Proposed Intensive livestock agriculture development (Expansion of beef cattle feedlot from 999 head to 3,000 head) on the property “Springfield”

Separation distance assessment to sensitive receivers

“Springfield”
2513 Getta Getta Road
North Star NSW 2408

Doolin Farming Pty Ltd
“Glenhoma”
3202 Getta Getta Road
NORTH STAR NSW 2408

[February 2025]

RDC ENGINEERS
AGRICULTURAL
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PROJECT MANAGEMENT

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DOCUMENT INFORMATION RECORD

Project details

Client name:	Doolin Farming Pty Ltd (ABN 28 137 603 064)
Project:	Proposed expansion of Springfield Feedlot from 999 to 3,000 head
Project No:	E2-103

Document control

Document title:	Proposed Intensive livestock agriculture development (Expansion of beef cattle feedlot from 999 head to 3,000 head) on the property "Springfield" - Separation distance assessment to sensitive receivers		
File name:	E2-103 DF Springfield FL SD V1R2.docx		
Revision:	V1R2		
Author:	Rod Davis	**Position:**	Director
Signature:	R.J. Davis	**Date:**	21/02/2025
Reviewed by:	Rod Davis	**Position:**	Director
Signature:	R.J. Davis	**Date:**	21/02/2025
Approved by:	Rod Davis	**Position:**	Director
Signature:	R.J. Davis	**Date:**	21/02/2025

Revision history

Version	Issue date	Reason for issue	Author	Reviewed by	Approved by
V1R1	24/01/2025	Draft for client review	Rod Davis	Rod Davis	Rod Davis
V1R2	21/02/2025	Final for lodgement to GSC	Rod Davis	Rod Davis	Rod Davis

Distribution

Version	Recipient	Lodgement	Copies
V1R1	Doolin Farming Pty Ltd	Electronic	-
V1R2	Doolin Farming Pty Ltd / Gwydir Shire Council (GSC)	Electronic	-

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Executive Summary

Doolin Farming Pty Ltd own and operate a 10,000 ha mixed farming operation across several properties at North Star including "Glenhoma", "Glenmodel", "Springfield", "Myall Downs" and "Yetman West" some 27 km east of Yetman and 45 km south-southeast of Goondiwindi (QLD) in NSW.

Doolin Farming Pty Ltd primarily engage in dryland and irrigated cropping and beef production. Doolin Farming Pty Ltd produces wheat, barley, oats and chickpeas in winter and cotton and maize in summer under pivot irrigation systems and dryland sorghum cropping.

Central to the beef production enterprise is the breeding, growing and lot feeding of cattle for the domestic market. Currently the beef supply chain includes breeding and growing of beef cattle and lot feeding of cattle within a feedlot on the property 'Springfield".

"Springfield" comprises some 1,713 ha (~4,231 acres) and currently, a dryland and irrigated cropping business is undertaken on a large proportion of the property with extensive cattle breeding and grazing and lot feeding of cattle.

Springfield Feedlot is approved as a 999 head feedlot and does not require an environmental licence from NSW EPA. Springfield Feedlot is accredited under the National Feedlot Accreditation Scheme (NFAS) with audits conducted annually.

Springfield Feedlot currently operates for 12 months of the year and employs approximately 2 full time staff. Casual staff and contractors are engaged as required during busy periods such as planting and harvesting of silage and fodder and to supply various associated services such as plant maintenance and veterinary requirements.

Doolin Farming Pty Ltd wish to expand Springfield Feedlot from the current approved capacity of 999 head by gaining development approval for intensive livestock agriculture to operate as a 3,000 head beef cattle feedlot on the site. The proposed development is to be developed in two stages with the first stage having a capacity of 1,251 head. The second stage will provide an additional 750 head, bringing the capacity of Springfield Feedlot to 3,000 head.

The proposed development will include additional pens within an expanded controlled drainage area, additional sedimentation basin and holding pond capacity. The proposed development will incorporate best practice design, construction and environmental management.

Existing infrastructure such as the grain storage and processing and cattle handling facilities have sufficient capacity to cater for the demands of the proposed development.

The property "Springfield" is within the Gwydir Shire Council local government area and relevant environmental planning instrument is the *Gwydir Local Environmental Plan 2013* (GLEP).

Beef cattle feedlots which exceed 1,000 head capacity are defined as designated development under Schedule 3 (Part 1 section 21a) of the Environmental Planning and Assessment

Regulation 2000 and therefore require a full Environmental Impact Statement (EIS) to accompany the development application.

This report forms part of the EIS prepared to support the Development Application to the Gwydir Shire Council for the proposed development and provides a separation distance assessment from sensitive receivers in accordance with methodology outlined in The National Guidelines for Beef Cattle Feedlots in Australia (3rd Edition) (MLA, 2012).

The separation distance assessment using the s-factor methodology demonstrates that sufficient separation exists between the proposed development with a capacity of 3,000 head and sensitive receptors.

1 Background

1.1 Introduction

Doolin Farming Pty Ltd own and operate a 10,000 ha mixed farming operation across several properties at North Star including "Glenhoma", "Glenmodel", "Springfield", "Myall Downs" and "Yetman West" some 27 km east of Yetman and 45 km south-southeast of Goondiwindi (QLD) in NSW.

Doolin Farming Pty Ltd primarily engage in dryland and irrigated cropping and beef production. Doolin Farming Pty Ltd produces wheat, barley, oats and chickpeas in winter and cotton and maize in summer under pivot irrigation systems and dryland sorghum cropping. Doolin Farming Pty Ltd also have onsite storage to accommodate almost the entire grain produced and operate a fleet of trucks to transport their grain.

Central to the beef production enterprise is the breeding, growing and lot-feeding of cattle for the domestic market. Currently the beef supply chain includes breeding and growing of beef cattle on land less suitable for dryland and irrigated cropping and grazing of stubble and lot feeding of cattle within a feedlot on the property 'Springfield".

"Springfield" comprises some 1,713 ha (~4,231 acres) and currently, a dryland and irrigated cropping business is undertaken on a large proportion of the property with extensive cattle breeding and grazing of beef cattle on the remaining land which is unsuitable for cropping and lot feeding of cattle within a beef cattle feedlot in the north-east of the property. In the last few years, beef cattle bred on several adjoining properties have been walked into a feeding program on "Springfield" upon weaning. "Springfield" has built infrastructure such as a dwelling, machinery sheds, silos, cattle yards and feedlot etc to support the feeding program.

There has been a beef cattle feedlot on "Springfield" for over three years after approval was granted for a 999 head feedlot by the Gwydir Shire Council in 2021 (DA31/2020). Under Schedule 3, Item 21 of the Environmental Planning and Assessment Regulation 2000, as the capacity of the existing development does not exceed 1000 head it is not a designated development and an environmental licence from NSW EPA is not required.

The existing feedlot is known as Springfield Feedlot. Springfield Feedlot is used to finish Doolin Farming's own cattle for the domestic export market.

Springfield Feedlot currently operates for 12 months of the year and employs approximately 2 full time staff. Casual staff and contractors are engaged as required during busy periods such as planting and harvesting of silage and fodder and to supply various associated services such as plant maintenance and veterinary requirements.

Springfield Feedlot includes one controlled drainage area with associated production pens and drainage system which includes catch drains, sedimentation basin and holding pond. Springfield Feedlot also has auxiliary infrastructure to support the use such as cattle handling and feed storage and processing facilities.

Springfield Feedlot is accredited under the National Feedlot Accreditation Scheme (NFAS) with audits conducted annually.

Doolin Farming Pty Ltd wish to expand Springfield Feedlot from the current approved capacity of 999 head by gaining development approval for intensive livestock agriculture to operate as a 3,000 head beef cattle feedlot on the site. The proposed development is to be developed in two stages with the first stage having a capacity of 1,251 head. The second stage will provide an additional 750 head, bringing the capacity of Springfield Feedlot to 3,000 head.

The proposed development will include additional pens within an expanded controlled drainage area, additional sedimentation basin and holding pond capacity. The proposed development will incorporate best practice design, construction and environmental management.

Existing infrastructure such as the grain storage and processing and cattle handling facilities have sufficient capacity to cater for the demands of the proposed development.

The property "Springfield" is within the Gwydir Shire Council local government area and relevant environmental planning instrument is the *Gwydir Local Environmental Plan 2013* (GLEP).

Doolin Farming Pty Ltd have access to a secure and appropriately licensed water supply provided by groundwater from the NSW Great Artesian Basin Eastern recharge groundwater source for irrigation and stock intensive use on the subject land under access licence 90AL834721.

Beef cattle feedlots which exceed 1,000 head capacity are defined as designated development under Schedule 3 (Part 1 section 21a) of the Environmental Planning and Assessment Regulation 2000 and therefore require a full Environmental Impact Statement (EIS) to accompany the development application.

