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Supplement to the Environmental Impact Statement

Wellard Darwin Integrated Live Export Facility

Report Number 23919.82496



Prepared for



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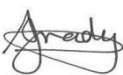
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Executive Summary

The Draft Environmental Impact Statement (EIS) for the Wellard Rural Export (Wellard) Darwin Integrated Live Export Facility (ILEF) was submitted with the Northern Territory Environmental Protection Authority (NTEPA) in October 2015.

The EIS and associated appendices were exhibited from the 27th October 2015 until the 11th December 2015.

The NT EPA received ten (10) responses from various government agencies and one (1) from a member of the public. This supplement document and its appendices address the responses received and provide an erratum to the Draft EIS and its appendices.

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1. Introduction

1.1 Purpose and Context

This document supplements the draft Environmental Impact Statement (EIS) for the Darwin Integrated Live Export Facility (ILEF).

The EIS was submitted to the Northern Territory Environmental Protection Authority (NT EPA) on the 27th of October 2015. The exhibition period ran from the 30th of October 2015 to the 11th of December 2015, during which time comments from Northern Territory (NT) Government Departments and the public were submitted in writing for consideration in the final EIS.

This document responds to these submissions, updates the project description based on these submissions and subsequent change, and, provides additional information where requested. Together with the draft EIS, this supplement together with the Draft EIS and amendments, become the final EIS. The final EIS will be assessed by the NT Government under the Northern Territory *Environmental Assessment Act*, and if no further information is required, an assessment report will be prepared within 35 days of the submission.

1.2 Background

The proposed location for the Darwin ILEF is 2658 Stuart Highway (Section 5544), Livingstone NT. This location is 50 km south-south east (SSE) of Darwin; 40 km south east of the Darwin harbour, and approximately 8 km East of Berry Springs (Figure 1).

Wellard Rural Exports aims to develop an ILEF over two stages.

Stage 1 will consist of:

- (a) the construction and operation of a 1,814 SCU¹ (Average) Pre-Export Quarantine (PEQ) holding facility (with a peak capacity of 12,000 SCU); and,
- (b) associated infrastructure.

The infrastructure includes:

- Care takers house;
- Commodity and Fodder storage shed;
- Feed storage and preparation area;
- Freshwater storage (ring tank and tanks); for capture and storage of roof runoff and storage of ground waters for stock water supply;
- Pre-Export Quarantine (PEQ) yard of 1,814 SCU (Av) (12,000 SCU (peak)) capacity;
- Livestock truck washing facility;
- Wastewater treatment ponds;
- Access roads;
- Treed “buffer” areas; and,
- Irrigation area for treated waste water reuse and hay / fodder production;

Stage 2 of the development includes:

- (a) Expansion of the operation to a 3,003 SCU (Av) (20,000 SCU (peak)) PEQ yard; and,
- (b) A short term 1,000 SCU feedlot / holding yard.

¹ SCU is a standard cattle unit. A SCU is a 600kg animal. “SCU” capacity is a trackable metric because cattle numbers, class and weight are recorded data at the facility.)

The use of the term feedlot is “technically” invoked by the National Guidelines for Beef Cattle Feedlots because PEQ cattle may be held for over 30 days and fed in a yard. Thus the “holding yards” constitutes a “feedlot” *per se*. However the operation of an ILEF and production feedlot is fundamentally different (Appendix F).

The holding of the cattle in the 1,000 SCU holding yard is just that; they are simply held and fed a “maintenance diet”. They may be held because they may have arrived late for a shipment, been sick or too weak or not to specification. The livestock are held until they can be either shipped or another market is found for them.

Stage 2 of the ILEF will only commence after a positive assessment of the odour management of the Stage 1 facility, and specifically, a further odour assessment using actual data from the site. Stage 2 will not progress until this objective is met.

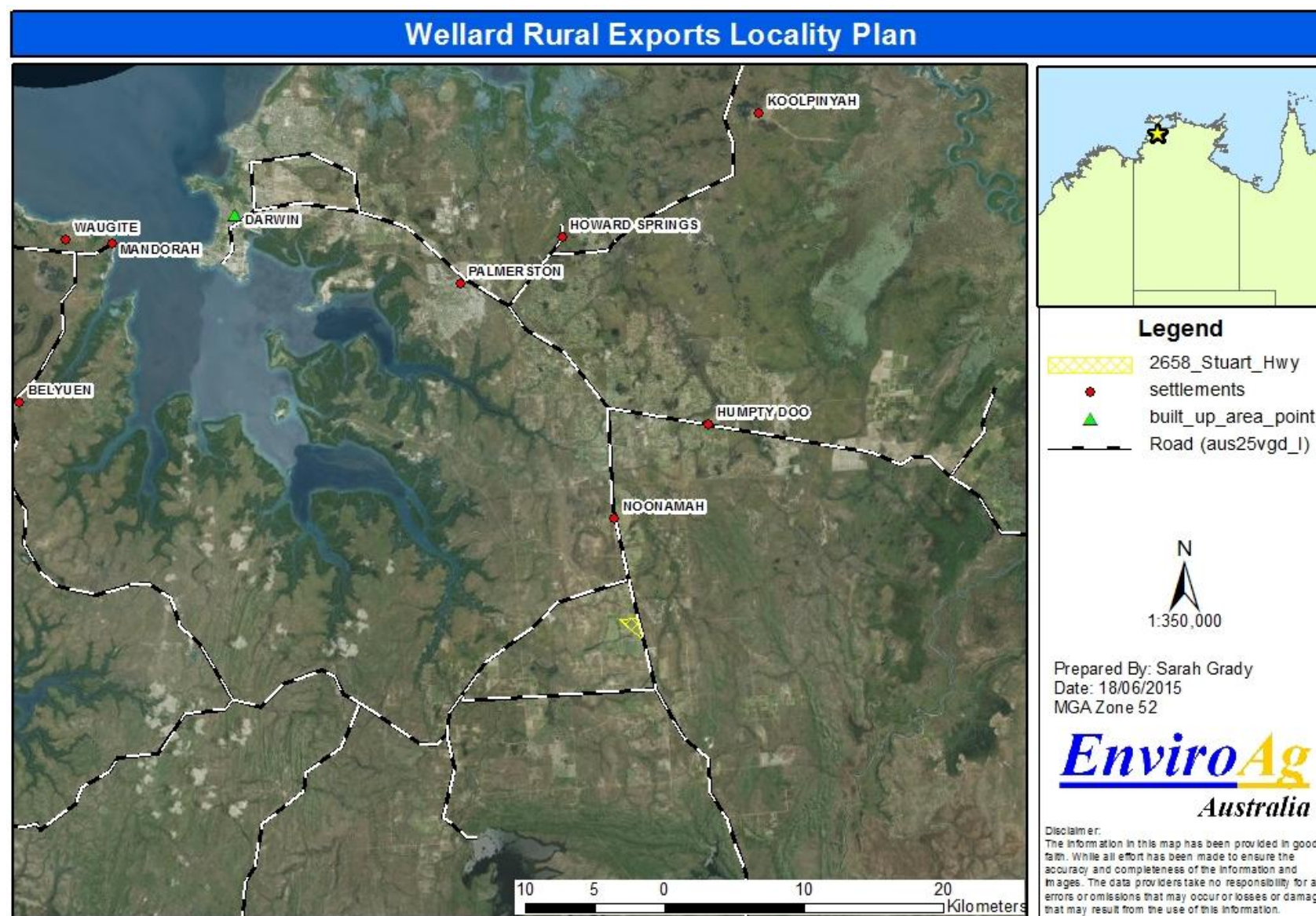


Figure 1 Location of the Darwin ILEF

2. Errata

Page No/ Parra No	Error/original text	Revised Text/Correction
Executive Summary, Page ii Paragraph 7	The objectives of the proposal are to centralise, consolidate and modernise Wellard's Darwin facilities in one location. Wellard proposes to develop an integrated live export facility (ILEF) that on average holds 3000 SCU (1 SCU = one 600 kg animal), with a "peak" short term holding capacity of 12,000 SCU, as well as a 1,000 SCU short term feedlot for holding stock for longer than 30 days.	The objectives of the proposal are to centralise, consolidate and modernise Wellard's Darwin facilities in one location. Wellard proposes to develop an Integrated Live Export Facility (ILEF) with a Pre Export Quarantine (PEQ) component that on average holds 1,814 SCU (1 SCU = one 600 kg animal), with a "peak" short term holding capacity of 12,000 SCU (Stage 1). Stage 2 will increase the PEQ to 3,003 SCU (average) and a 1,000 SCU short term feedlot for holding stock for longer than 30 days (Stage 2).
Executive Summary, Page ii Paragraph 8	The project will be staged, with Stage 1 involving the development of the PEQ holding yards, and Stage 2 the short term feedlot. In addition to these structures, a compost manure pad, feedmill, commodity and fodder storage sheds, livestock truck washing facility, access roads and four (4) ponds/dams will be constructed onsite.	The project will be staged, with Stage 1 involving the development of the PEQ holding yards, in addition to these structures, a compost manure pad, feed storage and preparation shed, commodity and fodder storage sheds, livestock truck washing facility, access roads and four (4) ponds/dams will be constructed onsite. Stage 2 will include the final construction and operation of the short term feedlot and increase the capacity of the PEQ to 3,003 SCU.
Executive Summary, Page iii Paragraph 5	This site was selected as it is immediately adjacent to the existing "Santavan" PEQ holding yard which is currently leased by Wellard.	This site was selected as it is immediately adjacent to the existing "Santavan" PEQ holding yard which is currently leased by Wellard, and its proximity to the port of Darwin. The natural slope of the site, the suitability of soil types for irrigation and utilisation of existing road train rated highway access were also important characteristics determining the site's suitability.
Glossary Page xi	No definition of Wastewater	Wastewater: Liquid waste that is produced by open cattle pen runoff, runoff from the compost manure storage pads, truckwash supernatant and treated septic waters.
Section 1.1, Page 1	Omission	Addition of 'Public and Environmental Health Act and regulations'
Section 3.1 Table 2	Areas have changed as a result of the site redesign.	Table has been updated as a result of the redesign. Revised Table can be found in the Hydrological Assessment attached in Appendix I of this Supplement.

