

Briefing Note

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Wellard Darwin Integrated Live Export Facility (ILEF)

Project Profile

1. Project Location

The Wellard development site is Section 5544 Hundred of Strangways (2658 Stuart Highway, Livingstone) situated 50 km south-south east (SSE) of Darwin; 40 km south east of the Darwin harbour, and approximately 8 km East of Berry Springs.

2. Industry Overview

In 2014 the live export industry shipped 540,652 head of cattle out of the Northern Territory through Darwin (MLA:2015). The export industry in the NT competes directly against the industry in Western Australia and Queensland. These states exported 279,724 head and 278,527 head respectively in 2014/2015 (MLA:2015).

The live cattle export trade and the sale of cattle in the interstate markets dominates the agricultural and fisheries production in the Territory (DPIF, 2013). Primary industry and Fisheries makes up 2% of the Gross State product with excess of \$500 million a year. The live cattle export industry drives other industries in the area; in particular Hay and Fodder production, transport, storage, business to business services and retail trade services. Figure 1 below shows the value of Northern Territory cattle production.

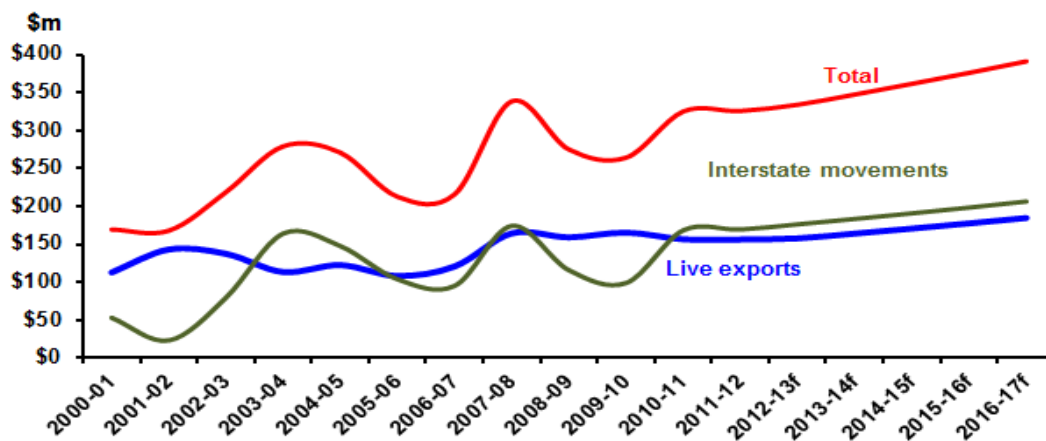


Figure 1 Northern Territory Cattle: Value of Production 2000-01 to 2016-17 (Sourced DPIF, 2013)

The live cattle export industry drives other industries in the area; in particular Hay and Fodder production, transport, storage, business to business services and retail trade services. Figure 2 below shows the Northern Territory Hay and Fodder production compared with the Darwin Live Export of Cattle. Bloomfield (2014) illustrates with this Figure that over the 18 years shown the hay and Fodder production in the Northern Territory has grown steadily as live cattle exports have grown.

Wellard exported 110,889 head 2014/2015 financial year from the Northern Territory.