This report forms part of the EIS prepared to support the Development Application to the Gwydir Shire Council for the proposed development and provides a separation distance assessment from sensitive receivers in accordance with methodology outlined in The National Guidelines for Beef Cattle Feedlots in Australia (3rd Edition) (MLA, 2012).

2 Site and locality

2.1 Subject land

The proposed development is to be located on two land parcels which form the property known as "Springfield". The subject land is approximately 367 km south-west of Brisbane and 690 km north of Sydney in the North Star region. The subject land is located on Getta Getta Road approximately 15 km by road east of North Star and some 27 km west-southwest of Yetman.

The subject land has primary frontage to Getta Getta Road (unsealed) of approximately 5 km in length. Getta Getta Road intersects with North Star Road some 14 km west of and with Warialda Road which intersects with the Bruxner Way some 25 km east of the site access for the proposed development site respectively.

The proposed development site is bounded on the north by Getta Getta Road, to the west, east and south by other predominantly beef cattle and irrigated and dryland cropping mixed farming landholdings. Road access to the proposed development is from Getta Getta Road, a local controlled road.

Figure 1 is a locality plan highlighting the subject land to roads and the nearby townships of North Star and Yetman and the main watercourses and drainage lines in the region. The subject land falls within the catchment of the Murray-Darling Basin, more specifically the Barwon River catchment from the confluence of Macintyre River and Weir River (Qld) near Mungindi which is part of the NSW Border Rivers catchment.

The subject land has been historically used for irrigated agriculture (cereals (maize, barley, oats, cotton) and dryland agriculture (cereals (wheat, barley) and extensive beef cattle grazing and intensive beef cattle feedlot is located in a rural area which encourages agricultural uses.

2.1.1 Real property description

The real property description for "Springfield" is provided in Table 1. The subject land comprises of two (2) cadastral portions. The total area of the subject land is about 1,713.2 ha (~4,231 acres). The subject land is in the Gwydir Shire.

Figure 2 is a cadastral plan highlighting the cadastral parcels that comprise the subject land. Figure 3 is an aerial plan of the subject land.

Table 1 – Subject land – Real property description

Property name	Lot no.	Plan no.	Easements	Area Ha	Local government area
"Springfield"	8	DP756018	DP1237694	~883.3	Gwydir Shire
"Springfield"	8	DP756018	DP1237694	~792.7	Gwydir Shire
"Springfield"	1	DP1212915	DP1237694	~37.2	Gwydir Shire
Total area				~1,713.2	

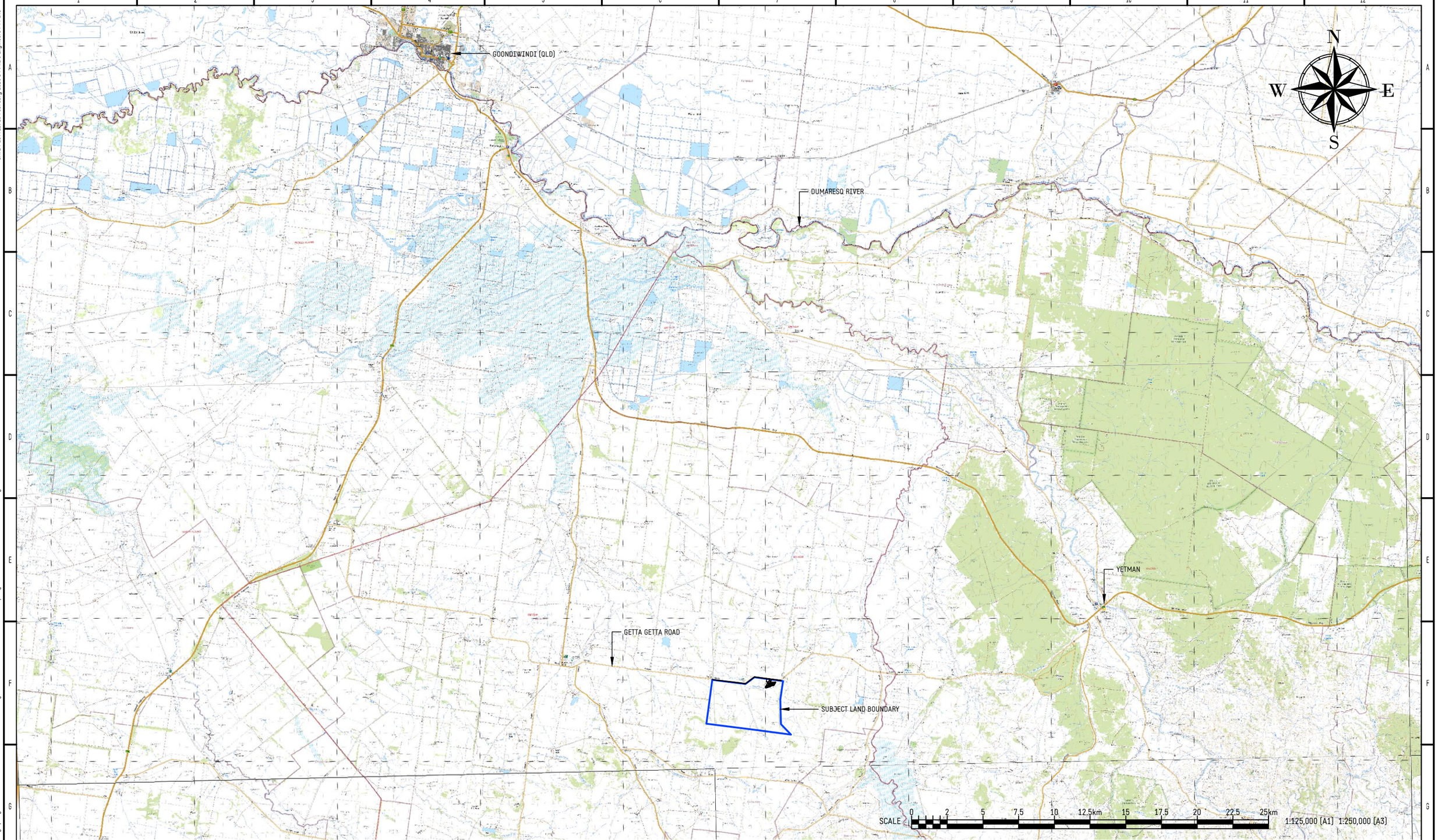
2.1.1.1 Limitations/Interests/Encumbrances

The subject land does contain an easement DP1237694 for overhead power lines(s) 20 metre(s) wide affecting the part(s) shown so burdened in DP1237694 as shown in Table 1 and Figure 2.

The subject land is not subject to reservations and interests in favour of the crown.

2.1.1.2 Road reserve

The subject land does not contain a road reserve under the *Roads Act 1993* as shown in Figure 2.



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY

NOTES:

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DATE	21/02/2025
APPROVED	RJD
DATE	21/02/2025

CLIENT: DOOLIN FARMING PTY LTD

PROJECT: PROPOSED 3,000 HEAD BEEF CATTLE FEEDLOT

TITLE: DEVELOPMENT APPLICATION FOR INTENSIVE LIVESTOCK AGRICULTURE
EIS APPENDIX G - SEPARATION DISTANCE ASSESSMENT
SUBJECT LAND - LOCAL CONTEXT PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER	A3	DRAWING NUMBER	REV.
FIGURE 1			E2-103-200-01	B

16
DP756018

10
DP756018

13
DP756018

14
DP756018

2
DP827863

GETTA GETTA ROAD

GETTA GETTA ROAD

GETTA GETTA ROAD

SUBJECT LAND BOUNDARY

1
DP827863

2
DP827863

44
DP755979

43
DP755979

PROPOSED DEVELOPMENT COMPLEX

SUBJECT LAND BOUNDARY

SUBJECT LAND BOUNDARY

10
DP756018

8
DP756018

1
DP1212915

8
DP756018

SUBJECT LAND BOUNDARY

55
DP45253

18
DP822935

SUBJECT LAND BOUNDARY

19
DP822935

1
DP756018

17
DP756018

1
DP702847

7
DP756018

N

W E

S

SCALE 0 300 600 900 1,200 1,500 1,800 2,100 2,400 2,700 3,000m

1:15,000 (A1) 1:30,000 (A3)

LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- SUBJECT LAND AREA
- ROAD RESERVE
- EASEMENT

NOTES:

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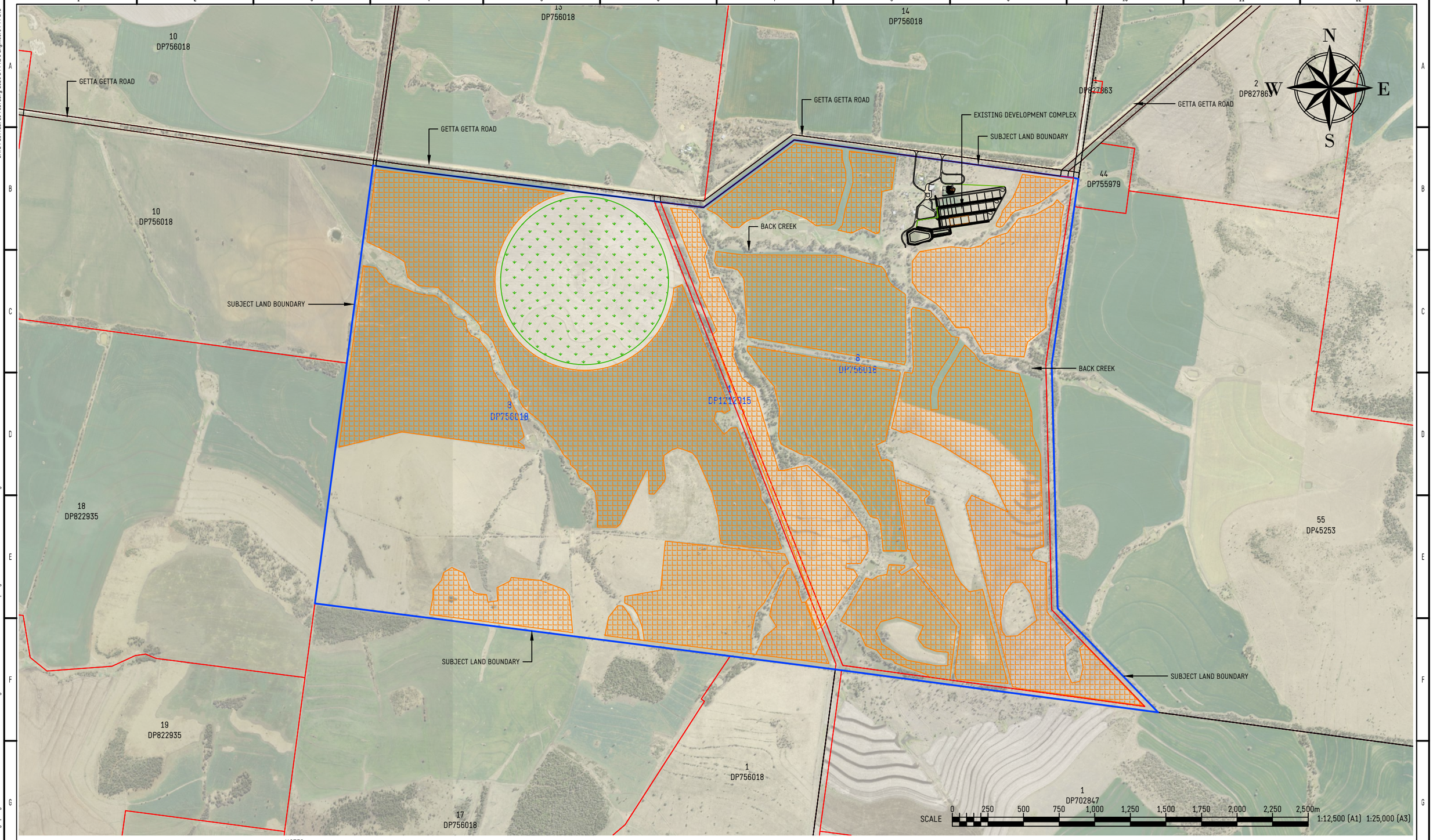
TITLE: DEVELOPMENT APPLICATION FOR INTENSIVE LIVESTOCK AGRICULTURE
EIS APPENDIX G - SEPARATION DISTANCE ASSESSMENT
SUBJECT LAND - CADASTRAL PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 2		A3	E2-103-200-02	B



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- EXISTING EFFLUENT UTILISATION AREA
- EXISTING SOLID WASTE UTILISATION AREA

NOTES:

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TITLE: DEVELOPMENT APPLICATION FOR INTENSIVE LIVESTOCK AGRICULTURE
EIS APPENDIX G - SEPARATION DISTANCE ASSESSMENT
SUBJECT LAND - AERIAL PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 3		A3	E2-103-200-03	B

DATE PLOTTED: 19 February 2025 BY: RDC Engineers PTY LTD
FILE NAME: E2-103 DF Springfield MASTERPLAN-00-20250108v8.dwg
FILE PATH: C:\RDC Engineers\RDCE - Projects\E2-103 Doolin Farming Springfield EIS\05 - ACAD MasterPlan\05.1 Drawings - CURRENT

2.2 Proposed development

Doolin Farming Pty Ltd wish to expand the existing beef cattle feedlot on the subject land from the currently approved capacity of 999 head to 3,000 head when fully developed.

The proposed development comprises a permanent pen area with adjoining feed alley in which the beef cattle are housed in the open air and provided with their daily feed and water requirements. The pen area shall incorporate water, feeding and shade infrastructure.

There are two components of the proposed development being the infrastructure and waste utilisation area.

The infrastructure of the proposed development includes:

- Production pens for beef cattle;
- Drainage system incorporating catch drains, sedimentation basin and holding pond;
- A cattle handling facility with receival/dispatch infrastructure;
- Internal roadways connecting the subject land access to the cattle handling and commodity storage facilities;

The waste utilisation area includes:

- Effluent and solid waste (manure) utilisation areas. When available, effluent shall be applied to crops land via irrigation and solid waste applied to cropping land within the dedicated utilisation areas.

The layout of the proposed development is shown in Figure 4.

EXISTING SUBJECT LAND ENTRANCE
PROPOSED DEVELOPMENT SITE ENTRANCE
SUBJECT LAND BOUNDARY
GETTA GETTA ROAD
N
W
E
S
PROPOSED CATTLE HANDLING FACILITY
EXISTING HOMESTEAD
EXISTING GRAIN STORAGE AND PROCESSING FACILITY
EXISTING COTTAGE
EXISTING SITE OFFICE
EXISITNG HAY AND SILAGE STORAGE
EXISTING HAY SHED
EXISTING WOOLSHED
PROPOSED SOLID WASTE STOCKPILE AND CARCASS COMPOSTING AREA
EXISTING CLEAN WATER DAM
PROPOSED FEED ROAD
PROPOSED PRODUCTION PENS
EXISTING FEED ROAD
EXISTING PRODUCTION PENS
PROPOSED HOSPITAL PENS
PROPOSED PRODUCTION PENS
PROPOSED SEDIMENTATION BASIN
BACK CREEK
PROPOSED HOLDING POND

SCALE 0 50 100 150 200 250 300 350 400 450 500m
1:2,500 (A1) 1:5,000 (A3)

LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY

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EIS APPENDIX G - SEPARATION DISTANCE ASSESSMENT
PROPOSED DEVELOPMENT - DEVELOPMENT COMPLEX LAYOUT

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 4		A3	E2-103-200-04	B

2.3 Existing environment

2.3.1 Climate

The closest meteorological station to the subject land is the Bureau of Meteorology (BoM) station at North Star (Wolonga) located about 13 km south-west of the subject land. The North Star (Wolonga) (Site number: 053095) (BoM, 2024a) has been recording rainfall since 1972. The closest meteorological station to the subject land with climatic data is the Goondiwindi airport (Site number: 041521) located some 51 km to the north north-west. However, this station closed in 2015 (BoM, 2024b). However, these data may not be representative of the climate of the subject land.

A summary of the rainfall data from the North Star (Wolonga) (Site number: 053095) (BoM, 2024a) is provided in Table 2. Rainfall data is only available up to 2020.

Long-term daily climate data for the area (Latitude -28.95S, Longitude 150.55E) were derived from the Department of Science, Information Technology and Innovation (DSITIA) Silo Data Drill database (DSITIA, 2024). The Data Drill accesses data on a 5 km grid derived by interpolation from point observations by the Bureau of Meteorology station records. The data in the Data Drill are all synthetic; there are no original meteorological station data left in the calculated grid fields (Jeffrey et al. 2001). The data are supplied as an individual file of interpolated daily rainfall, maximum and minimum temperature, potential evapotranspiration and radiation at the nominated point location for the period 01/01/1924 to 31/12/2023 (DSITIA, 2024). A summary of the data used is included in Table 3.

The climate of the region is between the tropical and temperate climatic zones. Under the Köppen-Geiger climate classification system this climate is classified as humid subtropical climate (Cfa), and experiences typical cool to mild dry winters and very warm to hot dry summers.