Section 3.8.4 second paragraph, Page 19	The principal design function of the primary wastewater pond is to store ILEF runoff until such time as the pond effluent can be safely used for irrigating the wastewater utilisation area. Depending on the time for which the runoff is stored in the primary wastewater pond, microbial degradation (principally anaerobic) of the entrained organic matter may occur, a portion of any mineralised nitrogen may be lost to volatilisation and denitrification processes and a proportion of the water will be lost to evaporation.	The principal design function of the primary wastewater pond is to store ILEF runoff until such time as the pond effluent can be safely used for irrigating the wastewater utilisation area. Depending on the time for which the runoff is stored in the primary wastewater pond, microbial degradation (principally anaerobic) of the entrained organic matter may occur, a portion of any mineralised nitrogen may be lost to volatilisation and denitrification processes and a proportion of the water will be lost to evaporation. No sewage waste will be disposed of in these storage or treatment ponds
Section 3.9.1, Page 20	The ILEF wastewater facilities have been designed to detain wastewater onsite as much as possible. This is achieved through bunding contaminated areas (pens, compost manure pad) and sloping them to ensure that wastewater enters the sedimentation basins. The sedimentation basins separate solids and liquids, and direct the liquids to the primary wastewater pond. All ponds and dams onsite are lined with compacted clay lining weighted down to eliminate potential seepage. Primary wastewater and wet weather storage ponds will also have HDPE lining along the sides to reduce vegetation growth. A wet weather storage pond downslope of the primary treatment pond can hold additional water if the primary wastewater pond is full. The wastewater irrigation will be undertaken using an automated low pressure poly lined lateral move irrigator with drop hoses. No aerosols will be generated and all wastewater will be applied directly to the ground.	The ILEF wastewater facilities have been designed to detain wastewater onsite as much as possible. This is achieved through bunding contaminated areas (pens, compost manure pad) and sloping them to ensure that wastewater enters the sedimentation basins. The sedimentation basins separate solids and liquids, and direct the liquids to the primary wastewater pond. All ponds and dams onsite are lined with compacted clay lining weighted down to eliminate potential seepage. Primary wastewater and wet weather storage ponds will also have HDPE lining along the sides to reduce vegetation growth. A wet weather storage pond downslope of the primary treatment pond can hold additional water if the primary wastewater pond is full. The Primary wastewater pond does not store any sewage. It is treated separately. The wastewater irrigation will be undertaken using an automated low pressure poly lined lateral move irrigator with drop hoses. No aerosols will be generated and all wastewater will be applied directly to the ground.
Section 3.10.1,	The proposed ILEF would be constructed in two stages, with an early works package preceding the works to provide access, erosion and sediment control measures, temporary site facilities and water infrastructure for construction works to commence. The early works is expected to commence in late 2015 followed by Stages 1 and 2, to have all the works completed by September 2016.	The proposed ILEF would be constructed in two stages, with an early works package preceding the works to provide access, erosion and sediment control measures, temporary site facilities and water infrastructure for construction works to commence. Stage 1 is expected to commence in early April with Stage 2 commencing 12 – 18 months after.
Page 78	Dead animals will be composted on site in windrows of manure and spent / spoiled feed	Most dead animals are sold for pet food or are boned out (sold for pet food meat). The

	(this is a common; and accepted practice in the Australian lot feeding industry; flies do not breed in hot compost windrows)	few remains of dead animals (bones) will be composted on site in windrows of manure and spent / spoiled feed (this is a common; and accepted practice in the Australian lot feeding industry; flies do not breed in hot compost windrows)
Section 7.1.2	Conflicting reference to water extraction rates	The ILEF will extract up to 250ML per year” for the full development for stock water supply, washing and clean water to supplement irrigation. Stage 1 will extract up to 130 ML/annum and Stage 2 will extract the remainder to a maximum of about 245ML/annum.
7.11.4	Reference was made to the Natural Resources, Environment and the Arts (NRETA) this department no longer exists and the administration of the Heritage Act has changed.	Reference should be to the Department of Lands Planning and the Environment (Heritage Branch) as the administering authority of the Heritage Act.
7.11.4	The Aboriginal Areas Protection Authority assessed the proposed site and found no sites of aboriginal heritage significance present. As such, there is a high degree of confidence in the predicted outcomes.	Additional comment to this: No other items of heritage significance in accordance with the Heritage Act have been identified.
7.16	This development proposes to share the access with AA Co. as this is a stipulation set out by the Department of Transport in the terms of reference (Appendix U).	This development proposes to share the access with AA Co. This is a stipulation set out by the Department of Transport in their comments (dated 14 May 2015) to the Development Application.
Section 11 References	MLA 2013 , <i>National Guidelines for Beef Cattle Feedlots</i> , 3 rd edn, MLA, Sydney.	MLA 2012 , <i>National Guidelines for Beef Cattle Feedlots</i> , 3 rd edn, MLA, Sydney.
Pp 117	MLA 2013 , <i>National Beef Cattle Feedlot Environmental Code of Practice</i> , 2 nd edn, MLA, Sydney.	MLA 2012 , <i>National Beef Cattle Feedlot Environmental Code of Practice</i> , 2 nd edn, MLA, Sydney.
Appendix H Table 3 Page 5	Treated wastewater from the AWTS will be pumped into the primary wastewater treatment pond	Treated wastewater from the AWTS will be disposed of in a subsurface irrigation area as per the NT DLPE Code.
Appendix M Table8	Units missing from the Electrical Conductivity (EC) column.	Units should be µS for Electrical Conductivity (EC).

3. Cross Reference Table

Table 1 below lists a summary of responses received during the EIS exhibition period, including positive comments. However, the following sections of the supplement will address only comments where there was opposition to the development, or where additional information was requested.

Table 1 Summary of Responses - received during the EIS exhibition period cross referenced within this Supplement

Document Number	Respondent	Notation	Issue	Location in this Supplement
A	NT EPA	See Response to Document A	Waste management Odour buffers Risk assessment Groundwater Surface water Irrigation Air quality Operating hours	10 9.1.2, 11 15 7.4 7.3, Appendix D 9.1.5, 10.3, Appendix C 9.1.2, 11 8
B	Police, Fire and Emergency Services	<i>“proponent should engage with the NT Fire and Rescue Service in the certification process prior to the construction of any buildings at the project site”.</i>	Engagement with agency is required. Fire management Other aspects – positive comments	Noted 16.3 N/A
C	Public Comment (Mr Glenn Spiers)	See Response to Document C	Odour buffers Solid waste Surface water Public health	9.1.2, 11 10 7.3, Appendix D

			Groundwater Community Amenity Wastewater Traffic	7.4 9 9.1.3, 10.2 14
D	Department of Land Resource Management.	See Response to Document D	Groundwater Surface water Erosion and Sediment Control Flora and fauna – positive comments Weed management – positive comments	7.4 7.3, Appendix D 16.4 N/A N/A
E	Department of Health – Environmental Health Branch's	See Response to Document E	Legislation Wastewater Irrigation Air quality	2, 5 9.1.3, 10.2 9.1.5, 10.3, Appendix C 9.1.2, 11
F	Department of Transport	See Response to Document F	Water/wastewater Traffic Weed management Fire management	7, 10.3, Appendix C 14 16.2 16.3
G	Department of Lands, Planning and the Environment	See Response to Document G	Cultural and aboriginal heritage - positive comments Locality description Planning	N/A 1, 5 5

			Groundwater, surface water Noise Odour buffer Feasible alternatives	7.3, 7.4, 16.1 12 9.1.2, 11 4.1
H	Parks and Wildlife Commission	<i>"Parks and Wildlife Commission is satisfied that there is no likelihood of detrimental impact to the natural, cultural or tourism values within our National Parks estate."</i>	No negative impacts on National Parks – positive comment	N/A
I	Department of Infrastructure	See Response to Document I	Supports upgrading intersection – positive comments	N/A
J	Department of Business	<i>"Does not have any major issues" "this project would provide socio-economic benefits to the region as well as the broader Territory economy".</i>	Socio-economic benefits - positive comments	N/A
K	Power and Water Corporation	<i>"No comments from PWC"...</i>	No comments to contribute	N/A
L	Tourism NT	See Response to Document L	Traffic Visual amenity	14 8

4. Economic Assessment

The considerations associated with the location of a PEQ Facility from its associated port involve a combination of public good, animal welfare and a number of underlying economic arguments to ensure long term viability of the facility and the markets its services. It is generally considered that a PEQ facility should be located within 50 kilometres of its loading point for export in order to maximise the positive public, corporate and animal welfare objectives whilst minimising any potential negative impacts to the same.

Whilst the EIS that was prepared for the proposed Wellard PEQ Facility has identified a range of positive site specific characteristics of the Livingstone site, its location within an existing rural zone and within a 50km radius of the existing live cattle loading facilities at East Arm Wharf provide a number of advantages when compared with more distant alternatives such as Batchelor (for example).

4.1 Alternative Site Comparison

The following summarises the comparison of the proposed Livingstone Valley site for the development with an alternate site at Batchelor:

At the proposed site (within 50km of Port of Darwin):

- less km's interaction with the public;
- 8 trucks A(Road Train Triples) are needed with no fatigue stand downs;
- only one truck on stand by for break down;
- load out is 24/7 with no delays;
- drivers are local to area and site (local employment); and
- Less manure on trucks resulting in reduced washing requirements.

At 100km (say Batchelor) then 17 trucks are needed together with fatigue management that may include extra quarters at Batchelor:

- 17 trucks are needed;
- load out is 24/7 with potential delays and resultant port congestion;
- an additional 2 B-triples road trains would need to be held on stand-by in case of a break down;
- drivers are not local to area and site and may have to overnight at Batchelor;
- more manure on trucks - less washing with more associated environmental and safety risk; and
- significantly greater interaction with the public through double mileage travelled by loaded b-triple road trains.

This essentially means the further from port the higher the costs associated with the facility as shown below:

- more than twice the capital in trucks;
- more than twice the cost in facilities;
- over twice the operational expenditure for the exporter;
- increased road maintenance costs directly associated with increased traffic load
- twice the risk for delays because vet has to travel further and quarantine response time is compromised; and
- twice the safety risk to public.

4.2 Constraints

A facility such as the one proposed, benefits from being closer in proximity to the port as this reduces the time and costs for transport and reduces the cost of demurrage which is approximately \$100,000 + per day per ship. It significantly reduces potential delays in loading ships and the increased risk of delays in ship departure.

Close proximity to the port reduces the risks associated with animal welfare (eg excessive wait periods on truck) and reduces the costs associated with transportation of animals long distances. The industry is moving towards global best practices in animal welfare and an increase distance to port would compromise this.

If there are delays with the loading of the trucks and the ship these have flow on effects for the port. Each ship has an allocated time for berthing, any delays causes congestion with other incoming and outgoing ships in the harbour. The costs associated with these delays and subsequent port congestion are not easily calculated; they are very significant.

4.3 Benefits

The proposed ILEF will provide economic benefits to the local community, to Darwin and to the Northern Territory. The live export industry is a pivotal component of the Northern Territory economy.

Each year Wellard buys \$120 million worth of livestock from within the Northern Territory for export. The life of this development is expected to be greater than 40 years.

The following provides a breakdown of the costs:

- \$3-5 million is spent on transport;
- \$8 million is spent on fodder;
- \$4 million is spent on port costs;
- Economic benefit multiplier is, generally, about 2x which equates to \$260M per year; and,
- Stage 1 capital cost of the development is about \$15+ million.

The development will employ about 20 full time local personnel year round.

The facility will utilise the irrigation areas on the site for fodder crop production. Figure 2 shows the increase in the production of Fodder and Hay in the Northern Territory over the last 18 years in line with the export of live cattle from the Northern Territory (Bloomfield, 2014). The production of fodder and hay on the site will be supplemented by fodder and hay produced locally.

