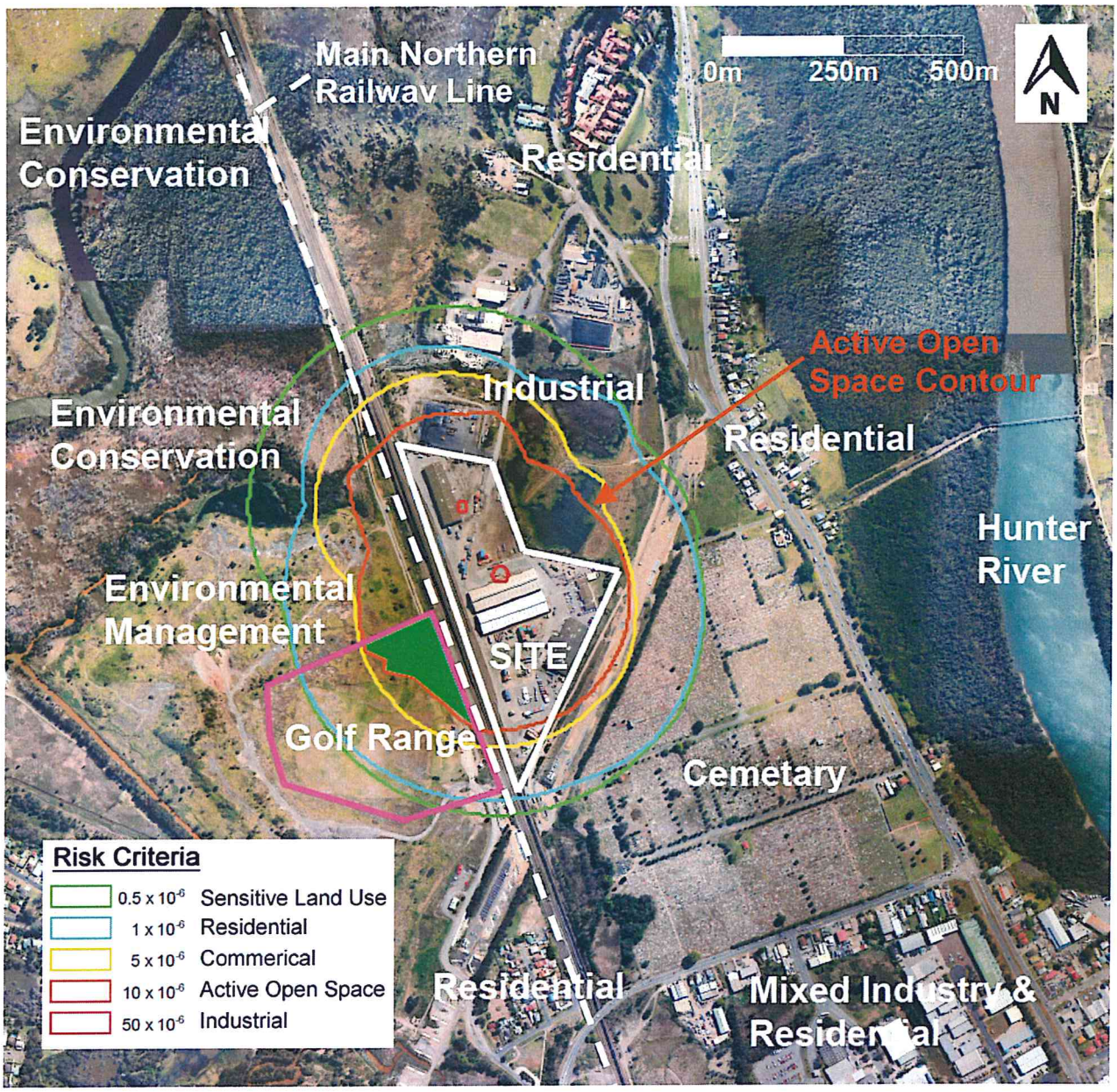

Figure 7: *Individual Fatality Risk Criteria Contours for the Proposed Development*

This was a key concern raised in a number of submissions including Council's and by the Department.

A close up view of the extent of the active open space contour on the Golf Driving Range site is shown in green cross hatching in Figure 8. As illustrated, while the contour extends onto the land, it does not extend to the golf driving range clubhouse, tee-off area or any other area of the site that is currently occupied. This area is currently covered with grass, scattered shrubs and trees.

The remainder of the land on the western side of the Main Northern Railway Line that is encompassed by the active open space contour is also owned by Council. The land shown in yellow cross hatching in Figure 8 is zoned E3 Environmental Management under Newcastle DCP and is subject to environmental monitoring requirements associated with its former use as the Astra Street landfill site (part Lot 33 DP 118637). The land shown in blue cross hatching in Figure 8 is part of a wetland and is zoned E2 Environmental Conservation. Both parcels of land are currently fenced to prohibit public access and are not currently used for a purpose that is regulated by risk criteria in NSW[1].

To address the exceedance of the individual fatality risk criterion for active open space (i.e. for that part of the Golf Driving Range site encompassed within the active open space contour), the Department requested that Crawfords demonstrate that suitable arrangements would be in place to restrict public access (e.g. by provision of secure fencing) to this land, prior to determination.