Rainfall varies with time of year due to the latitude of the region (-28.9^0) and tends to be summer dominant. Rainfall patterns are linked to high pressure systems over northern parts of Australia and rainfall typically occurs as thunderstorms or short and intense storm events during summer with the occasional cold fronts that brings periods of prolonged light rainfall. Table 2 shows that the long-term average rainfall recorded at the North Star (Wolonga) for the period 1972 to 2024 was 636 mm with approximately 55% falling in the five months between November and March. Monthly rainfall over the autumn and winter months averages between 30 and 40 mm per month. The lowest rainfall totals are in June and August (Table 2).

Table 3 shows that the average annual rainfall interpolated by SILO for the period 1924 to 2023 is approximately 617 mm/year slightly less than that measured by BoM at the North Star (Wolonga) site. The annual evaporation is approximately 1,876 mm/year. The region has nett deficit rainfall with rainfall less than the evaporation and transpiration rates.

There is a large degree of variability in rainfall between years and there has been a drying climate with lower rainfall since about 1975.

The climatic influence on temperatures results in warm to hot summers and cool winters, regularly reaching single digit temperature. Table 3 shows that the mean maximum temperature interpolated by SILO for the period 1924 to 2023 is 33.2^{0}C in January and a mean minimum temperature of about 3.3^{0}C for July.

Relative humidity in the area is higher during the winter months when temperatures are lower. Average relative humidity 9 am readings range from 39% in October to 46% in February.

Table 2 – Regional rainfall data – North Star (Wolonga) (1972-2020) (BoM, 2024a)

	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall														
Mean	mm	78.7	73.4	65.0	35.0	39.0	31.9	39.3	30.7	33.0	55.4	72.4	73.1	636.0
Median	mm	55.4	61.8	55.0	17.4	28.5	25.4	33.0	23.7	22.5	46.4	59.7	71.8	612.8
Lowest	mm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	337.5
90% years at least	mm	10.4	11.8	8.6	0.0	2.3	8.6	3.2	2.1	1.8	20.8	19.8	14.0	475.1
10% years at least	mm	185.2	137.9	128.0	83.9	73.8	58.6	74.8	57.8	73.7	104.2	127.7	120.3	875.5
Highest	mm	337.0	369.4	197.4	282.0	168.2	162.0	177.0	183.2	103.0	133.3	219.0	212.0	1006.4

Table 3 – Proposed development site - Climatic data derived from SILO (1924-2023) (DES, 2024)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall													
Mean rainfall (mm)	80.0	73.5	59.6	31.8	38.3	37.0	39.1	32.8	34.7	55.3	65.5	69.7	617.2
Median rainfall (mm)	63.9	57.1	49.4	20.6	32.0	28.1	36.2	28.8	26.9	44.6	54.3	65.2	598.6
Lowest rainfall (mm)	2	0	0	0	0	0	0	0	0	1	0.2	1.1	139.4
90% years at least rainfall (mm)	18.5	14.1	5.4	0.7	3.3	8.3	3.5	2.4	3.0	12.3	12.0	13.1	441.6
10% years at least rainfall (mm)	166.2	147.3	142.2	69.6	81.0	76.6	78.7	64.7	72.5	109.2	129.5	127.3	801.0
Highest rainfall (mm)	330.1	329	198.4	263	194.9	175.9	169.4	172.2	132.2	187.1	230.3	255.8	1118.6
Temperature, Humidity and Pan evaporation													
Mean pan evaporation (mm)	247.8	201.3	186.0	130.6	87.8	62.9	69.0	97.7	139.6	187.7	217.9	246.8	1875.7
Mean maximum temperature (deg C)	33.2	32.6	30.4	26.5	22.0	18.5	17.9	19.7	23.4	27.0	30.0	32.2	26.1
Mean minimum temperature (deg C)	18.8	18.5	16.1	11.6	7.4	4.7	3.3	4.5	7.5	11.8	14.9	17.4	11.4
Relative Humidity (%)	43.5	46.3	46.2	46.0	48.0	48.7	45.5	42.1	40.1	40.0	39.8	41.4	44.0

2.3.2 Wind direction

The wind direction, frequency and intensity at the site are influenced by several factors including the local terrain and land use. On a relatively small scale, winds would be largely affected by the local topography. At larger scales, winds are affected by synoptic scale winds, which are modified by sea breezes near the coast in the daytime in summer (also to a certain extent in the winter) and by a complex pattern of regional drainage flows that develop overnight.

As no meteorological data exists for the proposed development site, data was obtained from the closest meteorological record station that holds wind direction statistics to the subject land. However, the closest station is the Goondiwindi Airport (1991-2015) (BoM, 2024a) which is located approximately 51 km north north-west of the subject land. Given the distance and terrain, these data can be used to provide a general indication of wind speed and direction at the proposed development site.

Consequently, the meteorological model – The Air Pollution Model (TAPM) (Version 4) was used to predict local wind speed and direction data.

TAPM, developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a prognostic model which is used to predict three-dimensional meteorological data and air pollution concentrations. A detailed description of the TAPM model can be found in Hurley (2008).

TAPM software allows users to generate synthetic observations by referencing in-built databases (e.g. terrain information, synoptic scale meteorological observations, vegetation and soil type etc.) which are subsequently used in generating site-specific hourly meteorological observations.

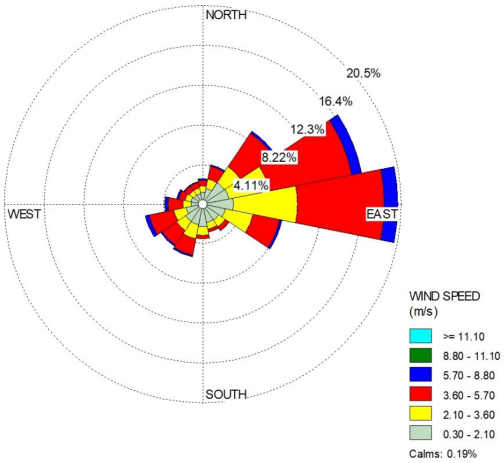
The modelling was centred on the closest grid point to the proposed development site being 27°57.0'S; 150°33.0'E and was configured with a 30 x 30 grid. In total, five domains were set up with grid spacings of 30km, 10 km, 3 km, 1 km and 0.3 km. Five (5) years data were modelled from 2016 to 2020. This setup is consistent with good practice and the guidance detailed in the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022).

Wind speed and direction information obtained from TAPM modelling is presented in the form of wind roses. Wind roses are a way of presenting a summary of wind speed and directional data for a particular time and location and show the frequency of occurrence of winds by direction and strength.

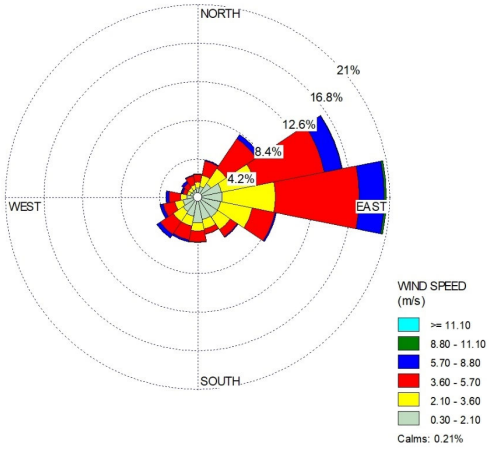
The annual wind roses developed for the proposed development site from TAPM in years 2016 to 2020 inclusive are shown in Figure 5. All years modelled result in similar wind directions. Each bar shown on the wind rose represents winds blowing from that direction. The length of the bar represents the frequency of occurrence of winds from that direction, and the colour and width of the bar sections correspond to wind speed categories as outlined in the legend.

The composite wind rose developed for the proposed development site from TAPM in all five years (2016 to 2020) is shown in Figure 6. Figure 6 shows that wind direction is predominantly from the north-easterly to south-easterly sectors with light to moderate wind speeds (3.6 – 5.7 m/s) observed for most of the year.

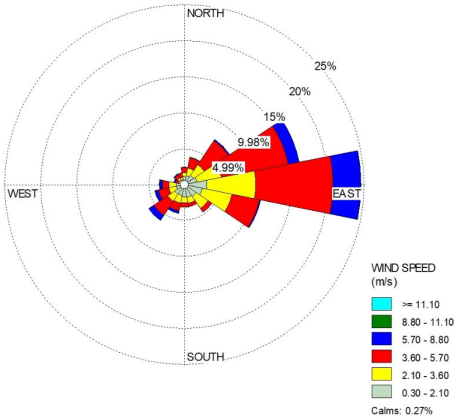
Analyses of the TAPM data shows that about 50% of the winds blow from ±40° from the general direction of east.