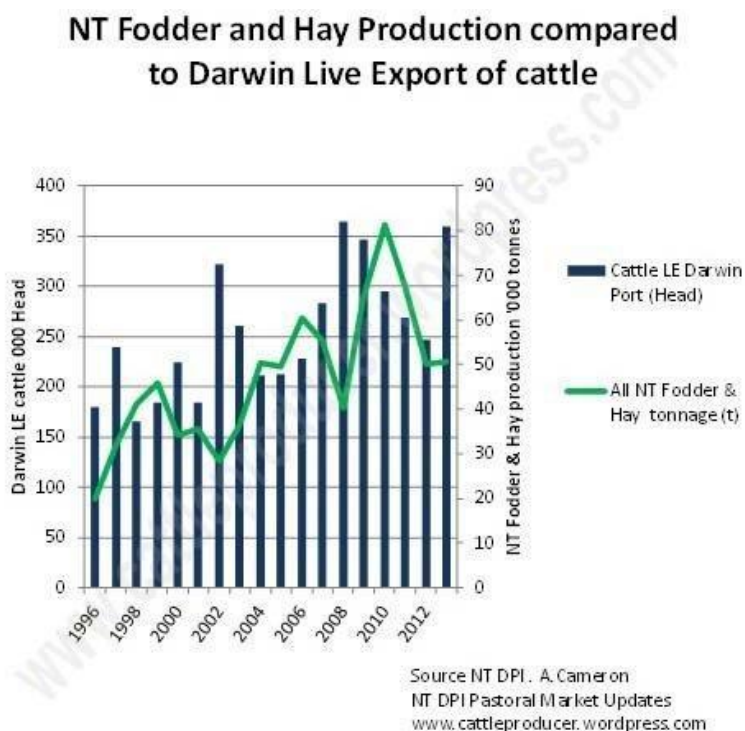


Figure 2 NT Fodder and Hay Production vs Darwin Live Cattle Export (Source: Cattle producer.wordpress.com (Bloomfield, 2014))

4.4 Outcome if Development Does Not Go Ahead

If approval is not given then significant potential exists for live export operators to subsequently turn to use of illegal / unapproved facilities.

Equally, if the development of the ILEF does not go ahead this would mean a significant loss of live exports from Darwin which would in turn be transferred to Western Australia and Queensland leading to economic loss for the Northern Territory Government.

5. Planning

5.1 Current Land Use

The ILEF site is zoned Rural under the NT Planning Scheme.²

Clause 1 and 2 of the scheme states that the Rural Zone has been established to accommodate agriculture-related uses, and anticipates development / land use that may have some amenity impacts on more sensitive land uses (ie residential).

Clause 5.2 of the Scheme provides the objectives for development in the Rural Zone. The ILEF falls under the category of Intensive Animal Husbandry as defined by Clause 3 of the Scheme which is a discretionary use in Rural Zones.

The provisions applicable to Intensive Animal Husbandry are Clauses 10.1 and 10.2. The following table addresses the provisions of 10.1 and 10.2.

Table 2 Summary of Clauses 10.1 and 10.2 from the NT Planning Scheme

Clause 10.1	Comment
1. The purpose of this clause is to minimise the adverse effect of animal related activities on the environment and to ensure that those activities do not detract from the amenity of the locality.	The proposed development has been designed using known design principles to minimise the risks identified in the Environmental Risk Assessment. An Environmental Management Plan is developed to set out the mitigation measures to be implemented on the proposed development site to minimise risk on the site and during operations
2. Subject to sub-clause 3, premise for the keeping of animals for the purposes of agriculture, animal boarding domestic livestock, intensive animal husbandry or stables are to be designed and operated so as to not cause any of the following:	The PEQ and feedlot pens are above the 1 in 100 year flood levels. Site sloping and drainage systems are planned to protect the local waterways on surrounding properties.
(a) Create risk of pollution of ground and surface waters;	a) The pens and yards will be designed by a suitably qualified engineer to ensure that the pens are free draining with no ponding of water. The sediment ponds have been designed with 3:1 peaked batters with no shallow water in the holding ponds. The ponds would have the ability to dewater rapidly.
(b) Contribute to the erosion of the site or land;	b) The pasture areas would be slashed as required to minimise the breeding habitat of insects and thereby minimising the need for insecticides. There is an odour and noise buffer of 530m to AACo. abattoir and over 800m between residential properties. The facility follows the relevant sections of the National Guidelines for Beef Cattle Feedlots which has designs and regulations to minimise odours, dust and pests.
(c) Cause detriment to the amenity of the locality by reason of excessive noise, offensive odours, excessive dust or the attraction of flies, vermin or otherwise; or	c) The Environmental Management Plan and the Flying Insect Control Plan manages these factors to minimise the infestation of vermin and mosquitos. A vet is on call for any disease outbreak and procedures are in place.
(d) Constitute a risk of the spread of infectious disease or other health risk.	

² Specialist advices have been sought from Northern Planning Consultants; Mr Brad Cunningham and Ms Cassandra Emmett, of HWL Ebsworth Lawyers from Darwin, NT.

3. Where the premises are for domestic livestock there is to be a minimum site area, unencumbered by any other use, of at least 1 ha per animal.	This facility is not for domestic livestock.
4. Where climatic conditions permit, the site area described in sub clause 3 is to be maintained with a ground cover of grass or other pasture species	Current Jarra and Tully grass in the irrigation area will be replaced by a mixture of pasture plants with high nutrient uptake rates (Rhodes grass, purple pigeon grass, Lucerne, medic) in the irrigation area to ensure that excess nutrients do not leach into groundwater

Clause 10.2	Comment
1. The purpose of this clause is to ensure that the clearing of Native Vegetation does not unreasonably contribute to the environmental degradation of the locality	The proposed development site is currently developed for cultivation and pasture production. There is minimal native vegetation on the site. The proposed development would not require the removal of remnant vegetation as the location of the works is within the existing cultivation/pasture. A vegetation clearing permit has been submitted with the Northern Territory Government, which outlines the processes to decrease and eliminate any adverse effects on the environment. The document also describes the land which will be cleared.
2. This clause does not apply if the clearing of native vegetation is required or controlled under any Act in force in the Territory, or is for the purpose of: a) A firebreak up to 5m wide along the boundary of a lot having an area of 8ha or less, unless otherwise specified by a Regional fire control Committee; or, b) A firebreak up to 10m wide along the boundary of a lot having an area greater than 8ha, unless otherwise specified by a Regional Fire Control Committee; or c) An internal fence line up to 10m wide on a lot having an area greater than 8ha.	The land being cleared isn't for a firebreak, therefore all rules within this clause are relevant for this development.

3. The clearing of native vegetation is to: a) Avoid impacts on environmentally significant or sensitive vegetation b) Be based on land capability and suitability for the intended use; c) Avoid impacts on drainage areas, wetlands and waterways; d) Avoid habitat fragmentation and impacts on native wildlife corridors; and e) Avoid impacts on highly erodible soils	a) The property has historically been used for grazing and melon farming, the vegetation being cleared is remnant, approximately 10 years old. The land is not environmentally significant. b) The land use is labelled 'rural' and under Northern Territory Government this facility is labelled 'Intensive Animal Husbandry' which is a discretionary use within the rural land uses. c) There are no natural drainage areas, wetlands or waterways within the area being cleared. There will be erosion sediment control during clearing activities and permanent erosion controls for the facility which will stop any damage to outlying waterways. d) There will be vegetation buffers planted within the property, which will reduce the risk of habitat fragmentation and can act as a wildlife corridor. e) The soils are sandy clay. The rainfall erosivity for the area is 274 with a gradient of approximately 1%. The potential erosion hazard is low, with the calculated soil loss to be 0.0394 tonnes/ha/year over the proposed area. Erosion protection will be put in place. Soils in the irrigation area will be improved with the addition of composted manure.
1. All clearing of native vegetation in Zone CN requires consent	The site exists in landuse zoning 'R' - rural'
2. Subject to clause 6, the clearing of native vegetation of more than one hectare in aggregate of land (including any area already cleared of native vegetation) on unzoned land or in zones H, A, RR, RL, R, CP, CN, RD or WM requires consent.	The land is zoned as R - Rural, A vegetation clearing permit has been submitted with the Northern Territory Government, which outlines the processes to decrease and eliminate any adverse effects on the environment. The document also describes the land which will be cleared
3. Despite subclause 5 the clearing of native vegetation on a lot identified on the zoning map as 'restricted rural residential' must not exceed that reasonably necessary for the construction of a dwelling and uses ancillary to that dwelling. The consent authority must not consent to development that is not accordance with this sub-clause	The land is zoned as rural.

5.2 Darwin Regional Land Use Plan

The proposed development layout has been modified to cater for the Darwin Regional Land Use Plan zoning that shows land to the north of the site ("Santavan") and to the east being potentially classified as Urban Peri-Urban.

The design changes include relocation of the facility further south, and a reduction in its size so that separation distances for management of odour fall within the northern, eastern and southern property boundary.

5.3 Litchfield Subregional Land Use Plan

The Litchfield Subregional Land Use Plan (LSLUP) is currently being prepared by the Northern Territory Planning Commission. The consultation for LSLUP was undertaken in October and November 2015. This consultation involved the use of a Consultation booklet (Consultation for a Litchfield Subregional Land Use Plan). This document provided a brief summary of the land use zoning and planning for the Litchfield Municipality from the NT Planning Scheme. The consultation booklet maps the development site as potential for Rural Lifestyle which is essentially large lot residential with average lot sizes of 2 hectares (NT Planning Commission, 2015).

This Subregional plan does not preclude, and, in fact, includes continued rural land uses.

5.4 Land Planning Context of the Development

Mapping of the area surrounding the Wellard development site shows that

- (a) significant areas of the surrounding land are prone to water logging. Large areas of the property “Santavan” are subject to inundation and flooding.
- (b) A heritage site exists on the western side of the “Santavan” property (possibly a large anti-aircraft battery, munitions stockpile and shelter). This has not been previously placed on NT Heritage plans; it should be shown.
- (c) Large areas of market gardens and orchards (Mangos and other tree crops). Many of the land uses are on small rural lots and are clearly not “planned” or more formally registered and are thus have not formally been mapped by the NT Government. They are visible from aerial photographs. This creates a significant anomaly between what the NT strategic and formal land uses show in relation to what land uses actually exist “on ground”.

5.5 NT Planning Policies

The NT Government has existing land use plans (see sections 5.2 and 5.3 above); and associated plans (Darwin and Litchfield) that set out some strategic land use and planning objectives.

Agriculture is a large component of the NT economy. It has a largely unrealised capacity that only intensification of agricultural practices and industry can uptake. Yet the NT Government has no planning policies for pre-export quarantine (PEQ) yards / depots, beef feedlots, abattoirs, food processing facilities, and for other intensive agricultural industries.

5.6 Development Application

The following presents the timeline for the submission of applications for the Wellard ILEF:

The Wellard Darwin ILEF Development Application was made on 24th April 2015 (accepted and paid for) to the Department of Land Planning and the Environment (PA2015/0296).

The development application (PA2015/0296) was exhibited from 1 May 2015 to 15 May 2015.