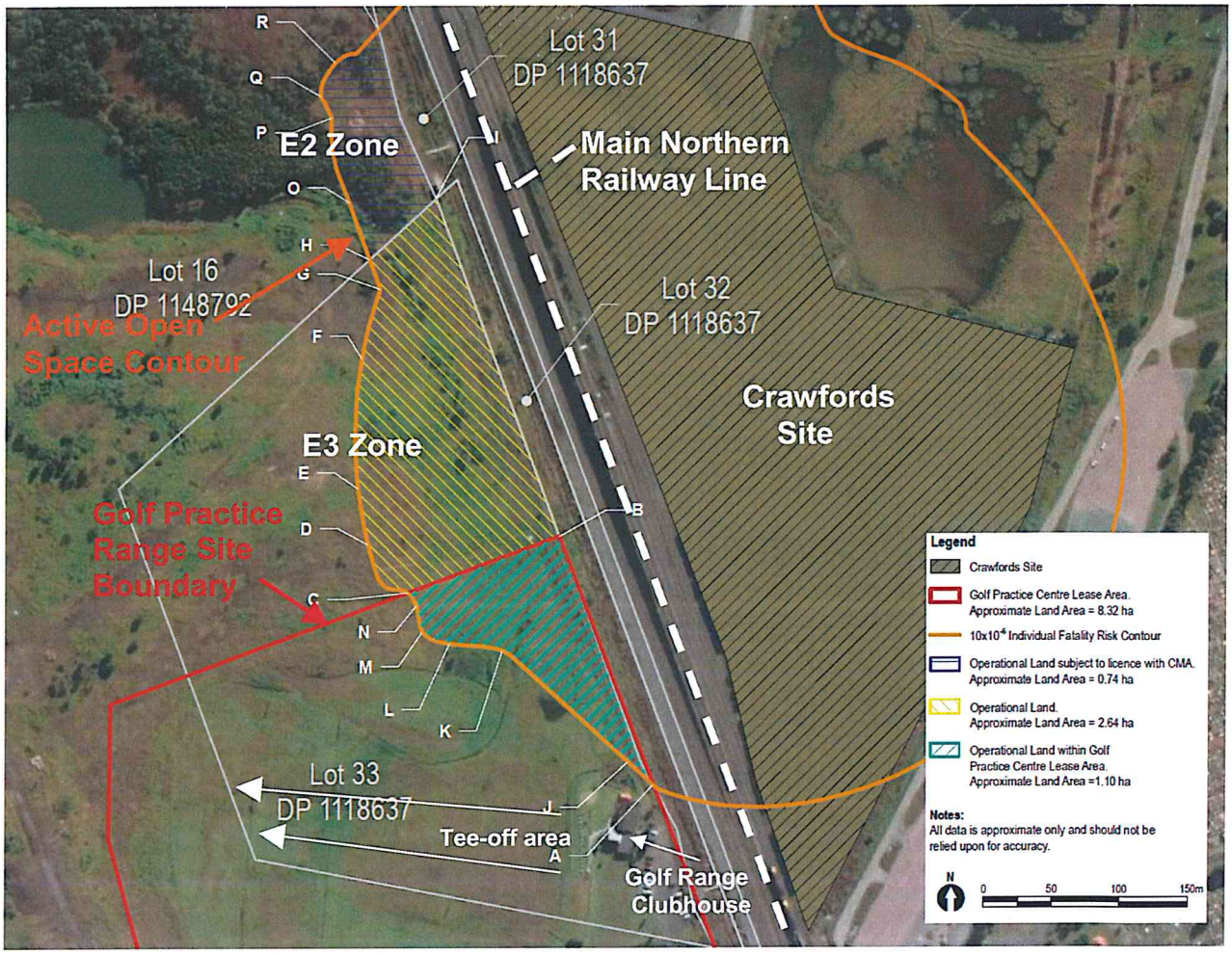

Figure 8: *Close Up View of the Active Open Space Contour Extending Onto the Golf Driving Range Site*

In response, Crawfords has entered into negotiations with the operator of the Golf Driving Range and is close to finalising a sub-leasing arrangement over that part of the Golf Driving Range site encompassed within the active open space contour (see green cross hatching in Figure 8). The sub-lease would allow Crawfords to take control and fence off that part of the site encompassed by the active open space contour to prevent public access.

In addition, Crawfords also met with Council regarding the remainder of its land on the western side of the Main Northern Railway Line that is encompassed by the active open space contour (see yellow and blue cross hatching in Figure 8). Although as above, this land is not currently used for a purpose that is regulated by risk criteria in NSW, Crawfords sought formal written correspondence from Council confirming

[1] Note: the active open space contour also encompasses the Main Northern Railway Line. Rail corridors are not regulated by risk criteria in NSW.

that this land would be fenced off to restrict public access until further notice. Council issued formal written correspondence to Crawfords on 29 May 2013 confirming that they are prepared to enter into an agreement to exclude the general public from the land in question.
The Department is therefore satisfied that suitable arrangements will be in place to restrict public access to all land on the western side of the Main Northern Railway Line that is encompassed by the active open space contour (i.e. the Off-Site Restricted Access Area) and is regulated by risk criteria in NSW, prior to operation.

To ensure this is the case, the Department has recommended conditions that would require Crawfords to prepare and implement an Off-Site Restricted Access Area Strategy. The Strategy must:

- provide details of the works proposed to prohibit public access to the Off-Site Restricted Access Area, such as secure fencing and signage;
- demonstrate and provide evidence that each landowner (i.e. Council) within the Off-Site Restricted Access Area has been consulted and agrees with the proposed measures; and
- investigate and detail options to purchase or secure land within the Off-Site Restricted Access Area in perpetuity.

Under the recommended conditions, Crawfords would be required to obtain written approval from the Director-General of the Off-Site Restricted Access Area Strategy prior to operation, and annually thereafter or at any time the approved arrangements change or are modified thereafter.

With these conditions in place which would restrict public access, the Department is satisfied that the proposed development would comply with all risk criteria adopted in NSW for new developments, prior to operation and for the life of the development.

WorkCover did not raise any issues of concern with the proposal but requested that the Crawfords be required to consider on site as well as off-site risks in specified post-approval hazards studies. The Department has incorporated WorkCover's request into the recommended conditions (see below).

Recent Explosion Involving AN at Waco (West Texas)

During the assessment of the proposal, on 17 April 2013, an explosion occurred at a fertiliser plant in Waco (West Texas, USA) that is thought to have involved some AN stored on the site. However, the exact cause of the incident is not yet known and is the subject of detailed investigations.

In NSW, all potentially hazardous facilities are subject to comprehensive risk assessment requirements and criteria which have been in place for more than 20 years, and are recognised nationally and internationally. As previously discussed, the Department is satisfied that the proposed development would comply with all risk criteria adopted in NSW for new developments.

Notwithstanding this, the Department has recommended a further condition that would require the Applicant to consider and address all relevant findings and recommendations of all official investigation report/s on the recent explosion at Waco when undertaking the Final Hazards Analysis (FHA) and the Hazard Audit/s (HA) for the development. This would ensure that all data, assumptions and incident control measures proposed for the facility are revised according to the findings and recommendations of all official reports on the Waco incident.

Conclusion

The Department is satisfied that the PHA has applied a sound methodology to estimate the risks from the proposal, and that the development would comply with all risk criteria adopted in NSW for new developments, prior to operation. In addition, as an MHF, the development will be further regulated by WorkCover and subject to strict controls under the *Work Health and Safety Regulation 2011*.

Both WorkCover and Fire and Rescue NSW were consulted on the proposal and raised no concerns. WorkCover recommended a condition for the proposal which the Department has incorporated into the consent. Fire and Rescue NSW did not make a submission on the proposal but in accordance with the recommended conditions, would have an approval role for the Fire Safety Study (see below).

To ensure safe operation throughout the life of the facility, the Department has recommended a number of additional hazards-related conditions of consent which relate to the construction, commissioning and operational phases of the proposal. This includes conditions which require the Applicant to:

- comply with the latest version of *AS 4326* for the life of the development;
- maintain the appropriate AN stack separation distance as recommended by SAFEX *International Good Practice Guide: Storage of Solid Technical Grade Ammonium Nitrate* or better;
- undertake a Construction Safety Study (CSS) consistent with the Department's relevant guideline/s;
- undertake a Fire Safety Study in consultation with Fire and Rescue NSW considering and implementing measures to ensure acceptable fire protection levels at the site;
- undertake a Final Hazards Analysis (FHA) in accordance with the Department's relevant guideline/s and considering all relevant findings and recommendations of all official investigation report/s on the Waco incident (West Texas, USA);
- detail appropriate routes to be used for the transport of hazardous materials to and from the site;
- develop an Emergency Plan (EP) and Safety Management System (SMS) for the facility;
- submit Pre and Post-Startup Compliance Reports detailing compliance with all conditions required to be satisfied prior to and after operation has commenced;
- undertake on-going independent Hazard Audits for the facility to ensure safety and compliance with all statutory documents and approvals and considering all relevant findings and recommendations of all official investigation report/s on the Waco incident (West Texas, USA); and
- ensure that the CSS, FHA, SMS and EP consider on site risks, to the satisfaction of WorkCover.

The Department is satisfied that the recommended conditions will ensure that the potential hazard and safety risks associated with the proposal are adequately managed.

5.2 Contamination

Issue

Construction and operation of the development could result in the disturbance, or further contamination of, contaminated soil and groundwater. The impact of this needs to be carefully assessed in order to ensure potential risks to human health and the local environment are effectively minimised, managed and if necessary, mitigated.

Consideration

Contaminated Soil Management (Construction)

Contaminated soils that are excavated and stockpiled during the construction works would need to be carefully managed to ensure that these contaminants are not released into the environment and/or do not cause odour issues for residents, particularly those closest to the construction works.

The EIS included a Phase 2 Contamination Investigation (CI) undertaken by Environmental Resource Management Australia (ERM) at Appendix D which included a historical desktop review and analysis of soil and groundwater samples across the site.

Results of soil testing indicated elevated concentrations and some commercial screening level exceedances for ammonia, nitrogen, Polycyclic Aromatic Hydrocarbons (PAHs) and other metals. Elevated concentrations of ammonia and nitrogen were considered to be the result of historical AN handling and storage operations at the site. Elevated concentrations of PAHs and other metals were considered likely to be the result of imported fill material.

The CI concluded that soil contamination appears to be limited to imported fill at the site where blast furnace slag was observed and from historic operations at the site associated with spillages of AN. The CI concluded that identified soil contamination is not a significant issue that would affect the sites continued industrial use.