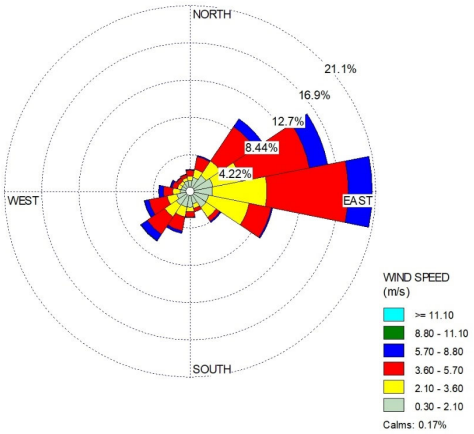
2016



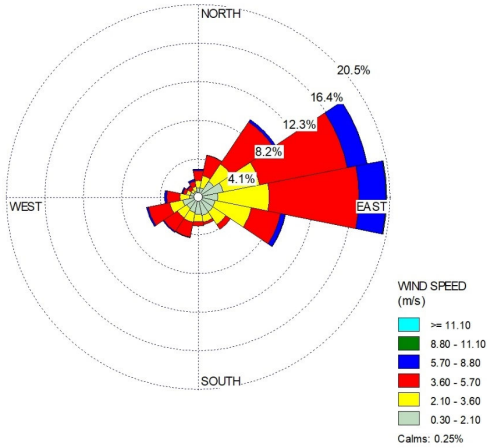
2017



2018



2019



2020

Figure 5 – Proposed development site – Annual windroses (TAPM)

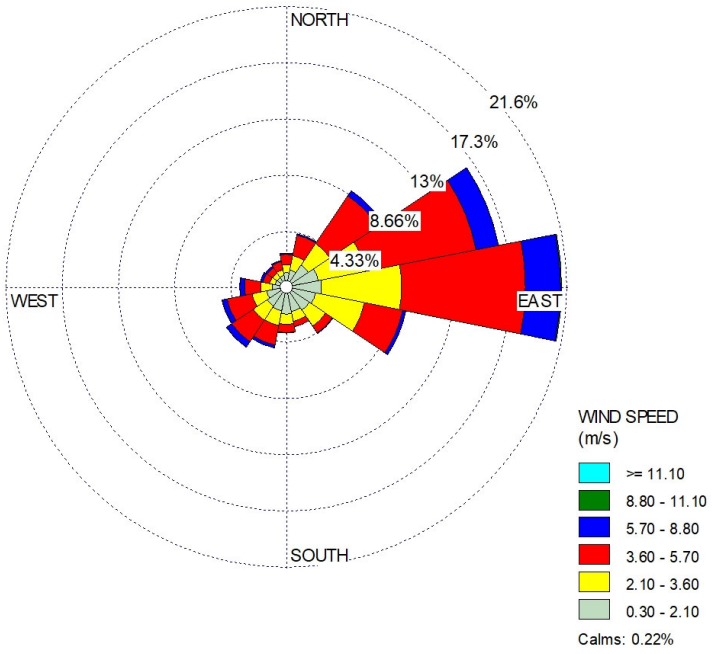


Figure 6 – Proposed development site – Composite annual windrose (TAPM 2016-2020)

2.4 Landform and topography

2.4.1 Landform

The geologic history and its climate contrasts are reflected in the landforms of the region. The subject land is located in the Gunnedah Basin a structural trough in central New South Wales. It is bounded by a regional unconformity surface over the Lachlan Fold Belt to the west and by the New England Fold Belt to the east and is continuous with the Bowen Basin to the north. The basin contains sediments of Permian and Triassic age. The Permian sediments have low resistance to weathering and consequently have deep weathering profiles. Consequently, outcrop is generally poor or absent over large areas with only the more resistant sandstone and conglomerate form isolated hills and ridges, particularly those with Tertiary volcanic capping.

The subsurface conditions of the Gunnedah Basin are dominated by Quaternary and Tertiary aged river plain sediments, including black and red clayey silt, and black and yellow brown clay soils (GHD, 2014).

These components have determined the landforms of the region and the overall pattern of drainage and relief. The region extends westward from the lower slopes of the New England Tablelands onto the low-lying riverine plains of the Barwon-Darling system. The region lies entirely within the Murray–Darling Basin and is made up of a group of waterways that straddle the NSW/QLD border. The main rivers in the region are the Gwydir, Macintyre and Barwon rivers which start at the Great Dividing Range and run westward, gradually merging to become the Barwon River.

The landform of the region is typically near level to gently undulating.

2.4.2 Topography

The subject land is located within the Yetman (9040) 1:100,000 and Goondiwindi (8940) 1:100,000 topographic map sheets within the north east of the North West slopes and Plains region of NSW. The topography at a regional scale is generally flat to gently undulating, with elevations from 310 m to 360 m AHD. The subject land is on the eastern margins of the plains with slopes in the order of 1-2%.

A topographic plan of the subject land was prepared from topographic data at a scale of 1:20,000 with a 5 m contour interval and is shown in Figure 7. This shows that the subject land has low relief landforms gently rising from the alluvial plains in the north west from approximately 300 m AHD towards the south – southeast to approximately 360 m AHD. There are few topographic highs.

Drainage is confined to a north-north westerly direction towards the alluvial plains and to Back Creek. The higher elevations occur to the south of the subject land resulting in a generally northerly aspect across the subject land. The proposed development site is located on a very gently sloping area with a southerly aspect and drains to a tributary of Back Creek.

The proposed development infrastructure shall be located geographically to the north-east of the subject land where the land is gently sloping and falls southwards towards internal drainage lines. The site is inherently well drained due to the impermeable, predominantly clay soils and gradients of 2-3%.

The proposed effluent utilisation area is located in the west of the subject land on relatively flat land as shown on Figure 7. The solid waste utilisation areas are located across the subject land where the land is relatively flat to gently sloping as shown on Figure 7.

The subject land has retained its historical topography. There has been no modification to the natural landform from mining, quarrying or other groundworks which may have altered its topography through the removal of soil or other materials other than vegetation clearing.

Photograph 1 – Subject land – Existing development site – Looking south

Photograph 2 – Subject land – Waste utilisation areas – Looking west

GETTA GETTA ROAD

GETTA GETTA ROAD

SUBJECT LAND BOUNDARY

PROPOSED DEVELOPMENT SITE

DP827863
GETTA GETTA ROAD

2
DP827863

44
DP755979

018

BACK CREEK

BACK CREEK

UNNAMED TRIBUTARY OF BACK CREEK

BACK CREEK

SUBJECT LAND BOUNDARY

SUBJECT LAND BOUNDARY

300.0

UNNAMED DRAINAGE LINE

8
DP756018

1
DP1212715

SCRUBBY GULLY

8
DP756018

320.0

340.0

360.0

SUBJECT LAND BOUNDARY

SUBJECT LAND BOUNDARY

19
922935

SCALE 0 200 400 600 800 1,000 1,200 1,400 1,600 1,800 2,000m
1:10,000 (A1) 1:20,000 (A3)

LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- HYDROAREA
- STREAM ORDER 1
- STREAM ORDER 2
- STREAM ORDER 3
- STREAM ORDER 4
- STREAM ORDER 5
- STREAM ORDER 6
- STREAM ORDER 7
- STREAM ORDER 8

NOTES:
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5. HORIZONTAL DATUM - MGA 94 (UTM ZONE 56).

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STATUS
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RPEQ

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	24/01/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	21/02/25	FINAL ISSUE FOR SUBMISSION TO GSC	RJD	RJD	RJD

SCALE	1:20,000 (A3)
DRAWN	RJD
DATE	21/02/2025
CHECKED	RJD
DATE	21/02/2025
APPROVED	RJD
DATE	21/02/2025

CLIENT: DOOLIN FARMING PTY LTD
PROJECT: PROPOSED 3,000 HEAD BEEF CATTLE FEEDLOT
TITLE: DEVELOPMENT APPLICATION FOR INTENSIVE LIVESTOCK AGRICULTURE
EIS APPENDIX G - SEPARATION DISTANCE ASSESSMENT
SUBJECT LAND - TOPOGRAPHIC PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 7		A3	E2-103-200-07	B

3 Air quality assessment

The air quality assessment has been performed in line with the Technical Notes (DEC (NSW), 2006b) and the Technical Framework (DEC (NSW), 2006a).

The framework refers to Level 1, 2 and 3 assessments which range from screening level techniques (Level 1) to refined dispersion modelling techniques using site specific input data (Level 3).

For this assessment the Level 1 feedlot technique detailed in the Technical Notes was adopted as it is most appropriate for assessing feedlots with suitable separation distances and is consistent with The *National Guidelines for Beef Cattle Feedlots in Australia (3rd Edition)* (MLA, 2012) which is the most recently published Cattle feedlot guideline.

3.1 Separation distance assessment

The use of appropriate separation distances is a well-established and widely recognised means of mitigating the impacts on community amenity that arise from odour from beef cattle feedlots (MLA, 2012).