The Draft EIS Document was lodged with the NTEPA on the 15th September 2015 with a second draft lodged on the 27th October 2015 addressing the requirements of the Terms of Reference and Statement of Reasons.

The Draft EIS Document was exhibited from the 27th October 2015 to 11th December 2015. This supplement provided the additional information requested by the responses received to the Draft EIS Exhibition.

6. Applicable Guidelines

The NT Government does not have specific guidelines relating to the siting, design and operation of intensive animal industries let alone industry specific operations such as PEQ yards. The Draft EIS and associated documents utilise National Guidelines and guidelines from other states to ensure the development is constructed to best industry standards.

The following guidelines and standards have been used in the development of the draft EIS and this Supplement.

Issue	Guideline	Application	Notation
Odour	National Guidelines for Beef Cattle Feedlots in Australia	The “process” and rational of a Level 1 odour assessment has been applied as it has been proven to be conservative	See Skerman et al (1996 & 2000) and Skerman (2004)
	National Beef Cattle Feedlot Environmental Code of Practice		
Animal Welfare	Australian Model Code of Practice for the Welfare of Animals: Cattle.	Pen sizing, cattle handling, transportation of cattle	Industry standard
	Australian Model Code of Practice for the Welfare of Animals: Land transport of cattle		
On-site wastewater Management	NT Code of Practice for On-site Waste Water Management	Design, Installation and operation of Onsite wastewater management systems for human effluent wastes	
On-site Wastewater Management	Australian Standard 1547:2012	Design, Installation and operation of Onsite wastewater management systems for human effluent wastes	Industry Standard
Irrigation	NSW DEC 2004 Environmental Guidelines Use of Effluent by Irrigation	Use of effluent for Irrigation	Technical robust
Irrigation	EPA Victoria 1991 Guidelines for Wastewater irrigation	Use of Effluent for Irrigation	Technically robust
Land Transport of Animals	Australian Animal Welfare Standards and Guidelines 2012 Land Transport of Livestock	Transport of Livestock to the facility and from the facility to the dock	Industry standard
Composting	Australian Standard 4454-2003 – Composts, soil conditioners and mulches	Requirements for parties who manufacture and supply compost, mulch and soil conditioners.	
Composting	EPA Victoria 2015 Designing, constructing and operating composting facilities	Designing, constructing and operating composting facilities	
Composting	NSW DEC 2004 Composting and related Organic Processing Facilities		
Wastewater Ponds	SA EPA 2014 Wastewater Lagoon Construction	Construction guidelines for Wastewater Lagoons.	

Some other State Guidelines are **not** fully or partially applicable to the assessment of the ILEF (PEQ). Reasons why they are not applicable are provided in the following table.

Table 3 Notations on Guidelines that Ought Not be Applied

Guideline	Normal Application	Reason Why Not Applied	Notation
National Guidelines for Beef Cattle Feedlots in Australia National Beef Cattle Feedlot Environmental Code of Practice	Beef Cattle Feedlots where cattle are fed for production with rapid weight gain in mind.	Cattle in a PEQ facility are fed a maintenance diet only. Export cattle have empty guts requiring 2-3 days of feed to re-establish gut function and have lower defecation than feedlot cattle. Feed lot feeder cattle have a full gut going into a feedlot and with a full production ration produce high levels of manure. Maintenance rations are high fibre low starch and energy. (Protein levels are generally about 6%). Feedlot Rations are high protein and high energy (with >12% protein). Residence time for Feedlot Cattle is between 70-180 days or longer. PEQ residence time is temporary until the next shipment usually.	Parts of this guideline are applicable; other parts are not. The NT Government specifically asked that the NT Live export industry (depots) be excluded from this guideline when Edition 2 was being formalised; Des Rinehart, MLA, pers comm, 2015). See Appendix F
Wastewater Reuse Guidelines	The sources of Wastewater defined under the NT Guideline are: • untreated domestic sewage • greywater • industrial process water • trade waste • stormwater End use of the recycled water and the level of human contact the wastewater will have determine the class of treatment.	The waste from the ILEF is Effluent from animal waste, no human waste is to be treated in the Wastewater Treatment ponds. Separate approved systems will be installed for the treatment and disposal of human sewage. The wastewater from the ILEF will be used for irrigation of pasture crops for cattle feed. The end use has low to very low level of human contact and therefore can be classed as C or D. Irrigation will be applied using trunk irrigation to apply water directly to the ground surface with minimal to no aerosols This guideline is applicable for low strength wastes and their reuse in Mediterranean climates; not the capture, treatment and reuse of medium to high strength waste waters in the tropical north of Australia	NT Dept of Health Draft Guidelines for Wastewater Works Design Approval of Recycled Water Systems (2014) SA Dept Health, South Australian Recycled Water Guidelines (2012) NSW Department of Water and Energy, Interim NSW Guidelines for Management of Private Recycled Water Schemes (2008)

Waste
Management and
Pollution Control
Act AND

Definition from this act states: *“Animal effluent and residues (abattoir effluent, poultry and fish processing waste)”*

The Definition is understood to be:

“Animal effluent and residues from abattoirs and poultry and fish processing; being from the slaughter and subsequent processing of these animals for meat and other by products in a “Processing Facility” or Factory on a daily basis.”

Waste
Management and
Pollution Control
(Administration)
Regulation

If this is incorrect, and the Regulation simply lists a few examples of animal effluent and residues that a broad definition would apply to, the regulations should be stated as such. Further the Regulations should state that these are examples (not exclusive of other animal effluent production systems) to remove ambiguity. The Regulation currently does not.

It is suggested to the NT EPA that this Act Regulation is not directly applicable to the ILEF per se.

The ILEF is merely for holding livestock for short periods of time in yards. Most waste waters are generated through run off from yard areas. Small amounts of waste water are generated from a truck wash and from the office and rest area facilities. These waste waters are separately treated and disposed of in dedicated areas.

As stated above, if the above Regulation includes animal effluent from intensive animal facilities such as saleyards, cattle feedlots and pre-export quarantine yards, environmental protection approvals and licences under the *Waste Management and Pollution Control Act* will be specifically sought.

The beneficial use criteria are those that are generally applied by the Queensland DEHP (see Skerman & QLD DPI, 2000).

The Queensland government guidelines that applied to cattle feedlots, saleyards and pre-export quarantine facilities consider manure to be a “resource” and its reuse as a soil conditioner and fertiliser a most justifiable outcome. Manure and or composted manure can be applied to a soil and soil-crop system to deliver significant beneficial outcomes through increases in soil organic matter, and improve

nutrient and water holding capacity.

The project has reduced the composting area and will now only compost a small amount essentially within a dry weather facility.

Excess manure will be taken off site to collaborating land owners and a Wellard's owned property at Batchelor.

Industrial Emissions	Odour	Environment Protection Authority Victoria, 2013. Recommended separation distances for industrial air emissions recommends 500m separation distance for temporary holding transport sale or processing of stock	In the EPA Victoria Guidelines (2013), 500 m is the listed separation distance for a “<i>stock saleyard</i>” industry. The “<i>stock feedlot</i>” industry is redirected to the <i>Victorian Code for Cattle Feedlots</i>. These guidelines refer to the <i>National Guidelines for the same</i>. The description of a stock saleyard under this guideline is “<i>where pigs, cattle or other stock are temporarily confined for sale, transport or processing</i>”; Saleyards hold livestock direct from farms. Here animals are held in confined areas and having come direct from farms they “empty” out. In the defaecation the subsequent manure production is from animals that have had a full gut generally of quality feed. The Saleyards typically have simple waste management systems and at times have to wash down the pens (eg pig pens) between sales. The Wellard Darwin ILEF is an integrated live export pre-quarantine facility for holding cattle that have been transport to a central holding point so that they can be checked prior to being loaded onto a ship. The facilities are NOT operated as a saleyard for all species of livestock nor as a “production” feedlot The Victorian guidelines for odour separation distances for saleyards are not applicable. The most relevant odour guidelines, are the conservative odour separation guidelines in, the <i>National Guidelines of Beef Cattle Feedlots</i> (MLA 2012). These are deemed to be suitable; given, appropriate modification and due consideration of the differences between a “production” feedlot
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and a “pre-export quarantine” facility.

These guidelines do take into account odour produced by wastewater systems

7. Existing Environment

The existing environment is discussed in Section 4 of the Draft EIS. The following sections supplement the information provided in the EIS.

7.1 Climate

Wind data from the nearest Bureau of Meteorology stations to the site (Noonamah and Middle Point) was not included in the draft EIS. The monthly wind data from both these facilities is shown below in Table 4 and Table 5.

Table 4 Monthly Wind Data for Noonamah, Northern Territory (Sourced Bureau of Meteorology)

Month	Average wind speed (Km/h)		Most common wind direction	
	9am	3pm	9am	3pm
December 2014	5	10	North	North
January 2015	7	10	North	North
February 2015	6	9	West	West
March 2015	6	11	West	North
April 2015	7	10	South/East	East
May 2015	8	10	East	East
June 2015	10	12	South	East
July 2015	9	12	East	East
August 2015	7	11	East	East
September 2015	6	13	North	East
October 2015	7	13	East	North
November 2015	5	11	North	North
December 2015	7	9	West	West
January 2016	7	12	West	North

Table 5 Monthly Wind Data Middle Point, Northern Territory (Sourced Bureau of Meteorology)

Month	Average wind speed (Km/h)		Most common wind direction	
	9am	3pm	9am	3pm
December 2014	6	11	North	North
January 2015	9	13	North	North
February 2015	7	11	South/West	West
March 2015	7	11	South	North
April 2015	7	10	South	East
May 2015	7	12	South	East
June 2015	9	14	South	East
July 2015	8	13	South	East
August 2015	8	13	East	East
September 2015	7	14	North	North
October 2015	9	18	East	North
November 2015	7	16	North	North
December 2015	8	13	West	North
January 2016	9	13	West/North	West

These data are suitable for use in the EIS because;

- (i) The length of recording is relatively short and no reliability can be placed in the record with regard to it being representative of long term climatic conditions

- (ii) At best the records are for 9 am and 3pm only; no actual wind run data are available (the data are snap shots only).
- (iii) There is no long term statistical climate data from the Noonamah station. The long term data from Middle Point from the Bureau of Meteorology does not contain wind rose data nor does it contain long term wind data
- (iv) they are, consequently, not suitable for use in any odour assessment calculations.

Wellard, through MLA Research and Development projects, will install a weather station on site so climate and local meteorological conditions can be measured.