NT Fodder and Hay Production compared to Darwin Live Export of cattle

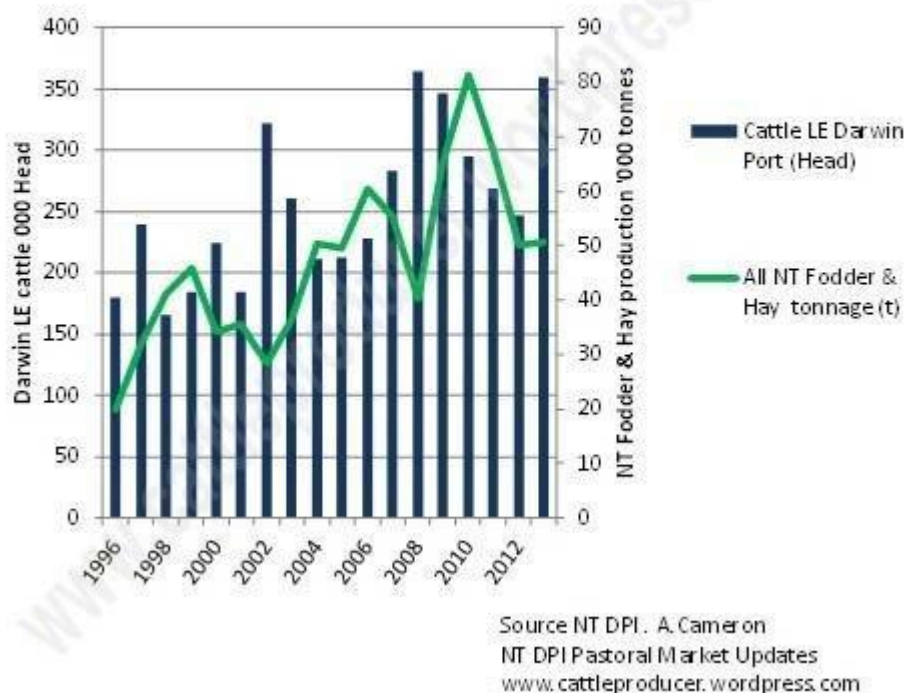


Figure 2 NT Fodder and Hay Production vs Darwin Live Cattle Export (Source: Cattle producer.wordpress.com (Bloomfield, 2014))

3. NT Live export Facilities

Only four (4) live export facilities exist close the Port of Darwin; “Berrima”, “Noonamah”, “Santavan”, and “Cedar Park”. The Berrima yard is being “built-out” by light industry and will soon be lost. Both Noonamah and Santavan are likely to be redeveloped to rural residential lands and will be lost. Cedar Park is distant from the Port and presents higher costs of operation.

No other PEQ yards exist close the Port of Darwin. There is an urgent need for a new facility. The proposed Wellard Darwin ILEF meets this need and at a critical time.

4. Land Use Planning

A development application has been lodged with the Department of Land Planning and Environment on the 25th March 2015. A NOI of the development was lodged with the NT Environmental Protection Authority on 18th March 2015 for the development of the Site as an Integrated Live Export Facility (ILEF) to be constructed in two stages.

The land is currently zoned Rural with the Darwin Regional Land Use Plan. Stage 1 of the facility will operate a 12,000 SCU (“peak”) short term PEQ holding facility, and an average capacity of about 1,879 SCU. A Standard Cattle Unit (SCU) is a 600kg steer or an equivalent number of animals with different weights.

Strangways Developments Pty Ltd lodged an application for the rezoning of the land adjoining the site (“Santavan”) for special use. The long term development of “Santavan”; would see that land zoned the as urban/Peri-urban. The East Weddell application is subject to an environmental assessment. Much of the “Santavan” land, which presents as a single tongue of development to the west of the highway is subject to significant inundation.

5. Stage Development

The development is proposed on the basis that it has 2 Stages of development.

Wellard Rural Exports have lodged the application for both stages but aim for approval for Stage 1 initially, with a conditional approval provided to Stage 2 subject to proving environmental compliance of Stage 1.

5.1. ILEF Stage 1

The ILEF Stage 1 development will involve the construction of a 1,879 SCU (Av) Pre-Export Quarantine holding (12,000 SCU (peak)), and, associated infrastructure.

SCU capacity is a trackable metric because cattle numbers, class and weight are recorded data at the facility.

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 1,879 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;

The plan in Appendix A shows the (revised) layout for Stage 1.

5.2. ILEF Stage 2 – Hold Point

Stage 2 of the development includes;

- (a) Expansion of the operation of to a 3,000 SCU (Av) (20,000 SCU (peak)) PEQ yard, and,
- (b) A short term 1000 SCU feedlot / holding yard.

The term feedlot is “technically” invoked by the National Guidelines for Feedlots because PEQ cattle may be held for over 30 days and fed in a yard. This constitutes a “feedlot” *per se*. However the operations are fundamentally different.