Results of soil testing also found that Potential Acid Sulphate Soils (PASS) exist in-situ at the site in natural estuarine sediments located under the existing layer of fill material. To avoid exposure of PASS, excavation of natural estuarine sediments would be avoided. Given that the depth to existing fill material exceeds 1m

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[2] As above, Crawfords has already obtained structural certification in terms of bearing loads for Sheds A, B and C but not for preventing water inundation up to the 1% AEP plus 500mm freeboard depth design flood event.

in most locations across the site, and that excavations required for construction would generally be shallow (up to approximately 0.7m below ground level), it is considered unlikely that natural estuarine sediments (and PASS) would be exposed as a result of the development.
Notwithstanding this, to manage the potential impacts of the development from exposure of contaminated soil (including PASS), the Applicant has committed to:

- preparing and implementing a comprehensive Construction Environmental Management Plan (CEMP) including various measures to control sedimentation of soil and the release of contaminants; and
- preparing an ASS Management Plan (ASSMP) in accordance with the *ASS Manual* (ASSMAC 1998) if ASS is encountered during construction.

The Department has formalised and built upon these commitments by recommending conditions that would require the Applicant to:

- implement erosion and sediment control measures on site during construction in accordance with the latest version of the *Managing Urban Stormwater: Soils and Construction;* and
- prepare and implement a Contamination Management Plan (CMP) in consultation with the EPA and NOW, as a component of the CEMP including:
  - details of the protocols to be put in place and followed in the event that contaminated soil (including ASS) or water is encountered during construction;
  - measures to ensure the plan would be prepared in accordance the relevant best practice industry guidelines including the ASSMAC 1998 guidelines;
  - details of how excavated soil would be tested for contamination, handled and stockpiled;
  - details of the measures that would be employed to prevent erosion and sedimentation of contaminated soil and suppress odour; and
  - details of how contaminated soil and water would be disposed of off-site (e.g. at a licensed facility).

The Department is satisfied that with these conditions in place that, contaminated soil can be effectively managed during construction if encountered.

Contaminated Groundwater Management (Construction)

Elevated concentrations of ammonia (as Nitrogen or N) and dissolved metals were recorded in three groundwater monitoring well samples taken at the site. As previously discussed, this contamination is likely to be the result of historic operations at the site associated with spillages of AN.

The concentrations of ammonia are considered significant and warrant notification to the Environment Protection Authority (EPA) under Section 60 of the *Contaminated Land Management Act 1997* (CLM Act), however are not considered to pose a risk to human health.

In its submission, the EPA reminded the Applicant of its obligations to formally notify it about the groundwater contamination (ammonia) present at the site under Section 60 of the CLM Act. The EPA recommended a draft EPL condition requiring groundwater monitoring in order to characterise the extent of contamination post-determination.

The EPA advised the Department that once completed, this monitoring would allow the EPA to decide if the site needed to be regulated under the CLM, *Protection of the Environment Operation Act 1997* or other environmental legislation. If contamination is found to be migrating off-site and the EPA decides the site needs to be regulated, Crawfords may be required to remediate the site or have a responsibility to enter into a Voluntary Remediation Agreement (or similar) with the EPA under the CLM Act. If contamination is found to be contained on site, it is understood that the EPA could also independently implement conditions to manage contamination through the EPL.

Both Council and DPI did not raise any issues of concern regarding the presence of existing groundwater contamination at the site. However, Council and DPI did recommend conditions to prevent the release of AN into the local environment during on-going operations (see 'surface water' below).

As such, the potential need for site remediation would be considered at the post-determination stage by the EPA which is its preferred approach in this instance. The Department's consideration in this assessment report has therefore focused on contaminated groundwater (and soil) management during construction and on-going site management to prevent further contamination during operation.

Groundwater inflows are not expected to pose a major constraint to those minor construction works undertaken as part of the development (see Table 2). The need for excavations would be generally limited to minor site regrading required in order to maximise water capture in the proposed sediment and biofiltration basins and construction of the basins themselves. Construction works would be short in duration and are expected to be completed within 5 weeks.

As previously discussed, excavations would generally be shallow (up to approximately 0.7m below ground level) and groundwater would generally be encountered at a depth of approximately 1.0 – 2.3m below ground level. Therefore, the Department considers that the potential for groundwater interception during construction is low.

Where groundwater inflows are encountered during construction, it is anticipated that they would be controlled by dewatering via sumps. Following dewatering, groundwater may be tested and, if contaminated, disposed of off-site at a licensed facility in accordance with the CMP.

To manage potential groundwater impacts and inflows during construction (and operation), the Department has also formalised and built upon commitments made by the Applicant in the EIS and has recommended conditions that would require the Applicant to:

- as previously discussed, prepare and implement a CMP as part of the CEMP including measures to prevent erosion and test, manage and dispose of contaminated groundwater if encountered; and
- prepare and implement a Water Management Plan in consultation with Council, OEH and NOW including a Groundwater Monitoring and Mitigation Plan (GMMP) that includes:
  - a program to monitor groundwater quality and levels beneath the site and groundwater dependent ecosystems (GDEs);
  - groundwater impact assessment (GIA) criteria; and
  - protocols for investigation and implementation of mitigation measures in the event of exceedances of the GIA criteria.

The Department is satisfied that with these conditions in place that, contaminated groundwater can be effectively managed during construction if encountered.

NOW noted that wetlands are located in the surrounding/downstream environment which are considered to be high value Groundwater Dependent Ecosystems (GDEs). The potential impacts of the proposal on GDEs is assessed in Table 6 of this report (see 'Flora and Fauna').

<u>On-going Contamination Management</u>

Once operational, it is anticipated that greater regulation of the facility (e.g. by EPL, MHF license and development consent) and improvements in site operations (i.e. the handling of AN), formalised in an Operational Environmental Management Plan (OEMP), would significantly reduce the likelihood of AN spillages at the site. Further, in the unlikely event of a spillage, the Department is satisfied that formal procedures would be in place to ensure that swift and effective remedial action is undertaken to prevent further contamination (see requirement for Emergency Plan (EP) in Section 5.1 above).

The EPA suggested, at the very least, that AN storage and trafficable areas be upgraded to impermeable hardstand to prevent further contamination of groundwater from AN, and that surface water monitoring be undertaken to determine the effectiveness of the proposed stormwater management system.

In the RTS, Crawfords identified that cracks between the joints of the floors of Sheds A and B could be a potential pathway for transfer of AN to groundwater. As such, Crawfords has committed to sealing the joints of Sheds A and B with an impervious epoxy resin to eliminate this potential contamination source. Crawfords has also committed to preparing a GMP to monitor the effectiveness of proposed improvements in AN handling.

The Department acknowledges Crawfords commitments in relation to the prevention of further contamination of the site from AN. However, the Department was not satisfied that the proposed measures would provide an appropriate level of assurance in this regard. As such, consistent with the EPA's suggestion, the Department has recommended a condition that would require Crawfords to seal all AN storage and trafficable areas with impermeable hardstand concrete or bitumen, prior to operation.

The Department has also formalised and built upon additional operational commitments made by the Applicant in the EIS by recommending additional conditions that would require Crawfords to:

- review all site environmental management practices to improve handling of AN and minimise spillages and detail them in the OEMP; and
- as above, prepare and implement an EP for the site (see Section 5.1).

The Department is satisfied that with these conditions in place, the likelihood of further contamination of the site from future operations is low. Requirements for an EP would allow swift and effective remedial action to be implemented in the unlikely event of an AN spill at the site. Further, standard requirements for water quality monitoring would enable detection of any contaminated water migrating off-site and allow timely remedial action to follow.

Conclusion

Based on the above, the Department is satisfied that contaminated soil and groundwater can be effectively managed if encountered during construction and does not pose a risk to human health or the local environment, subject to recommended conditions. Construction works would also be short-term taking approximately 5 weeks to complete.