The Level 1 odour impact assessment for cattle feedlots is covered in Section 7 of the Technical Notes (DEC NSW, 2006b). The National Guidelines for Beef Cattle Feedlots in Australia (3rd Edition) (MLA, 2012) provide two methods for determining appropriate separation distances between cattle feedlots and sensitive receptors. These include the S-factor method and odour dispersion modelling.

The S-factor method uses a standard empirical formula that provides a conservative estimate of the separation distance required and therefore offers higher levels of protection for community amenity. Typically, the separation distance estimated using the S-factor method more than complies with the quantitative performance criteria set out in relevant environmental legislation, regulation and policy.

Typically, odour dispersion modelling is used for large feedlot developments or developments on complex sites. The modelling process utilises odour emission data (from similar developments) and site-specific climatic data to determine the probability of a particular odour level being exceeded at nearby receptors.

Given, the rural locality of the proposed development site, the size and scale of the proposed development and proximity to sensitive receptors the S-factor method has been adopted to assess the separation distance required to mitigate potential odour nuisance issues for nearby sensitive receptors.

The S-factor method relies on factors such as the number of cattle in the development, receptor type, topography, vegetation (surface roughness), wind frequency and feedlot design and operation. The required separation distance is measured from the closest odour source of the

proposed development in the direction of the sensitive receptor, not the centre of the development.

The National Guidelines for Beef Cattle Feedlots in Australia (3rd Edition) (MLA, 2012) calculation of separation distances for each receptor type follows the form:

Separation distance (D) (m) = $N^{0.5}$ x S_1 x S_2 x S_3 x S_4 x S_5

Where:

- N = feedlot capacity in SCU;
- 0.5 = feedlot size exponent determined using the results of modelling;
- S_1 = feedlot design and management factor;
- S_2 = receptor type factor;
- S_3 = topography or terrain weighting factor;
- S_4 = vegetative cover factor; and
- S_5 = wind direction factor.

3.1.1 N – Feedlot capacity

The layout of the proposed development is shown in Figure 4. Generally, the expansion area shall be to the north and south of the existing production pen area.

The proposed development will include an expansion of the existing capacity from 999 head (873 SCUs) to 3,000 head (2,620 SCUs).

A standard cattle unit is equivalent to an animal of 600 kg liveweight (MLA, 2012).

The proposed development shall have an average stocking density of ~17.9 m^2/head for the proposed beef cattle production pens for the total capacity of 3,000 head. This equates to a stocking density in the order of about 20.5 m^2/SCU when the SCU scaling factor is applied.

Each animal can be converted to a SCU equivalent based on their metabolic liveweight and the following formula:

SCU scaling factor = $(\text{Animal liveweight}/600)^{0.75}$ ----------Equation 1

The SCU scaling factor for various average liveweight for beef cattle is provided in Table 4.

Table 4 – Standard Cattle Unit conversion factor

Average liveweight (kg)	SCU Scaling factor
350	0.68
400	0.74
450	0.81
500	0.87
550	0.94
600	1.00
650	1.06
700	1.12

The average liveweight of the cattle on-feed in the existing development is about 500kg. The SCU scaling factor applied to lot fed cattle with an average liveweight of about 500 kg (Table 4) can be determined from Equation 1 as follows.

SCU scaling factor $= (500/600)^{0.75}$
$= 0.874$

Consequently, the proposed development shall have a total capacity equivalent to 2,620 standard cattle units (SCUs) once fully developed.

3.1.2 Siting, design and management factor (S_1)

Siting, design and management factors will influence odour emissions from the proposed development. These factors include the climatic conditions at the site, pen cleaning frequency, and stocking density which influence the depth of manure on the pen surface and its moisture content.

The proposed development will operate at the equivalent of a Class 1 standard (i.e. adopt best management practice).

The average stocking density of the proposed development is proposed to be ~20.5 m^2/SCU.

For comparable odour emission rates, pens must be stocked at a lower density (i.e. greater m^2/SCU) in a wetter climate than in a drier one (with all other factors equal). Thus, S_1 values for specific stocking densities are provided for an average annual rainfall of either <750 mm or >750 mm. As outlined in section 2.3.1, the average annual rainfall for the area is about 617 mm per year.

Consequently, based on a stocking density of ~20.5 m^2/SCU and a rainfall category of <750mm/year, a S_1 factor of **39** was interpolated from Table B-1 of the National Guidelines for Beef Cattle Feedlots in Australia (3rd Edition) (MLA, 2012).

3.1.3 Receptor factor (S_2)

S_2 is a receptor type factor which accounts for the variation in population density, odour sensitivity and risk of exposure for receptors located in the vicinity of a development. The greater the exposed population, the more likely it is that 'sensitive' individuals might be exposed to nuisance odour. Thus, the S_2 value for a large population centre (and the minimum separation distance) is greater than that for a single rural dwelling (Table B.2, MLA, 2012).

There are two types of receptors to be considered surrounding the proposed development. These include single rural dwellings on surrounding rural properties, and the village of North Star which is a population centre located some 15 km to the west.

The S_2 factors were selected for the closest receptors at each compass point. The location of each receptor is shown in Figure 8 and are summarised in Table 5.

Table 5 – Proposed development – Receptor factors – Adopted values of S_2

Identifier	Location	Direction from Development	Receptor type	S_2 value
R1	2680 Getta Getta Road, North Star	West by North	Single rural or farm dwelling	0.3
R2	2680 Getta Getta Road, North Star	North	Single rural or farm dwelling	0.3
R3	1310 Goat Road, North Star	North by East	Single rural or farm dwelling	0.3
R4	2118 Getta Getta Road, North Star	North northeast	Single rural or farm dwelling	0.3
R5	2116 Getta Getta Road, North Star	North east	Single rural or farm dwelling	0.3
R6	2116 Getta Getta Road, North Star	North east	Single rural or farm dwelling	0.3
R7	1767 Getta Getta Road, North Star	East southeast	Single rural or farm dwelling	0.3
R8	621 Myall Downs Road, Blue Nobby	South-east by east	Single rural or farm dwelling	0.3
R9	621 Myall Downs Road, Blue Nobby	South-east by east	Single rural or farm dwelling	0.3
R10	61 Ryelands Road, Yallaroi	South southeast	Single rural or farm dwelling	0.3
R11	61 Ryelands Road, Yallaroi	South southeast	Single rural or farm dwelling	0.3
R12	2271 Blue Nobby Road, North Star	South	Single rural or farm dwelling	0.3
R13	2463 Blue Nobby Road, North Star	South by West	Single rural or farm dwelling	0.3
R14	2463 Blue Nobby Road, North Star	South by West	Single rural or farm dwelling	0.3
R15	3241 Blue Nobby Road, North Star	Southwest	Single rural or farm dwelling	0.3
R16	5535 North Star Road, North Star	Southwest	Single rural or farm dwelling	0.3
R17	5788 North Star Road, North Star	South southwest	Single rural or farm dwelling	0.3
R18	5788 North Star Road, North Star	South southwest	Single rural or farm dwelling	0.3
R19	5981 North Star Road, North Star	West	Single rural or farm dwelling	0.3
R20	North Star	West by North	Small town (30-125 persons)	1.0
R21	3824 Getta Getta Road, North Star	West by North	Single rural or farm dwelling	0.3
R22	Peates Road, North Star	West by North	Single rural or farm dwelling	0.3
R23	1278 Forest Creek Road, North Star	North northwest	Single rural or farm dwelling	0.3
R24	2680 Getta Getta Road, North Star	Northwest	Single rural or farm dwelling	0.3

3.1.4 Terrain factor (S_3)

The terrain weighting factor (S_3) relates to the potential for the odour plume to be exaggerated in particular directions, and relatively small in others. This method provides an estimation of the potential changes to odour dispersion in situations where meteorological conditions may be influenced by local terrain.

The S_3 terrain factor is selected based on the topography at the site. Generally speaking, the terrain is undulating or flat between the proposed development site and the receptors downhill or uphill as shown in the topographic data in Figure 7 and from photographs of the area as

shown in Photograph 1 and Photograph 2. The terrain factor selected for each receptor is summarised in Table 6. Consequently, for conservatism 'flat terrain' was selected.