The holding of these cattle in the 1,000 SCU holding yard is just that; they may have arrived late for a shipment, been sick or too weak. The short term holding is just that “holding” of livestock on a maintenance diet until either they can be shipped or another market is found for them.

The average stocking capacity of Stage 1 is about 1,814 SCU (peak 12,000SCU) and Stage 2 is about 3,003 SCU (peak 20,000SCU).

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.

6. Applicable Guidelines

There are no guidelines for the design and operation of a pre-export quarantine (PEQ) yard such as that proposed by the ILEF at a State or Federal level

PEQ yards were explicitly exempt from the National Feedlot guidelines by the Northern Territory Government when the 2nd Edition of the National Guidelines were being developed in 1997 and this has carried through to the third edition on 2012 (Des Rinehart *pers comm*, MLA, 2015).

Parts of feedlot design and environmental management can be applied to PEQ yards. Other components cannot. The proposal and its environmental assessment have used the most applicable practices from the guidelines.

7. Design Improvements

The proposed ILEF has been altered and redesigned based on feedback from the NT Government and other stakeholders over the last three 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 1.

Table 1 Design Improvements

Removal of the Feedmill and inclusion of a simple feed and fodder storage and preparation area	<i>Reason = Business</i> - Feed will be transported in.
Recognition that the “Santavan” pre-export quarantine” facility has not been included in future land planning considerations	<i>Reason = Land Planning</i>
Removal of the short term holding yards / feedlot from Stage 1 and its placement in Stage 2;	<i>Reason = Environmental + Business</i> - Wellard are happy to accept that an 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;	<i>Reason = Environmental + Planning</i> - Odour will be contained within the property. Moving the development south brings the separation distance for Stage 1 inside the property boundary.
Reduction of the manure handling and compost area and its relocation closer to the pen areas;	<i>Reason = Business + Environmental</i> - More manure will be sold off site. Less will be held on site. This delivers a greater financial return whilst reducing environmental risks
Inclusion of substantial treed buffers on the northern boundary; and,	<i>Reason = Environment + Aesthetic</i> - 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.	<i>Reason = Business</i> - Removal of the powerlines from the site removes a large hazard from the site significantly reducing risk to persons and property.

Other operation changes have been included. In summary these are;

- The business decision to hold off Stage 2 until Stage 1 can be positively assessed and actual data is available to undertake further odour assessment of the site.
- Increase focus on rapid off site sales of manure / compost to reduce the footprint of that operation at the site; and,
- Alternate management of dead livestock (off site pet meat sales and rendering).

8. Management of Environmental Issues

8.1. Odour

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.

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 which is different to a production beef cattle feedlot (see Appendix C)

It is extremely important to note that;

- Wellard have managed the 11,500 head (peak) “Santavan” PEQ facility without any odour complaint for more than 6 years. It is closer to neighbours than the proposed ILEF. That it, again, Wellard’s operations have not caused any odour complaint.
- The “Santavan” PEQ facility is old and not well design. The “Santavan” PEQ facility, if compared to feedlot ranking systems would be a “Class 3”.
- The Santavan facility is open yards.
- The proposed Wellard Darwin ILEF will be a class 1 facility; currently other yards in the Darwin region are Class 3-4.

A modified version of the National Feedlot Guideline Level 1 odour assessment has been applied in the odour assessment (see Appendix C in the Draft EIS). This separation distance has been calculated using a modified equation from the National Beef Cattle Feedlot Guidelines (2012); it accounts for the fact the facility will be covered and the feed is a high roughage and low protein diet (see Appendix C Comparison of Feedlots vs PEQ Ag Systems).

8.1.1. Assessment

The original ILEF design has been modified to achieve adequate separation distances for odour management. The odour separation distance has been calculated as 251 m (Figure 2). 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 (Appendix B) 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.

8.1.2. 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 2 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.