The Department is also satisfied that the site is suitable for ongoing use as an AN storage and distribution facility. Once operational, the Department considers that greater regulation of the facility combined with upgrades to the stormwater management system and other site infrastructure (e.g. sealing of AN storage and trafficable areas) and requirements for water quality monitoring would significantly reduce the likelihood of further contamination of the site and surrounds. The EPA may also decide to independently implement further management or mitigation measures (e.g. remediation) to address existing contamination issues at the site through the EPL and/or other environmental legislation based on the results of further groundwater monitoring completed by Crawfords post-determination.

5.3 Surface water

Issue

The proposed development has the potential to result in changes to stormwater velocity and quality, thereby potentially resulting in impacts on the local water and ecological environment (adjacent 2HD Swamp and SEPP 14 wetlands) through increased erosion and sedimentation if not properly managed.

The site is also flood prone, therefore once operational the development also has the potential to result in human safety issues for employees on site or change flooding behaviour which could increase flood risk to nearby properties. The development could also adversely impact on the local water and ecological environment if the AN storage structures fail or leak and AN is released from the site during a flood event.

Consideration

Stormwater Behaviour

The majority of stormwater currently flows off the site into the adjacent 2HD Swamp on the sites north-eastern boundary. Stormwater also flows into a stormwater drainage line that runs through the Main Northern Railway corridor and onto the adjacent Golf Practice Range site (former Astra Street Landfill) to the immediate west (see Figure 2).

There would be no significant increase in the amount of impervious surfaces at the site. Only minor building modifications are proposed as part of the development along with the installation of stormwater treatment devices, most notably, a number of stormwater pre-treatment and biofiltration basins (see Table 1).

As such, the EIS concluded that there would be no change to stormwater velocity or flooding behaviour (or groundwater levels) at the site.

Council and EPA did not raise any issues in relation to stormwater behaviour.

ARTC considered that no additional stormwater should flow towards the rail corridor as a result of the proposal. In the RTS, Crawfords confirmed that the volume of stormwater run off flowing into the rail corridor would be similar to existing conditions and following this, ARTC did not raise any further issues in relation to stormwater.

As previously discussed, the Department has recommended a condition that would require Crawfords to seal all AN storage and trafficable areas to prevent further contamination of the site from AN. This would result in increased impervious areas of the site and may result in some increased off-site surface water flows than previously assessed in the EIS. As such, the Department has recommended a condition that would require Crawfords to prepare and implement a Stormwater Management Plan for the development including details of how surface runoff would be restricted to pre-development rates or less.

With this condition in place, the Department is satisfied that the proposed development would result in negligible changes to hydrology at the site.

Stormwater Quality

The water catchment of the site is located downstream from the RAMSAR-listed Hunter Estuary Wetland site which is located approximately 400m south-west of the site across the Main Northern Railway Line (see Figure 2). Therefore, the impacts of the proposal on this site from stormwater would be negligible. This was acknowledged by OEH in its submission on the RTS.

However, the water catchment of the site is located upstream of the adjacent 2HD Swamp and SEPP 14 Wetlands (Ironbark Creek System). Therefore, the Department considers that the potential impacts of the proposed development on the ecology of these habitats from polluted stormwater needs to be carefully considered.

The proposed development also provides the opportunity to significantly improve stormwater drainage and the quality of stormwater currently leaving the site.

The existing stormwater management system would be retained and upgraded and consist of (see Figure 5):

- minor site regrading and surface stabilisation to encourage stormwater flow to treatment devices (see point 5 below);
- roof water capture and storage;
- layering of aggregate;
- installation of a wheel wash; and
- installation of water sensitive urban design measures and stormwater treatment devices including pre-treatment sediment basins (x5) and biofiltration basins (x5).

When it rains at the site, dirty stormwater would hit the ground and flow into the the pre-treatment sediment basins where course sediments would be removed. Water would then flow into one of the biofiltration basins where finer sediments would be intercepted before being discharged off-site.

Secondary source controls such as site regrading, surface stabilisation, improved drainage and installation of a truck wheel wash also aim to substantially reduce pollutant loads from on site stormwater prior to reaching the sediment and biofiltration basins. Rainwater would also hit building roofs and flow via the roof drainage systems to rainwater tanks for re-use on site (e.g. at the wheel wash bay).

With the above system in place, modelling undertaken as part of the EIS indicates that stormwater discharged from the site would comply with Council's stormwater pollutant load reduction targets in Section 7.06 of *Newcastle Development Control Plan 2012*.

As a final redundancy measure, stormwater quality would be monitored at off-site discharge points to enable swift remedial action to occur in the unlikely event that water is found to contain elevated pollutant concentrations.

DPI supported the development of an upgraded stormwater management system to improve the quality of water leaving the site. DPI recommended conditions for a Surface (and Groundwater) Management Plan to monitor the quality of water leaving the site and ensure it does not impact on the downstream environment.

The OEH noted that there is evidence to suggest that the wetlands surrounding the site have suffered extensive contamination as a result of surrounding industrial sources. A continuation of this impact is likely to result in significant impacts to ecology. As such, the OEH considered that the current condition of the adjoining 2HD Swamp needs to improve as a result of the proposed development. To enable this to occur, the quality of surface and groundwater currently leaving the site would need to improve.

Both the OEH and the EPA recommended that this be achieved via the implementation of a detailed surfacewater monitoring and mitigation program to determine the effectiveness of the proposed stormwater management system. This would include trigger values for the implementation of further improvements to the stormwater management system in the unlikely event that it is not achieving the desired pollutant load reduction targets.

In the RTS, Crawfords committed to implementing a surface water monitoring program for the facility.

The Department has incorporated DPI's, the OEH's and the EPA's requests into the recommended conditions (see below) which have been prepared in consultation with (and reviewed by) these agencies.

The Department is satisfied that, subject to the imposition of strict conditions, the proposed development would significantly improve stormwater management at the site (particularly the quality of stormwater discharged off-site) in line with current industry best practice. Key recommended conditions include the requirement for the Applicant to:

- prepare and implement a Water Management Plan in consultation with Council, OEH and NOW including:
  - a Stormwater Management Plan that includes:
    - final design specifications of the stormwater management and collection system in accordance with the conceptual design in the EIS/RTS, applicable Australian Standards and relevant guidelines;
    - details of how surface runoff would be restricted to pre-development rates or less;
    - measures to ensure that stormwater discharged off-site meets the pollutant load reduction targets outlined in Council's DCP and the relevant ANZECC guidelines; and
    - measures to be implemented to maintain this infrastructure for the life of the development.
  - a Surfacewater (and Groundwater) Monitoring and Mitigation Plan that includes:
    - a program to monitor surface water flows and quality, and ecosystem health immediately downstream of the site;
    - surfacewater impact assessment (SIA) criteria;
    - protocols for investigation and implementation of mitigation measures in the event of exceedances of the SIA criteria; and
    - a schedule of improvements to the stormwater management and collection system at the site in the event that exceedances of the SIA criteria (or GIA criteria) are identified or contaminated water is found to be leaving the site.

Potential Release of AN During a Flood Event

The Stormwater, Flooding and Receiving Water Quality Assessment in the EIS shows that the site is flood prone and would be partially inundated in a 1 in 50 Year Annual Exceedence Probability (2% AEP) flood event at depths ranging from 0.1m to 0.4m across the site. The site would be fully inundated in a 1 in 100 Year 1% AEP flood event at depths ranging from 1.0m to 1.8m across the site. Flood waters on the site would be low velocity but do have the potential to cause damage to property.

The Flooding Assessment (FA) included modelling of the potential for release of AN from the site during a 1% AEP flood event due to shed failure or leak and assessment of the subsequent impacts on the downstream environment.

The results of this modelling show that such a release would result in AN concentrations in water that would be well in excess of the relevant toxicity trigger values in the relevant ANZECC guidelines for 10 to 20 hours and would extend approximately 2.2 kilometres (km) to 14km downstream along the south arm of the Hunter River, in some scenarios beyond its mouth.