Table 6 – Proposed development – Terrain factor – Adopted values of S_3

Identifier	Location	Elevation[1] m (AHD)	Distance from Development m	Grade %	S_3 value
R1	2680 Getta Getta Road, North Star	309	~1,645	-0.79	1.0
R2	2680 Getta Getta Road, North Star	309	~2,510	-0.28	1.0
R3	1310 Goat Road, North Star	301	~5,555	-0.25	1.0
R4	2118 Getta Getta Road, North Star	306	~3,135	0.19	1.0
R5	2116 Getta Getta Road, North Star	312	~3,410	0.09	1.0
R6	2116 Getta Getta Road, North Star	313	~3,530	0.11	1.0
R7	1767 Getta Getta Road, North Star	303	~6,540	-0.35	1.0
R8	621 Myall Downs Road, Blue Nobby	310	~7,635	-0.31	1.0
R9	621 Myall Downs Road, Blue Nobby	364	~7,745	-0.27	1.0
R10	61 Ryelands Road, Yallaroi	325	~6,100	1.00	1.0
R11	61 Ryelands Road, Yallaroi	338	~6,315	1.01	1.0
R12	2271 Blue Nobby Road, North Star	320	~7,030	0.43	1.0
R13	2463 Blue Nobby Road, North Star	311	~6,935	0.32	1.0
R14	2463 Blue Nobby Road, North Star	329	~6,885	0.29	1.0
R15	3241 Blue Nobby Road, North Star	302	~10,815	-0.23	1.0
R16	5535 North Star Road, North Star	295	~11,815	-0.05	1.0
R17	5788 North Star Road, North Star	336	~11,420	-0.28	1.0
R18	5788 North Star Road, North Star	376	~11,360	-0.28	1.0
R19	5981 North Star Road, North Star	322	~13,320	-0.33	1.0
R20	North Star	315	~14,125	-0.57	1.0
R21	3824 Getta Getta Road, North Star	313	~12,775	-0.38	1.0
R22	Peates Road, North Star	335	~6,570	-0.53	1.0
R23	1278 Forest Creek Road, North Star	271	~7,900	-0.59	1.0
R24	2680 Getta Getta Road, North Star	309	~1,300	0.22	1.0

[1] Terrain heights were taken from the Google Earth™ at each receptor location. The elevation of the proposed development site ranges from about 330 to 335 m.

3.1.5 Vegetative cover factor (S_4)

The vegetative cover factor (S_4) relates to the vegetative density or 'roughness elements' between the proposed development and the receptor. Generally, the rougher the surface, the more turbulent the air flow, and the more mixing and dilution of the air and more odour dispersion. Maximum turbulence occurs when the surface is a mixture of various sized obstacles of various heights.

Although the regional landscape is dominated by agricultural land uses, well-vegetated areas of closed and open forest are present throughout, particularly within state forest areas.

The vegetation factor for each sensitive receptor was selected based on both on-site observations and aerial imagery of the area and are shown in Figure 3. Receptors 1 through to 23 are separated by a combination of open grassland, cropping and remnant native vegetation woodland fringing drainage lines and roads. Consequently, for conservatism 'crops only (no effective tree cover)' was selected.

An indication of the vegetative cover can be seen on aerial imagery as shown in Figure 3.

Table 7 – Proposed development – Vegetative cover – Adopted values of S_4

Identifier	Location	Vegetation type	S_4 value
R1	2680 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R2	2680 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R3	1310 Goat Road, North Star	Crops only (no effective tree cover)	1.0
R4	2118 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R5	2116 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R6	2116 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R7	1767 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R8	621 Myall Downs Road, Blue Nobby	Crops only (no effective tree cover)	1.0
R9	621 Myall Downs Road, Blue Nobby	Crops only (no effective tree cover)	1.0
R10	61 Ryelands Road, Yallaroi	Crops only (no effective tree cover)	1.0
R11	61 Ryelands Road, Yallaroi	Crops only (no effective tree cover)	1.0
R12	2271 Blue Nobby Road, North Star	Crops only (no effective tree cover)	1.0
R13	2463 Blue Nobby Road, North Star	Crops only (no effective tree cover)	1.0
R14	2463 Blue Nobby Road, North Star	Crops only (no effective tree cover)	1.0
R15	3241 Blue Nobby Road, North Star	Crops only (no effective tree cover)	1.0
R16	5535 North Star Road, North Star	Crops only (no effective tree cover)	1.0
R17	5788 North Star Road, North Star	Crops only (no effective tree cover)	1.0
R18	5788 North Star Road, North Star	Crops only (no effective tree cover)	1.0
R19	5981 North Star Road, North Star	Crops only (no effective tree cover)	1.0
R20	North Star	Crops only (no effective tree cover)	1.0
R21	3824 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R22	3202 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0
R23	1278 Forest Creek Road, North Star	Crops only (no effective tree cover)	1.0
R24	2680 Getta Getta Road, North Star	Crops only (no effective tree cover)	1.0

Photograph 3 – Adjoining land – Existing vegetation (north)

Photograph 4 – Adjoining land – Existing vegetation (south)

Photograph 5 – Adjoining land – Existing vegetation (east)

Photograph 6 – Adjoining land – Existing vegetation (west)

3.1.6 Wind direction factor (S_5)

Wind direction has the potential to increase the exposure of a receptor located in the downwind path. While most Australian feedlot sites will have some form of prevailing wind, it is unlikely that it will blow from that general direction (±40° of the direct line) for most of the time (>60%) (MLA, 2012).

Site-specific wind direction data was used in the S-factor assessment to determine wind direction. Wind roses derived from TAPM (2016-2020) were used which totalled 43,844 hours of data. Figure 6 (TAPM 2016-2020) shows that the predominant wind direction is from the northeast through to southeast. Consequently, the receptors that would be most affected is receptor R1, R15-22. However, the wind does not blow from that general direction (±40° of the direct line) towards these receptors for most of the time (>60%) in as outlined in Table 8. Consequently, a normal wind factor was applied to all receptors.

Table 8 – Proposed development – Wind direction – Adopted values of S_5

Identifier	Location	Wind Direction (Bearing)	Hours wind blowing within ±40° of the bearing	Percentage wind blowing within ±40° of the bearing	S_5 value
R1	2680 Getta Getta Road, North Star	103.9	20,475	46.7	1.0
R2	2680 Getta Getta Road, North Star	182.75	6,342	14.5	1.0
R3	1310 Goat Road, North Star	186.1	6,459	14.7	1.0
R4	2118 Getta Getta Road, North Star	215.5	7,693	17.5	1.0
R5	2116 Getta Getta Road, North Star	230	7,962	18.2	1.0
R6	2116 Getta Getta Road, North Star	228.4	7,873	18.0	1.0
R7	1767 Getta Getta Road, North Star	285.75	4,663	10.6	1.0
R8	621 Myall Downs Road, Blue Nobby	301.35	3,763	8.6	1.0
R9	621 Myall Downs Road, Blue Nobby	302.95	3,725	8.5	1.0
R10	61 Ryelands Road, Yallaroi	340	3,857	8.8	1.0
R11	61 Ryelands Road, Yallaroi	340.65	3,814	8.7	1.0
R12	2271 Blue Nobby Road, North Star	7.9	5,974	13.6	1.0
R13	2463 Blue Nobby Road, North Star	24.2	9,448	21.5	1.0
R14	2463 Blue Nobby Road, North Star	24.85	9,448	21.5	1.0
R15	3241 Blue Nobby Road, North Star	65.7	22,289	50.8	1.0
R16	5535 North Star Road, North Star	70.4	22,958	52.4	1.0
R17	5788 North Star Road, North Star	82.7	23,403	53.4	1.0
R18	5788 North Star Road, North Star	83.65	23,387	53.3	1.0
R19	5981 North Star Road, North Star	92.10	22,582	51.5	1.0
R20	North Star	95.30	22,148	50.5	1.0
R21	3824 Getta Getta Road, North Star	99.55	21,402	48.8	1.0
R22	3202 Getta Getta Road, North Star	100.45	21,194	48.3	1.0
R23	1278 Forest Creek Road, North Star	149.00	7,235	16.5	1.0
R24	2680 Getta Getta Road, North Star	117.40	16,460	37.5	1.0

3.1.7 Cumulative effects

There are no intensive livestock facilities in the North Star/Yetman region. There are several intensive livestock facilities in the Croppa Creek region. The closest intensive livestock facility is Tullin Tulla Feedlot and Myola Feedlot located some 17 km and 24 km southwest of the existing and proposed development respectively. Tullin Tulla Feedlot is licensed for a capacity of 5,000 head and owned by the Owen family. Myola Feedlot is licensed for a capacity of 20,000 head and is owned and operated by the Bindaree Food Group.

The proposed development and Tullin Tulla Feedlot and Myola Feedlot are not separated by less than half the shortest separation distance (369 m). Consequently, the proposed development and Tullin Tulla Feedlot and Myola Feedlot do not need to be treated as a single entity (having a capacity equivalent to the combined capacities of the two facilities) as they are sufficiently separated.