8.1.3. Complaint History

Wellard have managed the “Santavan” Facility for 6 years without any odour complaints. Facilities such as “Santavan” are class 3 and 4 Facilities. The proposed ILEF will be a class 1 facility. The complaint history supports the modified Level 1 assessment.

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.

8.1.4. 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.

8.2. Ground Water

The property has permits for 3 production bores of up to 15L/s. One bore has been established.

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. The well has screened off the upper aquifer that is used locally.

The available flow rate provides for up to 160ML at 5L/s through to 220ML/year at 7L/s. This will adequately supply stage 1 of the development and potentially Stage 2. If another production bore needs to be drilled it will be drilled to depth now that deep aquifers have been identified in the drilling program.

8.3. Surface Water

The site is located on the western side of a plateau. The site has no creeks and sits upon 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.

Drainage along the railway is poor. The Railway operators will be approached with regard to the need to be upgraded drainage so the water flows along the railway line and through the drainage culverts out to the west.

The site is located above inundations zones to the north (on “Santavan”) and west (on the AA Co facility).

9. Roads and Traffic

The proximity of the proposed ILEF site to the Port of Darwin reduces Heavy Vehicle and Light Vehicle interactions. Proximity to Port means less truck on the road during peak loading periods as a result of short turnaround times for trucks loading and unloading stock.

Wellard’s are proposing to upgrade the intersection at the AA Co turn in to allow the safe ingress and egress of traffic from both AA Co and the ILEF for heavy and light vehicles

10. Economics of the Development

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).

10.1. 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).
- Less manure on trucks; less washing.

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;
- 2 triples 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; and
- More km's interaction with the public

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

- twice the capital in trucks;
- twice the cost in facilities;
- close to 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.

10.2. 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.

Close proximity to the port reduces the risks associated with animal welfare and reduces the costs associated with transportation of animals long distances. The industry is moving towards global best practices and 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.

10.3. 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 part 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 above 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.

10.4. Outcome if development does not go ahead

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.

11. Summary

The live export of stock from the northern territory is a long term viable industry because it does not have the capacity to fatten large numbers of livestock. The Northern Territory must compete with WA and Qld if it is to retain a vibrant live export industry.

Only four (4) live export facilities exist close the Port of Darwin; “Berrima”, “Noonamah”, “Santavan”, and Cedar Park. The Berrima yard is being built by light industry. Both Noonamah and Santavan are likely to be redeveloped to rural residential lands and will be lost. Cedar Park is distant from the Port and presents higher costs of operation.

The proposed Wellard Darwin ILEF is a critical development to the NT Live export Industry. While it is a Wellard Facility it will be used by 3rd parties.

The facility is being designed as a world class facility that can assure animal welfare and environmental management. It is located in a rural zone and is adequately separated from current and future land uses.

Signed:



Date: 13th December 2015

Dr Simon Lott
Specialist Engineer
EnviroAg Australia Pty Limited

12. References

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- Skerman, A., (2004). *Reference Manual for the Establishment and Operation of Beef Cattle Feedlots in Queensland*, Queensland Department of Primary Industries and Fisheries, Brisbane, QLD.