As such, Crawfords has proposed a number of flood mitigation measures (which were revised at the RTS stage) for the 1% and 2% AEP flood events to prevent the release of AN into the local environment. These measures are summarised in Table 2 and described in detail in Table 5 below.

Table 5: Proposed Flood Mitigation Measures to Prevent the Release of AN During a Major Flood Event

Flood Mitigation	Description
Physical Building Modifications	• retrofitting precast concrete doors to the openings at the front of Sheds A and B; • application of an impervious sealant to the walls (timber panelling on the inside and outside) of Sheds A and B; • sealing of the concrete floor expansion joints/voids of Sheds A and B with an impervious

Flood Mitigation	Description
	epoxy resin to prevent a potential surface/groundwater contamination pathway; and • casting of concrete panels fitted between and secured to building columns of Shed C and sealing the joints with an impervious sealant product.
2% AEP Flood Event Mitigation Measures	• where possible, advise stakeholders in the 48 hours leading up to a suspected flood event that no more AN product is to be received on site; • encasement of store internal perimeters with 250 micron 4m wide polythene construction membrane leaving no gaps and allowing 2m overlap at joints; • supply of pre-filled sand bags sufficient to construct a 2m by 8m by 1m high internal seepage dam and additional supply of 250 micron 4m wide polythene construction membrane to line the dam; and • use of diesel powered water sump pumps.
1% AEP Flood Event Mitigation Measures	• all of the above measures; • in accordance with the site Flood Risk Management and Emergency Response Plan, AN stacks would be reconfigured by placing the outer rows in flexible intermediate bulk containers (IBCs) against shed walls, removing segregation gaps and ensuring no voids between flexible IBCs, bag stacks and shed walls. Polythene membrane would be placed against shed walls allowing 1m under the outer row of AN bags and 3m in vertical contact with the internal surface of the AN shed walls; and • construction of internal seepage dams adjacent to each sheds vehicular access door with internally and externally positioned diesel powered water sump pumps to prevent water pooling in dams.

DPI acknowledged that while the likelihood of the release of AN from the site during a significant flood event has been assessed as rare in the EIS, the potential impacts on the downstream environment including groundwater dependent ecosystems and aquatic organisms in the Hunter River and SEPP 14 wetlands could be significant. This is because AN can be highly toxic to a range of organisms.

As such, DPI requested that any consent include a condition requiring the Applicant to 'flood proof' all structures at the site that would be used to store AN to prevent its release during a flood event. Similarly, OEH requested that Crawfords be required to obtain structural certification for all AN storage structures to ensure they can withstand flood waters up to the 1% AEP plus 500mm freeboard depth flood event. OEH also suggested that all flood emergency response equipment be able to withstand floodwaters up to and including the 1% AEP plus 500mm freeboard depth flood event.

Council and the Department requested confirmation that the proposed flood mitigation measures would be effective in containing AN on site. In the absence of this confirmation, Council also requested that all AN on site be stored above the flood planning level (FPL) of 4.3 metres (m) Australia Height Datum.

In the RTS, Crawfords committed to engaging a suitably qualified and experienced engineer to provide structural certification that Sheds A, B and C would be flood proof to withstand up to a 1% AEP plus 500mm freeboard flood event. This certification has since been obtained by Crawfords which found that Sheds A, B and C are able to withstand the bearing loads of a 1% AEP flood event and as such, Crawfords consider Council's request to store AN above the FPL to be unreasonable.

The Department generally concurs with Crawfords and is satisfied that there would be no need to store AN above the FPL, provided the above commitment is satisfied. To provide assurance, the Department has formalised this commitment in the recommended conditions. The conditions would require Crawfords to obtain structural certification from a suitably qualified engineer that all structures on site (excluding shipping containers) that are used to store AN are flood proof (in terms of bearing loads and preventing water inundation) up to the 1% AEP plus 500mm freeboard depth design flood event. This certification would be required prior to operation[2], and annually thereafter for the life of the development.

The Department also requested clarification on whether or not the shipping containers proposed to store AN on site would be flood proof. In this regard, Crawfords has clarified that:

- shipping containers would generally be unloaded to the AN storage sheds within 1 day of their arrival from Port Botany because fees apply for detaining containers for periods longer than 1 day; and
- given there would be a typical flood warning time of 18 hours (see detailed discussion below), this would be sufficient time to allow reconfiguration of the AN storage stacks within Sheds A, B or C to incorporate any AN stored in shipping containers on-site. The reconfiguration would be undertaken in accordance with the Flood Risk Management and Emergency Response Plan (see Table 5 above).

Given the above, the Department considers that it is highly unlikely that AN would be left inside a shipping container during a major flood event. As an emergency response, shipping container doors would also be opened during a flood event allowing them to fill with water and eliminating their ability to float off-site onto adjoining properties.

In light of the above, commitments made by Crawfords in the RTS and recommended conditions, the Department is satisfied that that AN would not be released into the local environment when (if) inundated during a major flood event.

Human Safety During a Flood Event

The site is flood prone and therefore poses a potential risk to human safety during a significant flood event.

However, the FA in the EIS states that a typical flood warning of 18 hours would be available for the site prior to a 2% AEP flood event. Crawfords consider this to be sufficient time to allow safe evacuation of all employees from the site. In addition, water inundation of the site would be primarily characterised by low velocity backwater flooding.

A Flood Risk Management and Emergency Response Plan has been prepared as part of the EIS which outlines safe evacuation protocols in the event of an imminent flood.

Council requested confirmation in the RTS that that there would be sufficient time to implement the proposed 1% and 2 % AEP flood mitigation measures (e.g. reconfiguring the AN stacks, see Table 2) and evacuate the site during an impending major flood event when considering the likely presence of adverse weather conditions.

In the RTS, Crawfords confirmed that sufficient time would be available for staff to implement the advanced planning and flood response actions which would be detailed in the site Flood Risk Management and Emergency Response Plan. Staff would be trained and drilled on executing these responses in accordance with the Plan.

Crawfords noted that the nearby St Joseph's Nursing Home and Village is located approximately 550m north-east of the site on flood-free land. Therefore, as a final redundancy measure, in the unlikely event that flood warning was delayed or not provided, Crawfords consider that all staff could safely take refuge at this site.

Based on the above, the Department is satisfied that sufficient warning time would be available to evacuate staff during an impending major flood event. Further, the Department is also satisfied that formal documented procedures would be in place to ensure the safe evacuation of all staff (i.e. human safety) before a major flood event.

To ensure this is the case, the Department has formalised a requirement for Crawfords to prepare and implement a Flood Risk Management and Response Plan for the proposal in the recommended conditions, prior to operation. The intent of this condition is to build upon the draft Plan provided by Crawfords in the EIS and includes requirements for the Plan to:

- be prepared in consultation with Council and OEH;
- be prepared in accordance with Council's *Newcastle City-wide Floodplain Risk Management Study and Plan 2012* and the *NSW Floodplain Development Manual*;
- identify the procedures that would be implemented to ensure that employees are given sufficient warning regarding an impending flood event and to ensure human safety;
- identify emergency evacuation routes, flood warning alarms, and evacuation procedures; and
- include a staff training program to be implemented to ensure existing and future employees are well trained and drilled in executing the flood emergency response procedures detailed within this Plan.

Conclusion

Subject to the imposition of strict conditions, the Department is satisfied that the proposed development would:

- result in negligible changes to hydrology at the site;
- significantly improve stormwater management at the site (particularly stormwater quality) in line with current industry best practice;

- not result in AN being released into the local environment when inundated during a major flood event; and
- have formal documented procedures in place to ensure the safe evacuation of all staff from the site before major flood inundation.