7.2 Land Use

Based on an assessment of aerial photography the following estimate of current land uses surround the site (within 5 km of the property boundary = total area of approx. 100km², 10,000ha);

Table 6 Summary of Existing Land - uses mapped from aerial photography (Google Earth Pro 2016)

Land use	Area (ha)	Percentage of land use within 5km radius (%)	Notation
Native vegetation	3,940	39.40	Rural Zoning, Future Development Zoning,
Small lots (residential, grazing, hobby farms)	2,899	28.99	Rural Zoning
Rural Lifestyle	1,092	10.92	Rural Lifestyle Zoning
Roads, railways and other infrastructure	666	6.66	
Meat processing and associate land use	612	6.12	AACo Meat Processing Facility
PEQ and associated infrastructure	213	2.13	Santavan
Environmental (reserves, conservation areas)	168	1.68	Conservation Zoning
Cultivation	130	1.30	Rural Zoning
Horticulture (vegetables, fruits)	123	1.23	Rural Zoning
Proposed Darwin ILEF	91	0.91	Rural Zoning
Recreation	66	0.66	Recreation Zoning
	10,000ha	100%	

Table 6 shows the dominant land uses for the area surrounding the ILEF are Native Vegetation at 39.4% followed by Rural Zoned Small Lots (Residential, grazing, hobby farms) with 28.99% and Rural Lifestyle Lots with 10.92%. The broad allowance of activities within the Rural Zone most of which can be undertaken without consent makes it difficult to map the land use activities in the area.

7.3 Surface Water

The site is located on the western side of a plateau. The site has no creeks and sits just on the western upslope part of a watershed. Surface water from this site drains to the west. Water draining from the site banks up at the railway line and flows into a flatbed drain.

The railway easement has been inspected with Dr Simon Lott and a representative of Genesee Wyoming Australia on Tuesday 15th December 2015. Drainage along the railway is poor. The Railway operators (Genesee Wyoming Australia) will be approached with regard to the need to upgrade drainage so the water flows along the railway line and through the drainage culverts out to the west is improved.

The site is located above inundations zones to the north (on "Santavan") and west (on the AA Co facility). Figure 3 below shows the government mapped water logging in the area of the proposed development. The

dark blue hatching shows areas of severe inundation and the light blue stippling shows the seasonally inundated areas.

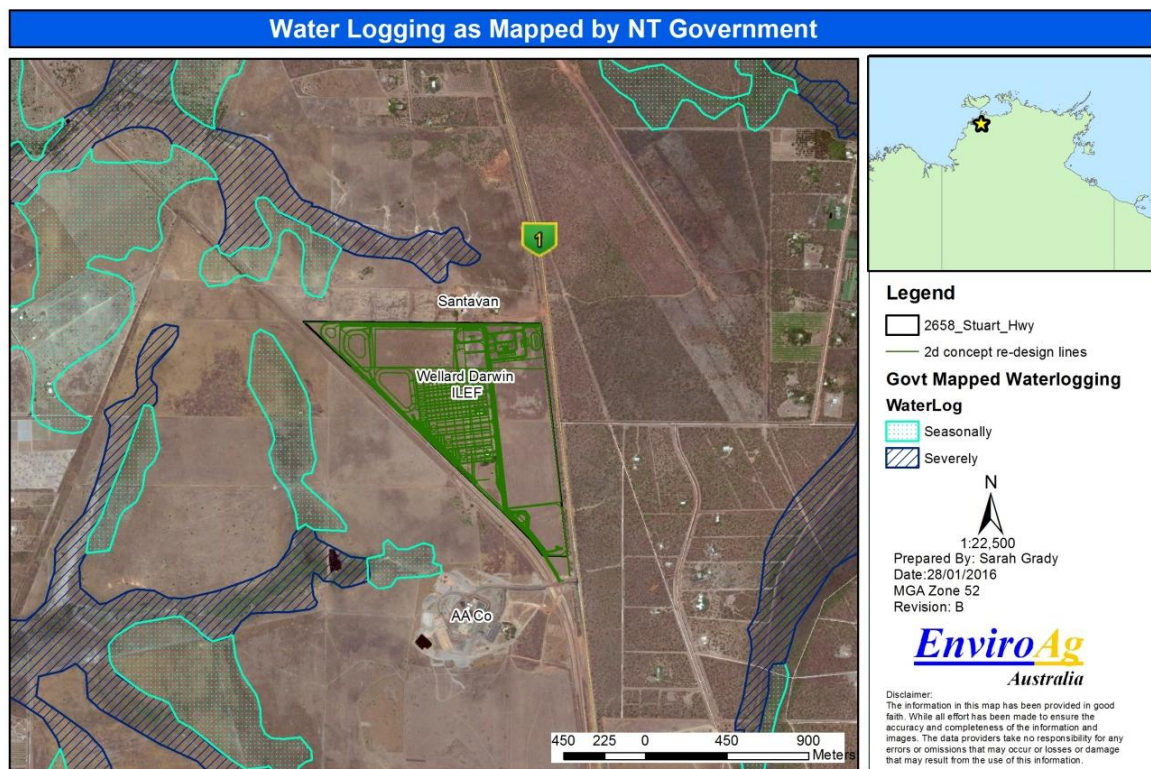


Figure 3 Water Logging as Mapped by the Northern Territory Government

Figure 4 below shows the areas of visual water logging from aerial imagery and “ground-truthing”. This mapped area encompasses a lot of the areas mapped by the Northern Territory Government with a few extensions identified by EnviroAg investigations.

There is a small area of water logging on the proposed development site in the western corner. This area will be used for water storage and drainage. The Visual mapping also accounts for poor drainage along the railway corridor where water ponds for extended periods of time instead of draining freely.

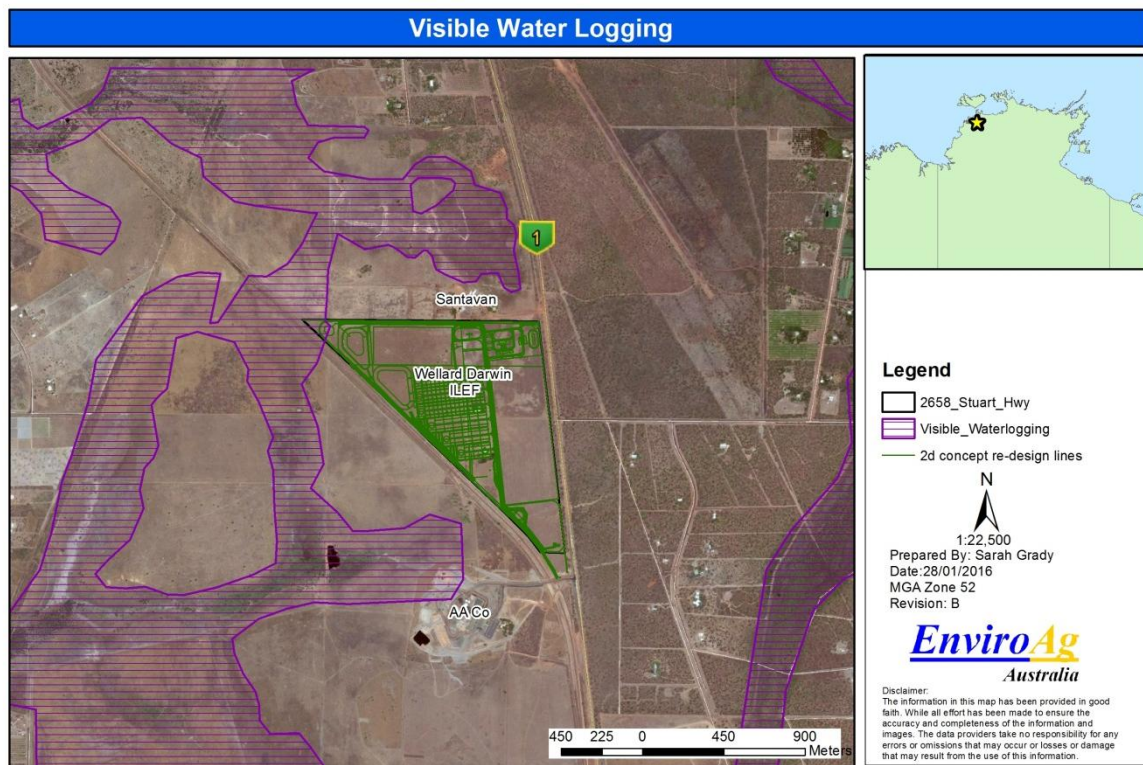


Figure 4 Visible Water Logging

7.4 Groundwater

The NT Government is a signatory of the National Water Initiative. The NT Implementation of the Plan (NT Government 2006) sets out that in an entire recharge area that 80% of water should be provided and 20% for consumptive use.

The NT Government has subsequently issued permits to Wellard for development of 3 production bores of up to 15L/s (Bore Construction Permit Number is BCPD 1821). One bore has been established in the north east corner of the property 18.25 metres from the northern fence and 48.7m from the eastern fence. The bore has been registered with Land and Resource Management under Registration Number 39020.

Groundwater for the site will be accessed from the production bore hole drilled in the North East corner of the property. This bore was drilled to 114m. It has a standing water level of 6 m below ground level and flows of up to 5-7 litres per second have been obtained in pump tests. The well has screened off the upper aquifer that is used locally.

The available flow rate provides for up to 160ML/year at 5L/s through to 250ML/year at 7L/s. This will adequately supply Stage 1 of the development and Stage 2. If another production bore needs to be drilled it will be drilled to the same depth now that deep aquifers have been identified in the drilling program.

The 3 bores that have been permitted to be drilled on the property have a permitted use of up to 15L/s. The groundwater take is from an unregulated groundwater zone. The 3 bores, if developed, with a take of 15L/s would allow a total entitlement of up to 1,491ML/year.

This amount of water can be legally taken from the bores. It greatly exceeds what the required amount is.

Groundwater quality has been defined from water quality tests in surrounding bores. The water is generally of good quality with no contaminants per se. The water is relatively clean and with low levels of salts. Its alkalinity, presence of carbonates and HCO will present no constraints to the types of pumps used and their maintenance.

Consultation with Department of Land and Resource Management has been undertaken and as a result Figure 6 in Appendix P Hydrogeological Assessment of the Draft EIS has been amended. The phreatic surface that gives rise to base flows in Berry Creek and thence Berry Springs are shown.

The two existing shallow bores on the site will be grouted out and be decommissioned as those are located within our irrigable area. Six (6) piezometers will be installed within the irrigation area for monitoring purposes.

Table 7 Bore Log Data from Surrounding Bores.

Bore name	Reg. number	Easting	Northing	Depth (m)	SWL (G.L.)	EC	pH	(mg/L)																
								TDS	Na	K	Ca	Mg	Fe	Total hardness	Total alkalinity	SiO ₂	Cl	SO ₄	NO ₂	HCO	CO ₃	OH	F	NaCl
S.01	30642	723600	859639	40	No data	275	6.9	182	4	2	42	8	0.7	138	144	14	4	4	<1	176	0	0	0.2	7
No 2	298809	726000	8592670	95	6	228	6.9	205	35	8	10	5	3.9	46	118	54	5	1	1	114	<1	<1	0.7	8
No1	31460	723390	8593090	35	9	50	6.6	40	5	1	1	2	2.2	11	21	17	3	<1	<1	26	0	0	0.1	5
No name	31687	725474	8596613	121	18	143	8.2	83	12	7	9	5	6.8	43	80	30	3	1	<1	67	15	0	0.1	5

8. Hours of Operation

8.1 General hours of Operation

The general operating hours for the facility will be 5am to 9pm as stated in the Draft EIS. Some out of operational hours livestock transportation (arrivals/dispatch) will occur. These out of hours livestock will be received and processed for welfare reasons.