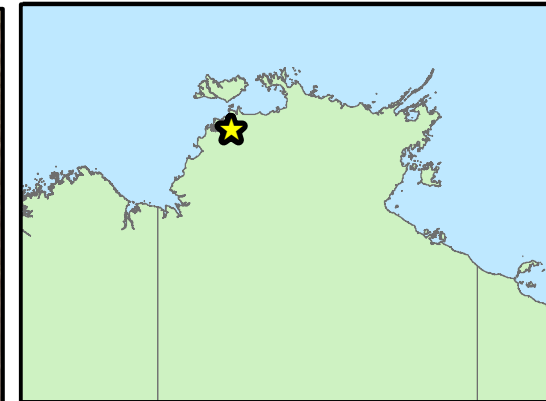
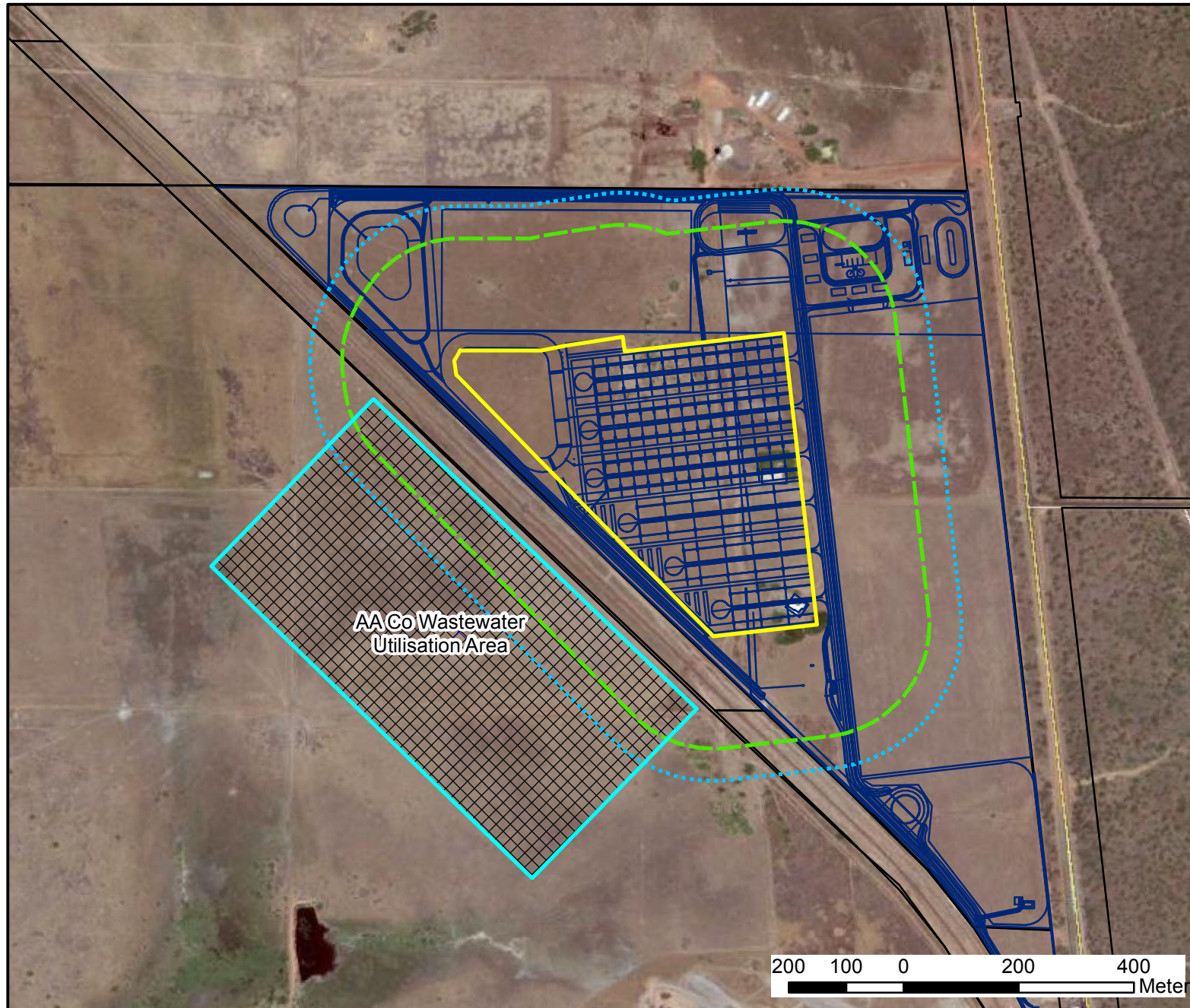
13. Appendices

Appendix A.	Plans and Drawings	A-1
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Appendix C.	Comparison of Feedlots vs PEQ Ag Systems	C-1

