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Accuracy Level

Level 1	☐	Approximate: Conceptual or order of magnitude
Level 2	☐	Non Critical: Preliminary sizing or budget estimate
Level 3	☒	Critical: For detail design, purchase or construction

Revision Status

Revision	Date of Issue	Drafted by	Reviewed by	Approved by	Details of Revision
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1. Introduction

The following calculations have been determined to normalise the capacity of a Pre-Export Quarantine (PEQ) Yard. An average occupancy of 1,814 SCU has been calculated for a PEQ Yard with a capacity of 12,000 SCU and 3,003 SCU for a capacity of 20,000 SCU respectively.

The Livingstone Valley PEQ Yard will operate on a 16 day rotation. This correlates to the facility being at peak capacity (Stage 1 – 12,000 SCU and Stage 2 - 20,000 SCU) for one (1) one day every sixteen (16) day rotation and the holding pens being empty for ten (10) days every rotation.

Twenty-two (22) rotations will occur every year.

2. Data Sources

The following data was gathered from:

- 23919.78606_150915_Wellards_Darwin ILEF Environmental Assessment_Rev B; and
- Wellard Rural Exports Pty Ltd logistical data.

3. Codes and Standards

Currently no guidelines or codes of practice exist for PEQ Yards, in their absence the following were utilised;

- National Guidelines for Beef Cattle Feedlots in Australia 3rd Edition (MLA 2012); and
- National Beef Cattle Feedlot Environmental Code of Practice. 2nd Edition (MLA 2012)

4. Assumptions

The follow assumptions were made;

- The PEQ Yard will be operating on a 16 day rotation;
- Sufficient cattle will be sourced to reach full capacity; and
- Sufficient time has been allocated to the quarantining of the facility between shipments.

5. Calculations

The calculations to determine the average occupancy of the Livingstone Valley PEQ Yard are based on data provided by Wellard Rural Exports. The trucking dynamics determine the rate at which the PEQ can be filled and emptied, extremely conservative rates have been used.

The minimum residence time is 48 hours, the shortest period which an animal must be held in the PEQ Yard. The facility at both Stages 1 and 2 will have the capacity to be completely emptied within a 24 – 48 hour period, Wellards require this as boats must be loaded within 36 hours (our calculations have allowed 48).

5.1 Capacity Stage 1

The Livingstone Valley PEQ Yard at the completion of Stage 1 will have a maximum capacity of 12,000 SCU, with an average occupancy of 1,814 SCU.

5.2 Capacity Stage 2

The Livingstone Valley PEQ Yard at the completion of Stage 2 will have a maximum capacity of 20,000 SCU, with an average occupancy of 3,003 SCU.