5.4 Other Issues

Table 6: Assessment of Other Issues

Issue	Assessment	Recommendation
Noise and Vibration	• The nearest residential receivers are located approximately 260m east of the site across the 2HD Swamp on Maitland Road (see Figure 2). • The control of rail noise within the Main Northern Railway Line corridor is the responsibility of ARTC and would be assessed by ARTC upon application by Crawfords to seek approval for its train(s) to utilise the ARTC leased and managed line. • As such, no assessment of rail noise impacts in the rail corridor was included as part of the Noise and Vibration Impact Assessment (NVIA) in the EIS. • ARTC did not raise any issues in relation to noise. • Once on site, the EPA's *Interim Construction Noise Guideline* (ICNG) and *Industrial Noise Policy* (INP) would apply to train noise emissions together with noise from normal site operations. • During construction, the NVIA found that noise levels would exceed the relevant ICNG noise management level criteria at two residential receivers (3 and 8) by up to 5.2 dB(A) (total 52.2 dB(A)) at receiver No. 3 on Astra Street, Shortland. • However, given the predicted construction noise levels would be well below the highly affected noise management level (i.e. the level likely to cause a strong community reaction ~75dBA) and the minor nature and relatively short duration of construction works (expected to take about 5 weeks), adverse impacts are not anticipated, subject to recommended conditions (see recommendation). • During operation, the NVIA in the EIS found that the development would comply with the relevant criteria of the INP for day, evening and night-time (including sleep disturbance) with the exception of a minor 1 dB(A) exceedance St Joseph's Nursing Home during the morning shoulder period. • Notwithstanding, the NVIA modelling used a conservative approach to determine the shoulder period noise criteria, and it is considered unlikely that such an exceedance would occur during actual operations. • Crawfords has proposed to undertake noise validation modelling to confirm compliance with the all relevant INP criteria, which has been incorporated by the Department in the recommended conditions. • The proposal was also found to comply with the relevant vibration criteria. • The EPA recommended operational noise limits and Council did not raise any issues in relation to noise. • The Department is satisfied that, subject to the imposition of strict conditions (see recommendation), the noise impacts of the proposed development can be effectively managed during construction and would comply with the relevant EPA noise limits during operation.	The Department has recommended conditions that require the Applicant to: • comply with the noise limits in the consent; • ensure that only 1 train (2 movements) in total is permitted to ingress and egress from the site in any 24 hour period; • undertake noise validation monitoring, in consultation with the EPA; and • prepare and implement a Noise Management Plan in consultation with the EPA, prior to construction to minimise noise emissions as far as reasonably practicable.
Traffic (including rail)	• Road access to the site is via a service road off Old Maitland Road before reaching the intersection of Old Maitland Road and the Pacific Highway which currently operates at a level of service (LOS) A. • The site is also serviced by a rail siding connecting directly to the Main Northern Railway Line on the western boundary of the site. • A typical breakdown of AN delivery to the site is provided in Section 1.4 of this report with the majority being delivered by truck from the Port of Newcastle. • No assessment of construction traffic was undertaken given the proposal involves minimal physical works (see Table 2). • During wost-case operation, the proposal would result in: - 65 light vehicle movements a day from staff; - up to 100 heavy vehicle movements a day from AN transport; and - up to 3 train (40 carriages each with 20 tonne capacity) movements a week from AN delivery from Port Botany. • The majority of traffic movements would occur outside the AM and PM	The Department has recommended conditions that require the Applicant to: • ensure that only 1 train in total is permitted to ingress and egress from the site in any 24 hour period; • prepare and implement a Rail Transport Code of Conduct in consultation with ARTC, prior to operation; • ensure that internal roads, driveways and parking are designed in accordance with the relevant Australian Standards;

Issue	Assessment	Recommendation
	peak traffic periods. • The Traffic Assessment in the EIS also found that with predicted development traffic and a traffic growth rate of 2% to 2022, the intersection of Old Maitland Road and the Pacific Highway would continue to operate at an acceptable LOS C. The existing site access and service road were also considered appropriate for the proposed development. • The Department's assessment of the transport of dangerous goods (AN) is contained in Section 5.1 of this report. • RMS and Council did not raise any issues of concern in relation to traffic. • Train movements to and from the site would be controlled and approved by ARTC as the lessee of the Main Northern Railway corridor. • ARTC did not raise any issues regarding proposed train movements. • All parking for staff and visitors (61 spaces) is currently provided on-site which is in excess of the requirements (33 spaces) of Newcastle DCP. • The Department is satisfied that the proposal would not compromise the safety of efficiency of the surrounding road or rail network.	• ensure that vehicles do not queue on the public road network; • provide a secure enclosure for at least 3 bicycles at the site; and • prepare and implement a Traffic Management Plan in consolation with Council and RMS, prior to operation.
Air Quality	• The proposed development would generate dust during construction and operation from trucks and mobile equipment (e.g. forklifts) moving on unsealed areas of the site, handling of AN and wind generated dust. Potentially offensive odour could also be generated from the disturbance of contaminated material during construction. • Increased dust and resulting impacts on public amenity and health was an issue of concern raised in submissions. • The Air Quality Impact Assessment (AQIA) in the EIS found that the proposed development would not result in any exceedances of the relevant EPA criteria for short-term and long-term particulate matter at all nearby sensitive receivers (i.e. PM_{10} concentrations and Total Suspended Particulate Matter) which is used to assess health impacts. • Further, the AQIA found that the proposed development would comply with the EPA's annual deposited dust criteria at all nearby sensitive receivers which is used to protect public amenity from dust nuisance. • Notwithstanding this, to mitigate potential dust impacts, the Applicant has made a number of commitments such as regular use of a road sweeper to pick up loose material, wetting of unsealed surfaces of the site and use of a screw auger when transferring AN from flexible IBCs into bulk trucks. • Council recommended that Crawfords implement further mitigation and management measures to reduce AN dust emissions from handling and adequately seal the site to reduce dust generated from vehicles. • In the RTS, Crawfords noted that dust generated from AN handling and traffic had been considered in the AQIA modelling which demonstrated compliance with all relevant EPA dust criteria. • The Department generally concurs with this conclusion, but has recommended a condition that would require Crawfords to seal all AN trafficable areas (including internal roads) and review all site management practices to minimise spillages of AN for inclusion in the OEMP for the facility. This is expected to significantly reduce dust generation at the site. • Measures to suppress odour from contaminated material would be detailed in the CMP for the development (see Section 5.2 of this report). • The EPA did not raise any issues in relation to air quality and recommended draft EPL conditions for odour and dust management. • The Department is satisfied that the air quality impacts of the proposed development would be minor, subject to the implementation of recommended conditions.	The Department has recommended conditions that require the Applicant to: • not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the POEO Act; • comply with the dust criteria in the consent; • implement best practice air quality management during construction and operation including all reasonable and feasible measures to minimise odour and particulate emissions; and • seal all AN storage and trafficable areas with impermeable hardstand concrete or bitumen, prior to operation; and • review all site management practices to minimise spillages of AN and detail them in the OEMP; and • prepare and implement an Air Quality Management Plan in consultation with Council and the EPA, prior to operation.
Flora and Fauna	• The site is highly degraded with a limited natural environment, but is surrounded by wetlands which provide habitat for threatened flora and fauna. • The Ecological Assessment (EA) in the EIS found that while the wetlands surrounding the site are heavily degraded, the wetlands are considered likely to represent two Endangered Ecological Communities (EECs) listed under the *Threatened Species Conservation Act 1995* (TSC Act) being Swamp Oak Floodplain Forest and Freshwater Wetlands on Coastal Floodplains. • The EA also found that the adjacent wetlands provide known habitat for two threatened fauna species (birds) listed under the TSC Act being the	The Department has recommended conditions that require the Applicant to: • obtain certification from a structural engineer that AN stores are flood proof, prior to operation; • prepare and implement a Stormwater Management Plan in consultation with