Appendix A. Plans and Drawings

Appendix B. Wellard ILEF Odour Buffer Plan

Wellard Revised ILEF Odour Buffer



Legend

- Revised_Base_251m_Buffer
- Revised_Base_195m_Buffer
- Revised_Base
- AA Co IrrigationZone
- 2d concept re-design lines
- 2658_Stuart_Hwy



Prepared By: Sarah Grady
Date: 12/01/2016
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Revision: C

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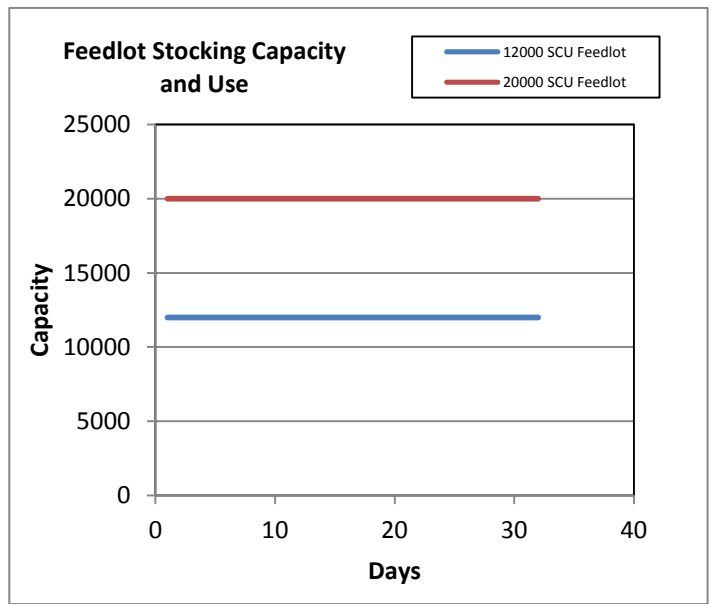
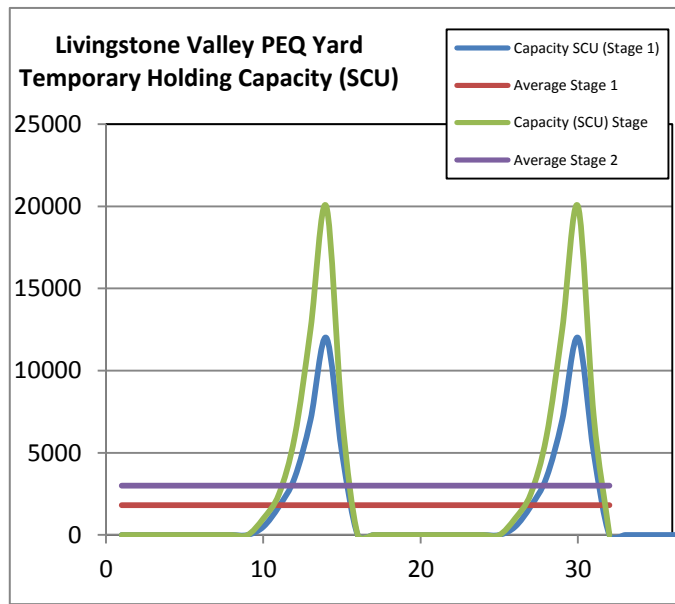
Appendix C. Comparison of Feedlots vs PEQ Ag Systems

Table 1 Comparison on Agricultural Systems (Grain Fed “Production” Feedlot vs Pre-Export Quarantine Live Export Facility)

Attribute	(Production) Feedlot	Pre-Export Quarantine Depot	Notation
Cattle			Cattle in a feedlots are fed for production; that is for, rapid weight gain so they can be slaughtered. They are fed on a “production” diet designed to “fatten”. Cattle transported for live export are held on a depot for an average of 4 days prior to export. They are fed a “maintenance” diet only.
Condition			Feeder cattle going into a feedlot are generally a score 3 or 4 and are in good condition Cattle purchased for live export are “light” and generally in score condition 1-2.