8.2 Ship Loading Operations

During ship loading operation it is acknowledged that operations would occur during a 24 hour for about 2 days with 16 trucks operating 24 hours per day.

9. Improvements to Development

9.1 Design Improvements

The proposed ILEF has been altered and redesigned; based on feedback from the NT Government and other stakeholders over the period of consultation to date (> 6 months).

The changes improve the proposed ILEF without changing the overall intent of the development. The design changes that have been included (but not limited to) are set out below in Table 8.

Table 8 Design Improvements

Removal of the feedmill and inclusion of a simple feed and fodder storage and preparation area.	- Reason = Business - It is not economic feed on site - Prepared fed will be transported in.
Recognition that the “Santavan” pre-export quarantine” facility has not been included in future land planning considerations by the DLPE in the Darwin Regional Land Use Plan (DLPE:2015³) and the subsequent applications for amendment to facilitate urban development in the area in particular the East Weddell Rezoning proposal (PA2015/0259⁴)	Reason = Land Planning
Removal of the short term holding yards / small feedlot from Stage 1 and its placement in Stage 2;	- Reason = Environmental + Business - Wellard are happy to accept that a detailed odour assessment would need to be undertaken, with actual site data, before the holding yard / short term feedlot component is consented
Relocation of the ILEF further south into the property, and away from the northern boundary;	- Reason = Environmental + Planning - Odour will be contained within the property boundary. Moving the development south brings the separation distance for Stage 1

³ DLPE. 2015. *Document G in Appendix A – Letter from DLPE in Response to the Exhibition of the Draft EIS.*

⁴ TPG Town Planning, Urban Design and Heritage 2015 East Weddell Proposal to amend the planning scheme (PA2015/0259).

	inside the property boundary.
Reduction of the manure handling and compost area and its relocation closer to the pen areas;	- Reason = Business + Environmental - More manure will be sold directly off site. Less will be held on site. This delivers a greater financial return whilst reducing the site footprint and environmental management of compost.
Inclusion of substantial treed buffers on the northern boundary;	- Reason = Environment + Aesthetic - The tree lines will improve the character and effectiveness of the buffer area between the ILEF and the boundary. - The tree line will reduce visibility of the ILEF.
Removal of power lines through the property.	- Reason = Business - Removal of the powerlines from the site removes a large hazard from the site significantly reducing risk to persons and property.

9.1.1 *Controlled Drainage Area*

The total area of the controlled drainage area has been reduced from approximately 33 ha to 25.25 ha for the full development (Stage 1 and Stage 2). This reduction in area leads to a reduction in wastewater runoff and wastewater holding pond capacities. The total pond capacity has been reduced from 220ML to 165ML.

9.1.2 *Odour Management*

The odour separation distances have been remapped to take account of;

- the reduced capacity,
- reconfigured positions of potentially odoriferous areas in the ILEF (pens and ponds); and,
- tree lines within the property.

This resultant calculation provides an odour separation distance contained within the boundaries of the ILEF on the north and east of the property. There is some incursion across the railway into the AACo Meat Processing Facility property to the south-west.

Figure 8 shows below, the separation distance for the ILEF is 251m, and the reduced distance when the tree lines are included of 195m (i.e. when the tree lines are put in place).

9.1.3 *Wastewater Pond Dimensions*

Due to the reconfiguration of the site, the wastewater system has been repositioned. In particular, the primary wastewater pond has moved to the south of the ILEF in line with the reconfigured pen area. The wet weather storage dam and freshwater runoff dam remain in the same position.

9.1.4 *Compost manure pad*

The compost manure pad has been reduced from 31,105m² to 3,190m² for Stage 1 and 5,840m² in the re-design of Stage 2. Stage 2 will not proceed until an additional odour assessment of the facility has been undertaken and approved.

9.1.5 *Irrigation area*

The irrigation area has been redesigned resulting in no change to the size. The irrigation area is now divided into two main areas; one the northern boundary and a second on the eastern boundary. There are also garden and treed buffer areas within the property that form part of the total irrigation area.

9.2 Improvements in Operation

Improvements to the operation of the site have been implemented alongside the design changes. These are discussed below:

- a) A business decision has been made to delay the construction and operation of Stage 2 until Stage 1 can be positively assessed and actual data is available to undertake further odour assessment of the site. This assessment will assess the operation of Stage 1 against the conditions of approval.
- b) Wellard's will have an increased focus on rapid off site sales of manure/compost to reduce the footprint of that operation at the site.
- c) Wellard's have discussed alternate management of dead livestock. Dead animals where applicable (i.e. not as a result of quarantine issue) will be disposed of offsite for pet meat sales and rendering.
- d) Management of noise and odour generating activities and frequencies to minimise odour impacts offsite.





Figure 6 Revised Site Plan including Stage 1 & Stage 2

10. Waste Management

10.1 Solid Wastes

The size of the composting area has been reduced from 31,105m² to 3,190m² for Stage 1 and 5,840m² in Stage 2. This is a significant decrease in area; most manure will be sent to Wellard's "Gould" grazing property at Batchelor and other collaborating properties for reuse prior to the wet season.

The limited composting that will be done at the ILEF will be done in the open air and during the dry season. The entire site will be cleaned prior to the wet season and then cleaning and composting will resume when the dry season arrives.

Any manure cleaned during the wet season will be piled in pens under the rooves.

10.2 Liquid Wastes

10.2.1 *Consequences of Design and Operation Changes*

The design changes have resulted in a smaller operation on the site. The smaller operation size and foot print consequently has less runoff. The holding pond capacity has decreased from 220ML to 165ML. The same principles were applied when calculating pond sizing. The design allows for low incidents of over topping. The Hydrological Assessment (Appendix O from the Draft EIS) has been amended to include the redesign calculations. A copy of the Amended report is attached as Appendix I.

10.2.2 *Onsite Wastewater Management of Sewage*

Wellard are proposing to install three Aerated Waste Water Treatment Systems (AWTS) on the site to treat the wastewater from the staff facilities.

The first one will be for the Managers residence which will be a standard household treatment system capable of treating wastewater from an estimated 5 persons for the 4 bedroom dwelling being approximately 750 litres (150 litres per person per day (AS1547:2012)).

The second system will be for the Office this system will be a similar AWTS system as above capable of treating 600 litres per day from an estimated 20 persons for toilets, basins and kitchenette.

The Third AWTS is for the Stockmen's/Truckies Facility. This facility will have toilets, basins, a kitchenette and showers. The system required will be a commercial type system with a daily loading capacity of 2,450 Litres based on the use of the facility by approximately 35 persons (mostly visitors). The system would be capable of processing 4,000 litres per day.

As the ILEF is located within a controlled building area the wastewater treated through the AWTS systems will be disposed of in accordance with the NT Department of Health Code of Practice for On-site Wastewater Management. The disposal areas will be designed and installed by suitably qualified personnel and applications will be lodged as per the Code of practice by the installer and in accordance with the Building act and the Public and Environmental Health Act.

The primary treatment ponds will not receive any sewage wastewater from the AWTS systems.

10.2.3 *Liquid Waste Classification*

Effluent to be use on the irrigation area has been classified based on the concentration of nitrogen, phosphorus, BOD₅, TDS and other pollutants (e.g. metals, pesticides). This classification was based on the NSW DEC Environmental Guidelines for Use of Effluent by Irrigation (2004) and the EPA Victoria Guidelines for Wastewater Irrigation (1991). The Figure 7 below summarises the concentrations of each constituent for each classification level.

10.3 Irrigation Management

An Irrigation Management Plan has been prepared for the irrigation operations on the proposed development site. This plan sets out the proposed irrigation practices and calculations to be used on the site. A copy of the irrigation management Plan is attached as Appendix C.

The Irrigation area is divided into two areas one being approximately 300m by 800m and the second being approximately 430m by 210m which will be irrigated using an automated low pressure poly lined lateral move irrigator with drop hoses, which will have no spray effect, what so ever, onto the highway. The Treed buffer and garden areas will be irrigated using drip irrigation lines. The facility is also, at 48m AHD (Australian Height Datum) and the Stuart Highway is 54AHD. There is little to no chance that any runoff will occur onto the Stuart Highway.

The effluent proposed to be used on the irrigation area has been classified using the NSW DEC Environmental Guidelines use of Effluent by Irrigation (2004). Table 3.1 of this guideline provides the Classification of Wastewater (effluent) for environmental management by strength based on concentrations of nutrients and potential pollutants. This table is replicated in Figure 7 below.

Constituent	Strength (average concentration mg/L) ¹		
	Low ²	Medium	High
Total nitrogen	<50	50–100	>100
Total phosphorus	<10	10–20	>20
BOD ₅	<40	40–1,500	>1,500
TDS ³	<600	600–1,000	>1,000–2,500
Other pollutants (e.g. metals, pesticides)	Effluent with more than five times ⁴ the ANZECC and ARMCANZ (2000) long-term water quality trigger values for irrigation waters must be considered high strength for the purpose of establishing a strength class for runoff and discharge controls and will require close examination to ensure soil is not contaminated.		
Grease and oil	Effluent with more than 1,500 mg/L of grease and oil must be considered high strength and irrigation rates and practices must be managed to ensure soil and vegetation is not damaged.		

- Notes:**
1. Average concentrations established from a minimum of 12 representative samples, collected at regular intervals over a year.
 2. Effluent generated by municipal sewage treatment plants with secondary treatment will generally be considered to be low strength.
 3. Refer to Section 3.7 for relationship of TDS to EC.
 4. Criteria of five times the ANZECC and ARMCANZ (2000) long-term irrigation criteria have been selected as nominal criteria at which the level of those contaminants warrants a higher level of management of the reuse system for the following reasons. This criteria when applied to 1 ML/d of effluent irrigated over 100 hectares would take approximately 10 years for soil contaminant levels in the top 15 cm of soil to rise to near the soil contaminant criteria for Cadmium, Chromium and Zinc, which are the most sensitive heavy metal pollutants in this scenario. This criteria is also approximately half the value for Nickel, Mercury, Beryllium and Arsenic at which the effluent would be considered a liquid waste and would need to be managed and disposed of according to the DEC's *Environmental Guidelines for the Assessment, Classification and Management of Liquid and Non-Liquid Waste* (EPA 1999a).

Figure 7 Excerpt Table 3.1 Classification of effluent for environmental management (Sourced From NSW DEC Environmental Guidelines – Use of Effluent by Irrigation (2004))

The wastewaters from the Darwin ILEF are expected to of medium strength concentration (based on BoD and TP concentrations). The wastewater system has been designed for high strength waste to provide additional storage capacity. This is an extremely conservative design approach.

Irrigated pasture n the irrigation area requires about 10ML/ha/yr on average.

Irrigation of wastewater to the irrigation area will be at a rate of annual median amounts of 1ML/ha/year with 1.1ML/ha/year of fresh water to applied. Maximum rates would be 6ML/ha. Based on these irrigation rates there will be an average of 65 days of plant stress per year; due to the water deficit. Wellard will aim to increase recycled and fresh water supply to supplement the irrigation area.

The irrigation area has a nutrient deficit. The irrigation area will be need fresh and recycled water and inorganic fertiliser to supplement plant requirements.