Issue	Assessment	Recommendation
	Black-necked Stork and Magpie Goose. • NOW considered the wetlands to be high value Groundwater Dependent Ecosystems (GDEs) whose health is impacted upon by changes in hydrology and water quality. • OEH considered that the condition of the adjacent 2HD Swamp needs to improve as a result of the development. • The proposal relates to a continuation of existing industrial activities, would not result in changes to hydrology, would improve the quality of stormwater discharged off-site so that it meets Council's stormwater pollutant load reduction targets and would ensure AN is not released from the site during a major flood event (see Section 5.3). • As such, the EA concluded that the proposal is unlikely to result in significant impacts on any threatened species, populations, ecological communities (including GDEs) or their habitat listed under the TSC Act. • The Department generally concurs with this conclusion and has recommended conditions to ensure that the condition of habitats surrounding the site (including the 2HD Swamp) improve as a result of the development (see recommendation).	Council, NOW and OEH, prior to construction including measures to ensure that stormwater discharged off-site meets the pollutant targets in Council's DCP; and • prepare and implement a Water Monitoring and Mitigation Plan, prior to construction that includes: - water impact assessment (WIA) criteria; and - mitigation measures to address exceedances of the WIA criteria including additional improvements to the stormwater management system.
Heritage	• The Heritage Assessment (HA) in the EIS found that the site is located in an established industrial area, is highly modified with negligible natural features and is therefore considered highly unlikely to have any in situ remains of Aboriginal heritage items. • The OEH raised no concerns with the HA but recommended conditions to manage potential Aboriginal heritage impacts during construction and operation which the Department has incorporated into the recommended conditions. • The site is surrounded by a number of local European heritage items and a RAMSAR-listed Hunter Estuary Wetland site which is located approximately 400m south-west of the site. • However, the HA found that given the proposed development involves minimal physical works (see Table 1), it would not impact on the heritage value/amenity of surrounding European heritage items. • Council did not raise any issues in relation to heritage. • The Department does not foresee any adverse heritage impacts arising from the proposed development and has recommended standard heritage conditions (see recommendation).	The Department has recommended conditions that require the Applicant to: • prepare and implement a CEMP and OEMP including including heritage management measures; • conduct heritage education inductions for all construction personnel; and • cease works and notify the relevant authorities in the event that any Aboriginal cultural object(s) or human remains are uncovered on-site and not recommence works unless authorised.
Waste	• The proposed development would produce hazardous waste (i.e. waste AN), special waste (e.g. asbestos in old building materials), general solid waste and liquid waste which, if not properly managed could impact on the surrounding environment. • The Applicant has committed to ensuring, where possible, waste is classified and recycled in line with the relevant EPA guidelines. • Where recycling is not possible, waste would be disposed of at a facility that is licensed to accept that waste. • The Applicant has prepared an Asbestos Management Plan (AMP) to ensure the effective maintenance, monitoring and if necessary, removal (including air monitoring) and disposal of asbestos containing materials. • The Applicant has also committed to preparing a Waste Management Plan including stockpile management, testing, classification and disposal procedures. • The EPA and WorkCover (for asbestos) did not raise any issues in relation to waste. • The Department has also formalised the Applicant's commitments into the recommended conditions (see recommendation) and is satisfied that with these conditions in place, waste and workplace safety (for asbestos) would be effectively managed.	The Department has recommended conditions that require the Applicant to: • implement all reasonable and feasible measures to minimise the waste; • classify and dispose of all waste in accordance with the EPA's *Waste Classification Guidelines*; • implement the Asbestos Management Plan in Annexure C of the EIS, prior to construction; and • prepare and implement a Waste Management Plan, prior to construction.
Visual Impacts	• As above, the site is located in an established industrial area, immediately surrounded by modified wetlands, road and rail corridors. • The site is also highly disturbed with negligible natural features. • The site is exposed to some distant views from residences at Maryland approximately 3.7km to the west. • The proposed development involves minimal physical works and AN would be stored indoor in existing buildings and outdoor in shipping containers that are already in use on the site. • As such, the EIS concluded that the proposed development would be largely indistinguishable from existing site infrastructure and would not	The Department has recommended conditions that require the Applicant to: • ensure lighting complies with the relevant Australian Standards and is mounted to avoid nuisance to the public; and • obtain the Department's approval to install any advertising signs at the site.

Issue	Assessment	Recommendation
	detract from visual amenity at the site or surrounds. • Night-time lighting would be limited to security lighting and lighting associated with occasional night-time deliveries. • Council did not raise any issues in relation to visual impacts. • The Department concurs with conclusion in the EIS and is satisfied the visual impacts of the proposed development would be negligible.	
Site Security	• Given the proposal involves the storage of significant quantities of dangerous goods, the site must be kept secure to ensure public safety. • The potential for a criminal activity at the site (e.g. vandalism or terrorist attack causing AN explosion) was a concern raised in public submissions. • In the RTS, Crawfords noted that site is secured for unauthorised access. Further, Crawfords confirmed that a Site Security Plan has been prepared and reviewed by NSW Police for the proposal. • The Department's assessment in Section 5.1 of this report found that the proposed development would comply with all risk criteria adopted in NSW for new developments including off-site risks from an AN explosion. • The Department is therefore satisfied that the site would be kept secure and does not pose an unacceptable risk to public safety from a potential AN explosion, subject to recommended conditions.	The Department has recommended conditions that require the Applicant to: • comply with all hazard and risk conditions outlined in Section 5.1 of this report; • install and maintain a perimeter fence and security gates on the site; • ensure that all buildings and security gates are locked whenever they are unattended; and • ensure a security guard is employed to keep the site secure 24 hours, 7 days a week.
Site Suitability	• Site suitability was an issue of concern raised in public submissions because the site is flood prone, is surrounded by high value wetlands and stores potentially explosive AN around 260m from the nearest residents. • The site is located in an established industrial area and is zoned 'IN3 Heavy Industrial' under the *Newcastle Local Environmental Plan 2012*. • The site is also identified as employment land in the Lower Hunter Regional Strategy. • As such, it is evident that the site has been strategically identified at the local and regional level for industrial/employment use in the Lower Hunter. The proposal also represents a permissible land use. • The Department's assessment of surfacewater and flora and fauna (see above) found that the proposal would not result in adverse impacts. • The Department's hazards and risk assessment (see Section 5.1) also found that the proposed development would comply with all risk criteria adopted in NSW for new developments including off-site risks from an AN explosion. • Therefore, the Department is satisfied that, subject to the imposition of strict conditions, the site is suitable for the proposed use.	N/A

6. CONCLUSION

The Department has assessed the merits of the development having regard to Section 79C of the EP&A Act, the objects of the EP&A Act and the principles of ecologically sustainable development. This assessment has concluded that with the implementation of the recommended conditions of consent, the impacts of the development can be mitigated and/or managed to ensure an acceptable level of environmental performance.

The Department's assessment found that the proposed development would result in a number of improvements to the facility which would have positive environmental and safety impacts. These include (but are not limited to):

- regulation of site operations in line with the current best practice for management of potential hazards and risks;
- the establishment of a 'buffer zone' (i.e. the Off-Site Restricted Access Area) extending approximately 250m west of the site to manage potential hazard and risk impacts on active open space;
- upgrading the stormwater management system at the site in line with current best practice;
- upgrading all structures that are used to store AN at the site so that they are flood proof;
- sealing all AN storage and trafficable areas at the site to prevent contamination of soil and groundwater and dust generation from trucks; and
- introducing robust environmental monitoring requirements.

The Department's independent hazards and risks expert also found that the Preliminary Hazards Analysis undertaken as part of the EIS applied a sound methodology to estimate the risks from the proposal, and that the development would comply with all risk criteria adopted in NSW for new developments, prior to operation.

Overall, the Department found that the proposed development would improve the environmental performance of the site and appropriately manage risks associated with the storage on AN in line with current best practice.