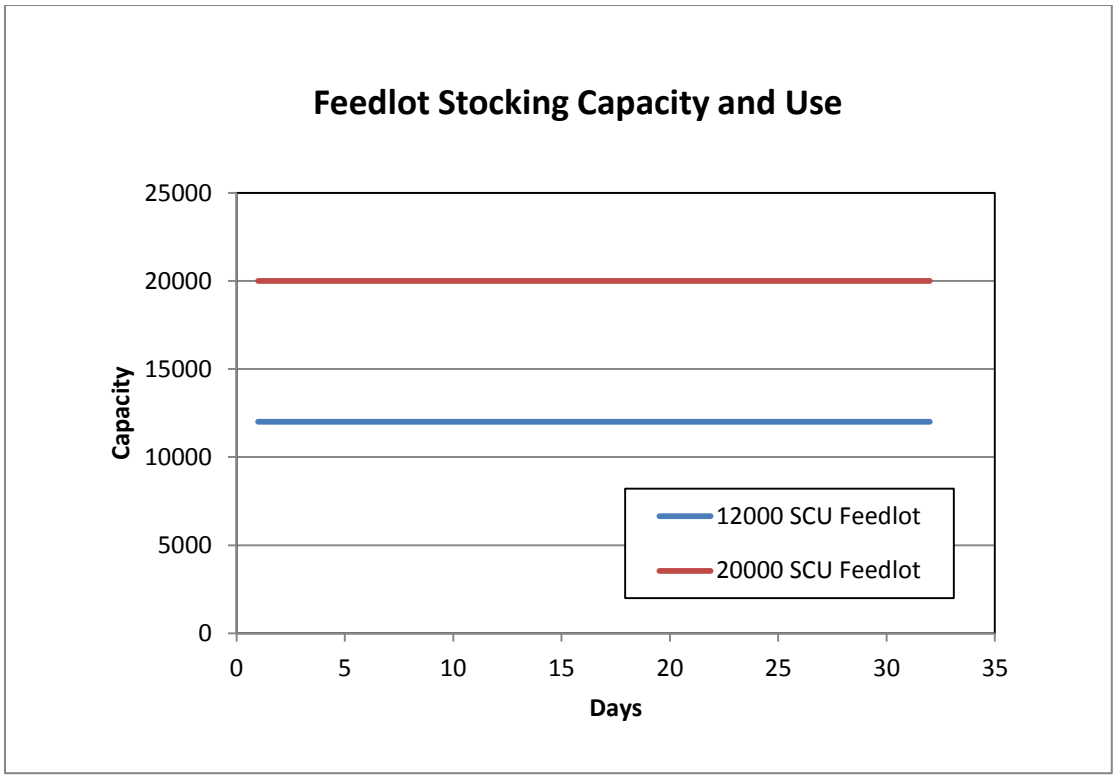

Figure 1 Standard feedlot stocking capacity and use

Figure 1 depicts the standard feedlot stocking capacity and subsequent usage. It is apparent that for optimal productivity a feedlot will be stocked at full capacity.

The average occupancy for a feedlot is the maximum capacity, ideally for a feedlot this will be maintained throughout the year.

Table 1 Standard feedlot stocking capacity and use

Day	12,000 SCU Feedlot	20,000 SCU Feedlot
1	12,000	20,000
2	12,000	20,000
3	12,000	20,000
4	12,000	20,000
5	12,000	20,000
6	12,000	20,000
7	12,000	20,000
8	12,000	20,000
9	12,000	20,000
10	12,000	20,000
11	12,000	20,000
12	12,000	20,000
13	12,000	20,000
14	12,000	20,000
15	12,000	20,000
16	12,000	20,000