11. Odour Management

In response to the correspondence received by the NT EPA and as result of the exhibition of the Draft EIS (Appendix A). The management of odour for the facility has been assessed and as a result the comments and recommendations the facility has been re-designed. Document A to L in Appendix B provide responses to the NT EPA and other agency comments received. The following information provides a summary of the response to the comments received.

There are no directly applicable guidelines for the assessment of odour separation distances for pre-export quarantine facilities.

Guidelines exist for beef cattle production feedlots. These range in their level of assessment. The Level 1 assessment applied in the National Guidelines and all States has been benchmarked by Skerman (1996 & 2000) against odour complaint history.

Skerman (1996, and 2000) found the (Level 1) odour separation calculation provided a very good fit. The Level 1 odour separation distance calculation methodology, whilst conservative, is well understood to be most useful in the siting and establishment of facilities.

As Skerman (1996 & 2000) indicates, well run facilities generally operate well within the minimum separation distances.

Level 2 and 3 assessments are not applicable to the ILEF because no suitable odour generation and emission data exist for a PEQ facility. These facilities are fundamentally different to a beef cattle feedlot (see Appendix F)

It is extremely important to note that:

- Wellard have managed the 11,500 head (peak) “Santavan” PEQ facility without any verified and scientifically substantiated odour complaint for more than 6 years. It is closer to neighbours than the proposed ILEF.
- The “Santavan” PEQ facility is old and not well design. The “Santavan” PEQ facility, if compared to feedlot ranking systems for design and operation (see MLA, 2007, 2nd edition) would be a “Class 3” facility.
- The Santavan facility has open yards, and no rooves.
- The proposed Wellard Darwin ILEF will be a Class 1 facility (see MLA, 2007, 2nd edition): currently other yards in the Darwin region are Class 3-4.

A modified version of the National Feedlot Guideline Level 1 odour assessment calculation has been applied in the odour assessment (see Appendix C in the Draft EIS). It has been modified based on the ration differences and substantially reduced bypass starch and protein in the PEQ rations (the feed is a high roughage and low protein diet). Further, it accounts for the fact the facility will be covered (see Appendix F).

The original ILEF design has been modified. The resultant calculated separation distance is 251 m (Figure 8). The separation distance calculations exclude “Santavan” from the cumulative impacts on the basis that the Department of Planning have advised that the “Santavan” facility is (a) a pre-existing use outside of existing plans, and, (b) has not been included in any future planning arrangements, and odour from facilities is to be controlled within each property boundary.

This revised plan demonstrates how the design changes allow the facility to operate with no impact on the proposed urban/peri-urban zoned land to the north and to the east.

11.1.1 Inclusion of Treed Areas in Revised Design

The separation distances used in Stage 1 are calculated using a known conservative methodology. The methodology has been made on the basis that only “grass with a few trees” exists between the facility and the boundary.

Wellard intend planting substantial (irrigated) treed buffers inside its property. The Stage 1 separation distance would be reduced to 195m; thus providing a safety margin.

Figure 8 below shows the revised facility layout with the separation buffer of the 251 m separation distance and the 195m separation distance given the establishment of treed areas within the property. These lines show that the separation distance does not enter the property to the north or the east. The AA Co. property lies to the west.

11.1.2 *Complaint History*

Wellard have managed the “Santavan” Facility for 6 years without any odour complaints (verified, and scientifically substantiated, and, applicable to the facility). Facilities such as “Santavan” are Class 3 or 4 Facilities⁵. The proposed ILEF will be a Class 1 facility. The complaint history supports the outcome of the calculation of the modified Level 1 method.

The only complaint received at the “Santavan” facility was in relation to a deceased grazing animal near the northern boundary. This was part of the grazing operation on “Santavan” not the PEQ operations and as such has not been included in the PEQ complaints data.

11.1.3 *Odour Management*

The separation distance lies within the N and E boundary of the property. Wellard have mitigation measures that are tried and tested and can be applied at the site.

11.1.4 *Odour Assessment for Stage 1 to Stage 2 progression*

Before the ILEF moves from Stage 1 to Stage 2 Wellard will conduct a detailed odour assessment based on the operations of Stage 1; this will involve; benchmarking operations against odour performance, application of onsite measurements (weather and odour emissions).

Wellard and EnviroAg Australia have applied for funding from the MLA and LiveCorp to undertaken research and data gathering from the new facility to support the same and obtain data for the NT Live Export industry and the NT community.

⁵ These are Environmental Management Classes that have been applied to other beef cattle facilities. See National Beef Cattle Guidelines 1st and 2nd Editions.

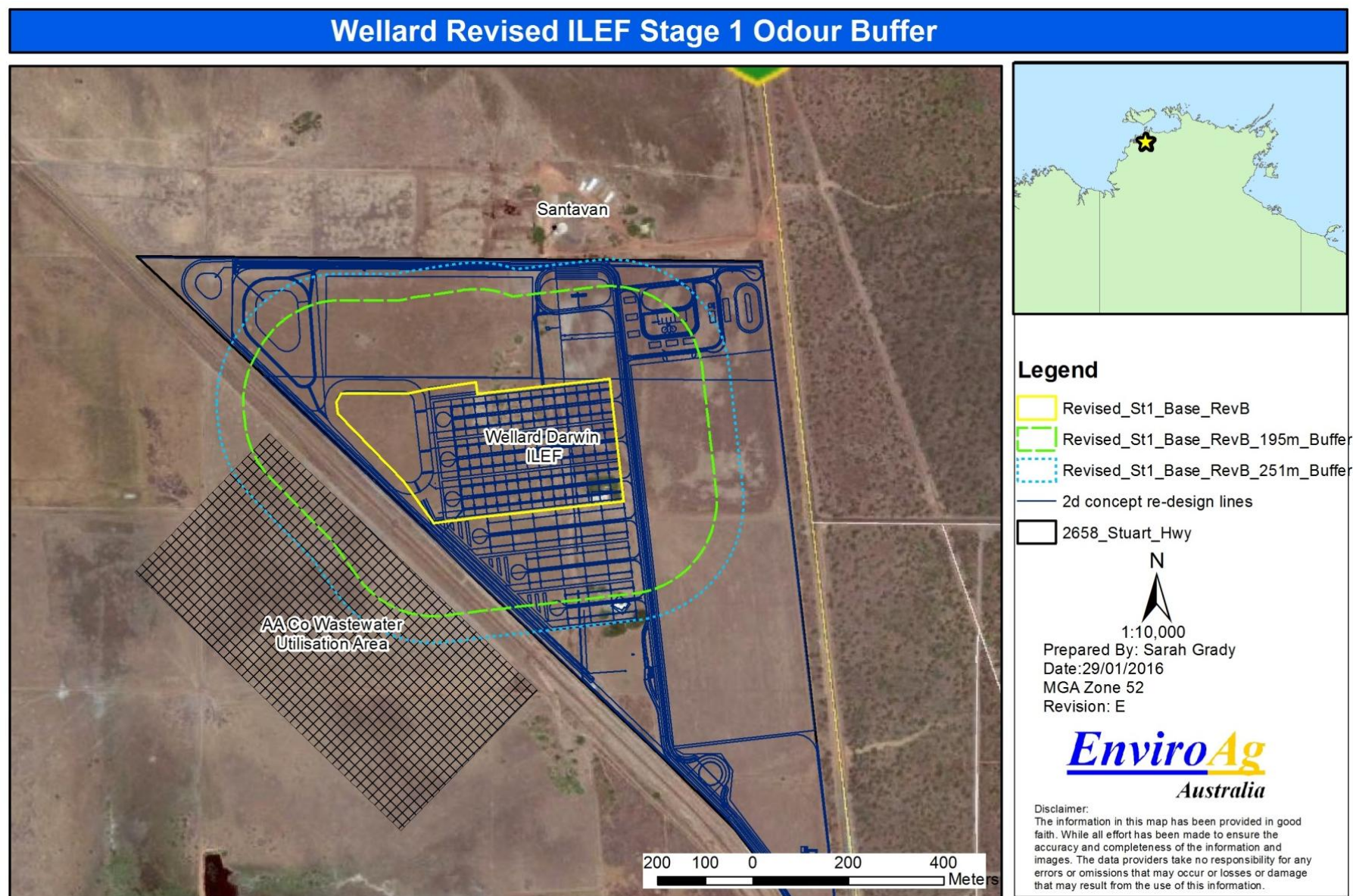


Figure 8 Stage 1 Odour Buffer for the Reconfigured Design

12. Noise Management

The Santavan pre-export quarantine facility currently houses livestock that will be taken up by the Wellard Darwin ILEF. Essentially the ILEF will ultimately replace the Santavan facility. Santavan has no noise mitigation measures in place. The ILEF does. Simply, the ILEF will replace an existing facility but with a lower noise “footprint”. There will be a net benefit

The Environmental Management Plan (from the Draft EIS) which is an operational phase plan contains an operational noise management sub-plan.

Generally, separation distances for noise are similar to those for odour as noise is attenuated with distance. Further the earth and treed buffers that are being placed along the boundary and close to the facilities will reduce noise.

Additionally it is noted that,

- All equipment will be fitted with efficient silencers, in accordance to the Motor Vehicles Act 1949;
- All equipment will be maintained to reduce noise emissions,
- Noisier activities will be undertaken in the late morning through to early afternoon when most people are at work;
- Vehicle engines (specifically trucks) will be turned off and not left idling when not in use;
- Silencers will be used on equipment where possible;
- All efforts will be made to reduce the effects of noise on personnel and neighbours; and

A vegetation buffer will be planted to reduce the effects on neighbouring properties.

13. Resource Management

13.1 Land Management

The irrigable area has a water and nutrient deficit. Fresh water and inorganic fertiliser will be required to sustain the fodder production from the land.

Wastewater will be applied to the land area when there is a crop water deficit. It is mostly applied in the period April – October each year: the “dry season”. Fresh water will be applied to maintain crop growth when there is no wastewater available for irrigation. Fresh water can be applied together with the wastewater as a shandy; if required.

Table 9 shows the data for the monthly SALF modelling results. The SALF modelling shows that the annual average deep drainage is only 11mm/ha/annum. Most occurs in the wet season; little occurs in the dry season associated with the irrigation.

In extreme wet seasons deep drainage may exceed 100mm/year and is driven solely by heavy rainfall. The deep drainage is restricted by the clay layers in sub soil and the ferricrete at depth.

Appendices G, H, I, and J have been revised in relation to the changes to the facility; they are attached to this document.