Attribute	(Production) Feedlot	Pre-Export Quarantine Depot	Notation
Gut fill			Feeder cattle going into a feedlot have a full gut. Cattle aggregated for live export have generally been mustered on a rangeland, held in a yards and then travelled long distances. The cattle's gut is empty and it takes 2 to 4 days of feed to fill the gut and re-establish gut function. In this time their gut has emptied and live export defecate little compared with their feedlot counterparts.
Ration fed			Feedlot rations are generated with a large protein and energy component so as to grow and fatten an animal quickly. Protein levels are generally >12%. Live export rations are high in fibre and low in starch and energy. They are a maintenance diet. The protein levels are generally about 6%. The rations fed are fundamentally different in their composition and production outcome.

Attribute	(Production) Feedlot	Pre-Export Quarantine Depot	Notation
Dung			Dung produced by feedlot cattle has a significant amount of “by pass” protein and starch in it; this provides bountiful supply of food for microbes. Dung produced by PEQ cattle is very low in protein and starch because of (a) the compensation of the animal to having an empty gut and (b) being fed a low protein maintenance diet PEQ dung is generally firm, drier and containing large amounts of ruminated fibre and little other nutrient.
Manure Production			Production feedlots produce about 1.5T (DM)/SCU per year. PEQ facilities produce <0.5T (DM)/SCU per year; on a normalised basis. PEQ yards produce substantially less manure with very little nutrient in it.

Attribute	(Production) Feedlot	Pre-Export Quarantine Depot	Notation																																																					
Residence Time			“Production Feedlot cattle fully fed in a feedlot as “grain fed” animals and are held and fed <u>continuously</u> in the yard for 70-180 days (or longer). Live Export cattle are held temporarily in the yard. <u>When a shipment is not underway then the yards are empty.</u> Only sick or injured animals are left behind and these are held until (a) another market can be found for them, or (b) they become well and they can go on the next shipment. If they are held for 30 days then the holding facility is called a “feedlot” by default BUT it is not																																																					
Stocking Rate	Feedlot Stocking Capacity and Use <table><caption>Feedlot Stocking Capacity and Use Data</caption><thead><tr><th>Days</th><th>12000 SCU Feedlot (SCU)</th><th>20000 SCU Feedlot (SCU)</th></tr></thead><tbody><tr><td>0</td><td>12000</td><td>20000</td></tr><tr><td>10</td><td>12000</td><td>20000</td></tr><tr><td>20</td><td>12000</td><td>20000</td></tr><tr><td>30</td><td>12000</td><td>20000</td></tr><tr><td>40</td><td>12000</td><td>20000</td></tr></tbody></table>	Days	12000 SCU Feedlot (SCU)	20000 SCU Feedlot (SCU)	0	12000	20000	10	12000	20000	20	12000	20000	30	12000	20000	40	12000	20000	Livingstone Valley PEQ Yard Temporary Holding Capacity (SCU) <table><caption>Livingstone Valley PEQ Yard Temporary Holding Capacity (SCU) Data</caption><thead><tr><th>Days</th><th>Capacity SCU (Stage 1)</th><th>Average Stage 1</th><th>Capacity (SCU) Stage</th><th>Average Stage 2</th></tr></thead><tbody><tr><td>0</td><td>0</td><td>2000</td><td>0</td><td>3000</td></tr><tr><td>10</td><td>0</td><td>2000</td><td>0</td><td>3000</td></tr><tr><td>15</td><td>12000</td><td>2000</td><td>20000</td><td>3000</td></tr><tr><td>20</td><td>0</td><td>2000</td><td>0</td><td>3000</td></tr><tr><td>30</td><td>12000</td><td>2000</td><td>20000</td><td>3000</td></tr><tr><td>40</td><td>0</td><td>2000</td><td>0</td><td>3000</td></tr></tbody></table>	Days	Capacity SCU (Stage 1)	Average Stage 1	Capacity (SCU) Stage	Average Stage 2	0	0	2000	0	3000	10	0	2000	0	3000	15	12000	2000	20000	3000	20	0	2000	0	3000	30	12000	2000	20000	3000	40	0	2000	0	3000	
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