The Department recognises the importance of the storage and distribution of AN from Crawford's Sandgate site operations as it would allow for a large, centralised facility in the Lower Hunter that utilises existing long-haul rail infrastructure to ensure a reliable supply of AN to various mining, agricultural and manufacturing industries in NSW. In particular, the facility would service growing mining industries in the Hunter Valley.

Importantly, the proposal is also consistent with *NSW 2021* and the LHRS as it would promote economic growth and provide industrial employment opportunities in the Lower Hunter region by supporting the retention of approximately 65 full-time jobs.

Consequently, the Department believes that the development is in the public interest, and should be approved subject to conditions.

7. RECOMMENDATION

It is recommended that the Executive Director, Development Assessment Systems and Approvals:

- **consider** all relevant matters prescribed under Section 79C of the EP&A Act, as contained in the findings and recommendations of the assessment report and appended documentation;
- **grant consent** to the development application, subject to conditions, under Section 89E of the EP&A Act, having considered all relevant matters in accordance with the above; and
- **sign** the attached instrument of consent at Appendix A.

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Andrew Hartcher
Environmental Planner – Industry

Chris Wilson
Executive Director
Development Assessment Systems and Approvals

APPENDIX A – INSTRUMENT OF CONSENT

APPENDIX B – CONSIDERATIONS UNDER SECTION 79C

Section 79C of the EP&A Act requires that the consent authority, when determining a development application, must take into consideration the following matters:

(a) the provisions of: (i) any environmental planning instrument, and (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and (iii) any development control plan, and (iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and (v) any coastal zone management plan (within the meaning of the *Coastal Protection Act 1979*) that apply to the land to which the development application relates,	Detailed consideration of the provisions of all environmental planning instruments (including draft instruments subject of public consultation under this Act) that apply to the proposed development is provided in Appendix F of this report. DCPs do not apply to State Significant Development under Clause 11 of the SRD SEPP. However, the Department has consulted with Newcastle City Council throughout the assessment process and given due consideration of Newcastle DCP in its assessment in Section 5 of this report. The Applicant has not entered into any planning agreement under section 93F. The Department has undertaken its assessment of the proposed development in accordance all relevant matters as prescribed by the regulations, the findings of which are contained within this report. The site is not located within the coastal zone and the Department is not aware of any coastal zone management plan that applies to the land to which the development application relates.
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	The Department has considered the likely impacts of the development in detail in Section 5 of this report. The Department is satisfied that all environmental impacts can be appropriately managed and mitigated through recommended conditions of consent.
(c) the suitability of the site for the development,	Section 3, Table 6 and Appendix F of this report provide details on the suitability of the site for the proposed development. The site is located in an established industrial area, is zoned for heavy industrial purposes and is permissible with development consent on the subject site.
(d) any submissions made in accordance with this Act or the regulations,	All matters raised in these submissions have been summarised in Section 4 of this report and given due consideration as part of the assessment of the proposed development in Section 5 of this report.
(e) the public interest.	The recommended conditions of consent impose a range of controls, which the Department considers will mitigate any potential environmental impacts of the proposed development. The socio-economic benefits generated from the proposal are considerable, with the retention of approximately 65 full-time equivalent operational jobs. The proposal is therefore considered to be in the public's interest.

APPENDIX C – ENVIRONMENTAL IMPACT STATEMENT

See the department's website at www.planning.nsw.gov.au

APPENDIX D – SUBMISSIONS

See the department's website at www.planning.nsw.gov.au

APPENDIX E – APPLICANT'S RESPONSE TO SUBMISSIONS

See the department's website at www.planning.nsw.gov.au

APPENDIX F – CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy (State and Regional Development) 2011

The proposal involves the storage of dangerous goods in quantities exceeding the criteria for a Major Hazard Facility, and as such meets the criteria in Clause 10(3) of Schedule 1 in the SRD SEPP.

Consequently, the proposal has been identified as State Significant Development and the Minister for Planning and Infrastructure is the consent authority for the proposed development. The SRD SEPP is discussed in Section 3.2 of this report.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

SEPP 33 aims to identify proposed developments with the potential for significant off-site impacts, in terms of risk and/or offence (odour, noise etc). A development is defined as potentially hazardous and/or potentially offensive if, without mitigating measures in place, the development would have a significant risk and/or offence impact on off-site receptors.

The proposed quantities of dangerous goods to be stored at the facility exceed the threshold limits established for SEPP 33.

SEPP 33 requires that a PHA be carried out on a potentially hazardous development to ensure that any hazards are systematically evaluated as part of the overall environmental assessment.

The Department's has reviewed the proposal, the EIS and the PHA prepared by the Applicant and is satisfied that, subject to the full implementation of all safety measures as set out in the EIS and PHA and the Department's recommended conditions of consent, the facility would not pose an unacceptable off-site risk. The Department's detailed assessment of hazards and risk is contained in Section 5.1 of this report.

State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the State by improving regulatory certainty and efficiency, identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and providing for consultation with relevant public authorities about certain development during the assessment process.

The proposal satisfies the criteria for traffic generating development under Clause 104 the SEPP and comprises a freight/intermodal facility, therefore must be referred to RMS for comment under the SEPP.

The project was referred to the RMS for comment in accordance with the SEPP and their comments are summarised in Section 4 of this report. The proposal is considered to be consistent with the Infrastructure SEPP given the consultation and consideration of the issues raised by RMS has been undertaken in the Department's assessment in Section 5 of this report.

State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application.

The Department has reviewed all contamination issues associated with the proposal and outlined in the EA. A detailed assessment of these issues is provided in Section 5.2 of this report.

The Department's assessment found that, subject to recommended conditions, contaminated soil and groundwater can be effectively managed if encountered during construction and does not pose a risk to human health or the local environment.

The Department's assessment also found that the site is suitable for ongoing use as an AN storage and distribution facility. Once operational, the Department considers that greater regulation of the facility combined with upgrades to the stormwater management system and requirements for water quality monitoring would significantly reduce the likelihood of further contamination of the site and surrounds.

It is also noted that based on the results of further groundwater monitoring completed by Crawfords post-determination, the EPA may also decide to independently implement further management or mitigation measures (e.g. remediation) to address existing contamination issues at the site through the EPL and/or other environmental legislation.

The Department considers the proposal is therefore generally consistent with the aims and objectives of SEPP 55.

State Environmental Planning Policy No. 14 – Coastal Wetlands

The aim SEPP 14 of is to ensure that the coastal wetlands are preserved and protected in the environmental and economic interests of the State.

SEPP 14 wetland no. 840 is located across the Main Northern Railway Line to the west of the site and the proposed development has the potential to discharge stormwater onto this wetland.

However, the Department's assessment of surface water impacts is contained in Section 5.3 of this report and found that subject to the imposition of strict conditions, the proposed development would significantly improve stormwater management at the site (particularly stormwater quality discharge) in line with current industry best practice.

The Department is therefore satisfied that the proposal would ensure coastal wetlands are protected and is consistent with the aims and objectives of SEPP 14.

Newcastle Local Environmental Plan 2012

Newcastle LEP aims to conserve and manage the natural and built resources of the LGA for present and future generations applying the principles of ecologically sustainable development. The Plan also aims to contribute to the economic well being of the community in an environmentally responsible manner and to strengthen the regional position of the Newcastle as an innovative centre that encourages employment and economic growth.

This plan applies to the whole of the Newcastle LGA and consequently applies to the proposed development.

The site is zoned 'IN3 Heavy Industrial' under this plan and the proposal is permissible with consent on the subject site as a 'heavy industrial storage establishment. The proposal is also considered to be consistent with the primary objectives of the IN3 zone.

The Department has consulted Newcastle City Council extensively throughout the assessment process. The Department has considered all relevant provisions of the Newcastle LEP and those matters raised by Newcastle City Council in its assessment of the proposal in Section 5 of this report.

The Department is therefore satisfied that the proposal is generally consistent with the relevant provisions of Newcastle LEP.

APPENDIX G – INDEPENDENT HAZARDS AND RISKS ADVICE