Table 9 Monthly Leaching Fraction Results of SaLF Modelling

Month	Av Monthly Rain + Irrigation (mm)	Leaching Fraction (dec)	Deep Drain (mm)	Avg ECSE	WUW ECSE	Crop	Potential Yield (%) Salinity Effects
Jan	394.1	0.01	2.85	3.28	1.71	Rhodes grass-Pioneer	100
Feb	309.1	0.01	1.9	3.35	1.73	Rhodes grass-Pioneer	100
Mar	299.9	0.01	1.81	3.36	1.74	Rhodes grass-Pioneer	100
Apr	158.7	0	0.62	3.53	1.78	Rhodes grass-Pioneer	100
May	75.3	0	0.18	3.66	1.81	Rhodes grass-Pioneer	100
Jun	61.1	0	0.13	3.69	1.82	Rhodes grass-Pioneer	100
Jul	61.7	0	0.13	3.69	1.82	Rhodes grass-Pioneer	100
Aug	62.7	0	0.13	3.69	1.82	Rhodes grass-Pioneer	100
Sep	76.6	0	0.18	3.66	1.81	Rhodes grass-Pioneer	100
Oct	128.3	0	0.44	3.57	1.79	Rhodes grass-Pioneer	100
Nov	157.1	0	0.61	3.53	1.78	Rhodes grass-Pioneer	100
Dec	326.2	0.01	2.08	3.34	1.73	Rhodes grass-Pioneer	100
Total	2110.8	0.04	11.06				

13.2 Ground Water Consumption

The Draft EIS reported various numbers for estimated groundwater consumption for the proposed development ranging from 200-250ML. The groundwater use for each stage of the ILEF is detailed in the table below:

Table 10 ILEF Groundwater Use

Water Use	Stage 1	Stage 2
Stock Watering	45 ML	100 ML
Dust Suppression	10 ML	10 ML
Feedmill and Feed Preparation Management	10 ML	10 ML
Domestic Use	5 ML	5 ML
Irrigation (Supplementary to Effluent application)	60 ML	120 ML
Total	130ML	245ML

Stock Water requirements are based on the numbers. The irrigation water requirements are supplementary to the application of effluent wastewater. The addition of the clean water is to assist in sustaining plant growth while maximising nutrient uptake. The irrigation area has a water deficit. This will minimise the leaching of fraction into the ground water.

14. Traffic Management

The Wellard Darwin ILEF essentially will replace existing traffic volumes from the Santavan pre-export quarantine facility.

The main access route off the Stuart Highway has been designed to suit double and triple road trains. The traffic study conducted by the AACo subcontractors *i3 Consultants* found that the existing road intersection had spare capacity for the projected 2015 movements.

There is going to be increased traffic within the general area over time as the entire region is developed. In respect of the ILEF development the sight distances at the intersection being larger than legislatively required. EnviroAg believes the proposal will have no decrease on the safety of vehicles within the area.

15. Risk Assessment

15.1 Methods

ISO 31000:2009 is the current standard document for Risk Management - Principles and guidelines. This document was used in the application of the Risk Assessment for this project.

The framework outlined in ISO 31000 was used in the assessment process for this development.

1. Establishment of context
2. Risk identification
3. Risk analysis
4. Risk evaluation
5. Risk treatment
6. Monitoring and review
7. Communication and consultation.

The Draft EIS within the EMP identified and discussed the Risks identified as part of the assessment. This assessment has been amended and is included in Appendix G.

The risk assessment identifies the risk of each activity/aspect of the development. It assesses each risk based on the likelihood and consequence of it occurring. The assessment discusses the management measures to be implemented to mitigate this risk and re-assesses the residual risk after measures have been implemented.

15.2 Context

The proposed development is an intensive animal industry of modest size (1,814 SCU equivalents – Stage 1). In respect of beef cattle facilities (saleyards, feedlots etc); it is relatively small.

Best practice design has been applied to this facility. The site is well selected and amenable to the development within the extents of its physical environment. It is a rural development in a rural zone.

Wellard endeavours to construct and operate this facility to meet industry standards and to improve the operation standards of similar facilities in the Northern Territory.

The objective of the Risk Assessment is to ensure significant environmental risks are identified and evaluated such that appropriate risk treatment can be implemented to mitigate these risks.

15.3 Risk Identification

The Risks and Hazards have been identified in the Draft EIS, the Environmental Management Plan and the Risk Assessment. These are summarised below:

- Dust generation and nuisance
- Traffic Impacts
- Odour generation and nuisance
- Soil Contamination
- Soil Erosion
- Contamination of Ground and Surface Water
- Noise
- Increase in weeds, pest and insects
- Amenity
- Fire

15.4 Risk Analysis

The analysis of the risks included:

- likely outcome if untreated;
- frequency; and,
- duration.

The analysis of the risk is shown in Table 3 for the Risk Assessment attached as Appendix G.

15.5 Risk Evaluation

Evaluation of the risks has allowed an assessment to determine which risks need treatment and the priority of the treatment. In evaluating the risks and allocating treatment National and Territory guidelines for Industry practices have been consulted and used where applicable.

15.6 Treatment and Mitigation Measures

The mitigation measures for the construction and operation of the ILEF as detailed in Section 9 and Appendix E Environmental Management Plan of the Draft EIS. The relevant sections of the Environmental Management Plan have been amended and the amended report is attached as Appendix H.

The main mitigation measures to be implemented as part of this project are the implementation of an Environmental Management Plan which details the relevant management measures for each of the issues identified and the implementation of a monitoring program to assess and monitor the key issues identified with frequencies of the monitoring undertaken base on the seriousness of the risk. When the mitigation measures are implemented the residual risk remains.

15.7 Management

The key risks identified in Table 11 have a series of management measures associated with them. These measures are detailed in Table 3 of the Risk Assessment in Appendix G. The Environmental Management Plan and Section 9 of the Draft EIS list the management and monitoring requirements for the development. The specific management plans developed for the high risk items provide a framework and guidance for the management of these risks.

15.8 Risk Assessment

Table 11 provides a summary of the main issues identified in the Risk Assessment. The table shows the initial risk score and the residual risk score. The full table of the risk assessment is presented in Table 3 of the Risk Assessment in Appendix G.

Table 11 Summary of Risk Analysis (Red = High; Yellow = Medium; Green = Low)

Issue No.	Issue	Risk / Prioritisation Score	Revised risk score after management
1	Liquid waste management	20	10
2	Solid waste management	20	10
3	Water quality & catchment protection	20	10
4	Air Quality (including dust)	20	12
5	Odour	15	8
6	Noise	15	10
7	Economic and social effects	15	10
8	Land capability and soil resources	12	8
9	Pest & insect control	12	8
10	Weed management	12	3
11	Cumulative impacts	12	5
12	Traffic & road impacts	15	10
13	Flora & fauna	10	6
14	Hazardous chemicals	10	5
16	Animal welfare	9	6
15	Lighting and community amenity	8	4
17	Heritage	2	2

15.9 Monitoring

Section 9.2 of the Draft EIS and the Environmental Management Plan details the monitoring requirements for this development.

The key risks that require monitoring are:

- dust generation and nuisance;
- land transport;
- odour nuisance;
- degradation of land within the irrigable area; and,
- impacts to groundwater through leaching of nutrient.

While these impacts are not likely the following key practices will be implement;

- Wellard will install an automated weather station at the site to monitor weather conditions. This data will be used in the event of complaints and as part of their annual reporting requirements.
- The irrigation area will be monitored for moisture levels prior to irrigation to determine the water requirements. Soils in the irrigation area will be monitored for nutrient levels to ensure that the plant requirements are being met by the application of effluent wastewater and other fertiliser products.
- Ground water and surface water on the site and external to the site will be monitored to ensure that the development is not having an impact. Baseline data has been collected from monitoring points detailed in the surface water monitoring plan in Appendix D and the Irrigation Management Plan in Appendix C.

16. Environmental Management and Monitoring

Based on the submissions received during the exhibition period, the following management measures have been amended or included:

- An Irrigation Management Plan is supplied in Appendix C;
- Surface Water Management Plan in Appendix D;
- The Solid and Liquid Waste Management Plan has been amended is attached in Appendix E;
- The Traffic Management Plan has been amended and is attached as Appendix F; and,
- Amendments have been made to the Environmental Management Plan and the latest version is attached as Appendix H.

16.1 Surface and Groundwater Monitoring

As stated in the Draft EIS and Environmental Management Plan, monitoring programs will be implemented for groundwater and surface water to ensure the development is not having an impact. Piezometers will be installed as part of the construction works, with additional piezometers in each irrigation area.

The frequency on monitoring ought to be related to the time of groundwater accession. This could be between one month and 10 years depending on the stratigraphy, region, climate and land practices. It is proposed that groundwater will be monitored initially every 3 months. If contamination is detected then the frequency will be increased.

Surface water will be monitored annually with additional monitoring should an overflow event occur from the spillway.

Baseline sampling of the surface water is currently being undertaken. Details of the sampling locations for the surface water monitoring are detailed in the Surface Water Monitoring Plan in Appendix D.

16.2 Weed Management

The Weed Management Plan (Draft EIS - Appendix G) follows the requirements as enforced in the Northern Territory Weed Management Act 2013, *Part 3, Division 2 Weed Management Plans, Clause 10: (1-5)*.

A wash down facility is being built onsite and ingoing and outgoing vehicles can be washed down and checked for any seed or organic matter.

The wash down facility is designed to allow for capture, containment and drainage of contaminated water and prevent any water from escaping during heavy rainfall. This will ensure that no weeds will contaminate the road verge.

The construction topsoil piles have an increased risk of weed germination because of the disturbed nature of the soil, these piles will be continually monitored and treated for any weeds that germinate to prevent weed spread.

16.3 Fire Management

Responses to the exhibition asked for details regarding fire management and a fire management plan. There is no fire management plan per se as the site is heavily developed and highly controlled. There are however, many fire preventative techniques listed within the Draft EIS and its appendices (Environmental Management Plan - Appendix E).

The fire preventative techniques within the facility are:

- Irrigation water sprinklers within the stock pens to control dry conditions/dust;
- Daily monitoring of compost area for spot fires;

- Hay sheds are separated to prevent spread of fires between hay stocks;
- Hay is moisture checked before it is placed in sheds or stockpiles;
- Mains water supply is connected to the house and office and facilities;
- Machinery onsite and available to create fire breaks to slow/stop the spread of fire;
- Fuel loads can be reduced on the property in case of a pre-existing wildfire and will be generally kept low as all areas will be either irrigated pasture cut for hay or garden or tree lines; and,
- A water storage and reticulation system is included in the design containing redundancy that can be used to support firefighting tasks (water storage and pressurised water supply).

Fire has been addressed within the Emergency Management Plan within the Environmental Management Plan with the relevant emergency contacts provided.

16.4 Erosion and Sediment Control Plan

The Draft EIS contained a draft Erosion and Sediment Control Plan (ESCP). A detailed ESCP will be formulated when a consent is gained and approval conditions are defined. These will determine the final design and construction methods. These in turn will dictate the character of the ESCP.

EnviroAg and Wellard will be pleased to submit prior to the commencement of works, an ESCP for approval by the consent authority.

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18. Appendices

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Appendix A. Correspondence Received in Response to Draft EIS Exhibition

Appendix B. Response Documents (A-L)

Appendix C. Irrigation Management Plan

Appendix D. Surface Water Management Plan

Appendix E. Solid Liquid Waste Management Plan

Appendix F. Comparison of Agricultural Production Systems

Appendix G. Risk Assessment

Appendix H. Environmental Management Plan

Appendix I. Hydrological Assessment

Appendix J. Hydrogeological Assessment