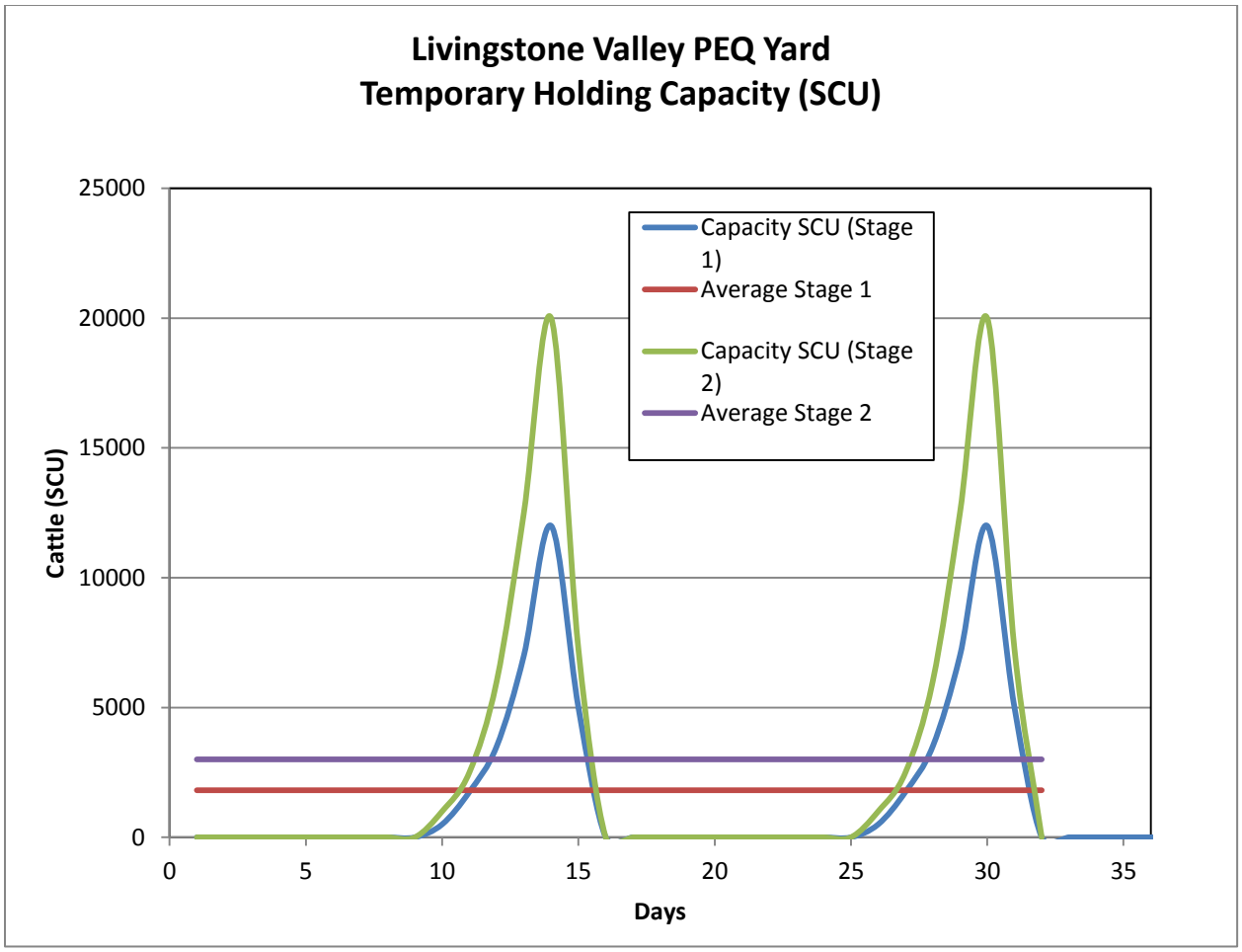

Figure 2 Livingston Valley PEQ Yard – Temporary Holding Capacity

Figure 2 depicts the Livingstone Valley PEQ Yard temporary holding capacity. It is observed that there is a significant fluctuation in the number of cattle which are held in the facility over the sixteen (16) day rotation period.

At the completion of Stage 1 the PEQ Yard will have a capacity of 12,000 SCU but an average occupancy significantly lower, 1,814 SCU.

At the completion of Stage 2 the PEQ Yard will have a capacity of 20,000 SCU but an average occupancy of 3,003 SCU.

Table 2 SCU Capacity for Stage 1 and Stage 2 for Livingstone Valley PEQ Yard (16 day rotation)

Day	Capacity SCU (Stage 1)	Average Stage 1	Capacity SCU (Stage 2)	Average Stage 2
1	0	1,814	0	3,003
2	0	1,814	0	3,003
3	0	1,814	0	3,003
4	0	1,814	0	3,003
5	0	1,814	0	3,003
6	0	1,814	0	3,003
7	0	1,814	0	3,003
8	0	1,814	0	3,003
9	0	1,814	0	3,003
10	500	1,814	1,000	3,003
11	1,750	1,814	2,500	3,003
12	3,500	1,814	6,000	3,003
13	7,000	1,814	12,500	3,003
14	12,000	1,814	20,000	3,003
15	5,000	1,814	7,250	3,003
16	0	1,814	0	3,003

5.3 Results Summary

At the completion of Stage 1 the PEQ Yard will have a capacity of 12,000 SCU but an average occupancy significantly lower, 1,814 SCU.

At the completion of Stage 2 the PEQ Yard will have a capacity of 20,000 SCU but an average occupancy of 3,003 SCU.

6. Conclusions

The Livingstone Valley PEQ Yard, throughout Stages 1 and 2 will have a capacity of 12,000 SCU and 20,000 SCU, however the average occupancies will be considerably lower, 1,814 and 3,003 SCU respectively. This directly correlates with the environmental impact of the PEQ Yard.

The lower the number of cattle held at the PEQ Yard the lower the impact on the surrounding environment and population. Additionally for a significant period (ten (10) days every sixteen (16) days) the holding pens in the PEQ Yard will be empty of cattle.