There are no sensitive receptors unacceptably located within the 120% overlap zone of both the proposed development and Tullin Tulla Feedlot or Myola Feedlot as shown on Figure 8. Consequently, as there are no sensitive receptors unacceptably located within the 120% overlap zone a cumulative impact assessment is not warranted in accordance with the National Feedlot Guidelines (MLA, 2012) and normal separation distances apply.

3.1.8 Conclusion

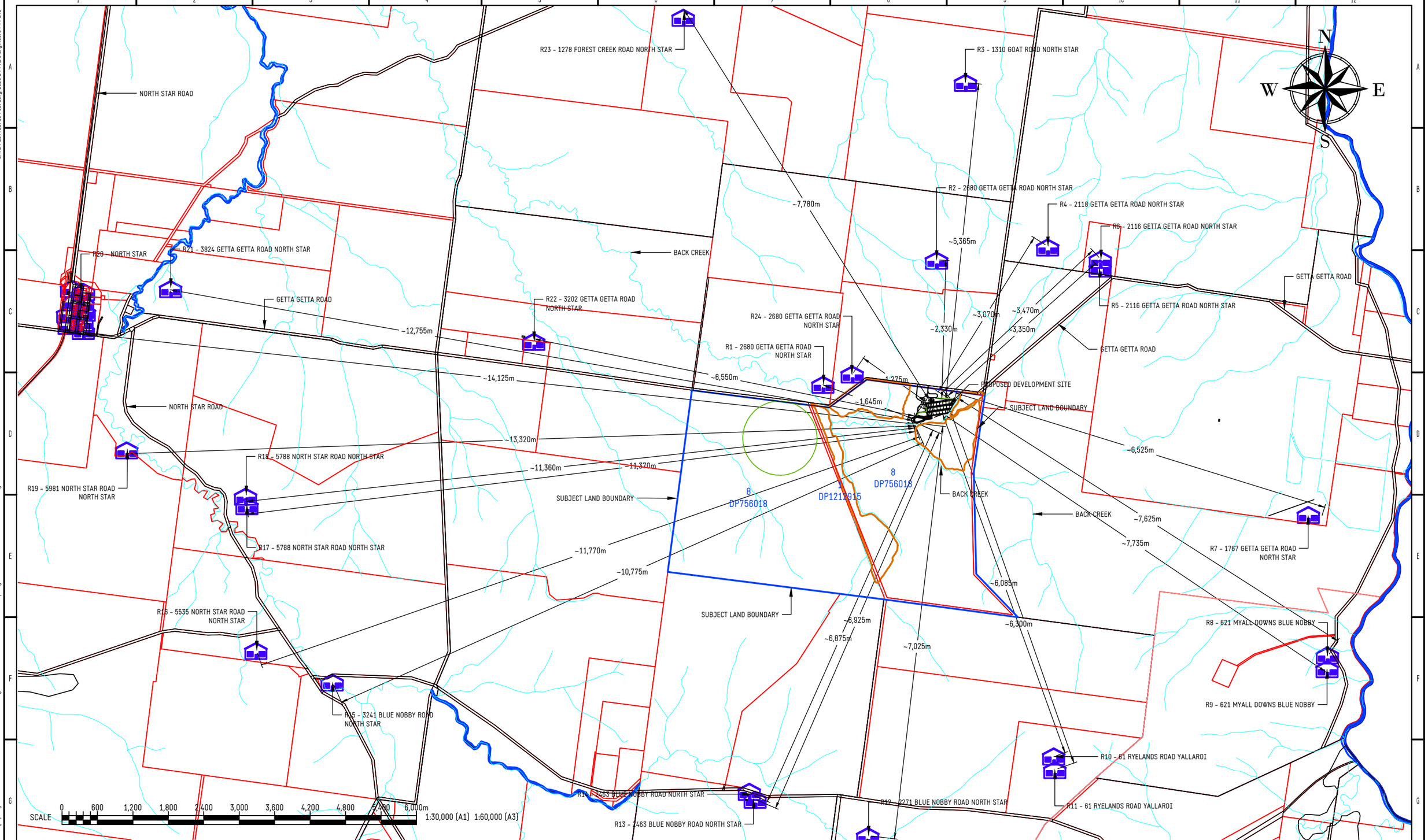
As outlined in Table 9, the S-factor assessment demonstrates that sufficient separation exists between the proposed development with a capacity of 3,000 head (2,620 SCUs) at 20.5 m^2/SCU and sensitive receptors respectively.

Table 9 – Proposed development – Separation distances from National Feedlot Guidelines (MLA, 2012)

Identifier	Type	Direction	S_1	S_2	S_3	S_4	S_5	Distance Required Normal S_5	Available Distance	Compliance
							Normal	m	m	
R1	2680 Getta Getta Road, North Star	West by North	45	0.3	1.0	1.0	1.0	592	~1,625	Yes
R2	2680 Getta Getta Road, North Star	North	45	0.3	1.0	1.0	1.0	592	~2,330	Yes
R3	1310 Goat Road, North Star	North by East	45	0.3	1.0	1.0	1.0	592	~5,365	Yes
R4	2118 Getta Getta Road, North Star	North northeast	45	0.3	1.0	1.0	1.0	592	~3,070	Yes
R5	2116 Getta Getta Road, North Star	North east	45	0.3	1.0	1.0	1.0	592	~3,350	Yes
R6	2116 Getta Getta Road, North Star	North east	45	0.3	1.0	1.0	1.0	592	~3,470	Yes
R7	1767 Getta Getta Road, North Star	East southeast	45	0.3	1.0	1.0	1.0	592	~6,525	Yes
R8	621 Myall Downs Road, Blue Nobby	South-east by east	45	0.3	1.0	1.0	1.0	592	~7,625	Yes
R9	621 Myall Downs Road, Blue Nobby	South-east by east	45	0.3	1.0	1.0	1.0	592	~7,735	Yes
R10	61 Ryelands Road, Yallaroi	South southeast	45	0.3	1.0	1.0	1.0	592	~6,085	Yes
R11	61 Ryelands Road, Yallaroi	South southeast	45	0.3	1.0	1.0	1.0	592	~6,300	Yes
R12	2271 Blue Nobby Road, North Star	South	45	0.3	1.0	1.0	1.0	592	~7,025	Yes
R13	2463 Blue Nobby Road, North Star	South by West	45	0.3	1.0	1.0	1.0	592	~6,925	Yes
R14	2463 Blue Nobby Road, North Star	South by West	45	0.3	1.0	1.0	1.0	592	~6,875	Yes
R15	3241 Blue Nobby Road, North Star	Southwest	45	0.3	1.0	1.0	1.0	592	~10,775	Yes
R16	5535 North Star Road, North Star	Southwest	45	0.3	1.0	1.0	1.0	592	~11,770	Yes

Table 43 – Proposed Development - Separation distances from National Feedlot Guidelines (MLA, 2012) cont'd

Identifier	Type	Direction	S1	S2	S3	S4	S5	Distance Required Normal S_5	Available Distance	Compliance
							Normal	m	m	
R17	5788 North Star Road North Star	South southwest	45	0.3	1.0	1.0	1.0	592	~11,370	Yes
R18	5788 North Star Road North Star	South southwest	45	0.3	1.0	1.0	1.0	592	~11,360	Yes
R19	5981 North Star Road North Star	West	45	0.3	1.0	1.0	1.0	592	~13,320	Yes
R20	North Star village	West by North	45	1.0	1.0	1.0	1.0	1,975	~14,125	Yes
R21	3824 Getta Getta Road North Star	West by North	45	0.3	1.0	1.0	1.0	592	~12,755	Yes
R22	3202 Getta Getta Road North Star	West by North	45	0.3	1.0	1.0	1.0	592	~6,550	Yes
R23	1278 Forest Creek Road North Star	North northwest	45	0.3	1.0	1.0	1.0	592	~7,780	Yes
R24	2680 Getta Getta Road, North Star	Northwest	45	0.3	1.0	1.0	1.0	592	~1,275	Yes



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- RURAL RESIDENTIAL RECEPTOR
- SMALL TOWN RECEPTOR
- HYDROLINE

NOTES:

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	24/01/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	21/02/25	FINAL ISSUE FOR SUBMISSION TO GSC	RJD	RJD	RJD

SCALE	1:60,000 (A3)
DRAWN	RJD
DATE	21/02/2025
CHECKED	RJD
DATE	21/02/2025
APPROVED	RJD
DATE	21/02/2025

CLIENT: DOOLIN FARMING PTY LTD
PROJECT: PROPOSED 3,000 HEAD BEEF CATTLE FEEDLOT
TITLE: DEVELOPMENT APPLICATION FOR INTENSIVE LIVESTOCK AGRICULTURE
EIS APPENDIX G - SEPARATION DISTANCE ASSESSMENT
PROPOSED DEVELOPMENT - SEPARATION TO SENSITIVE RECEPTORS PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 8		A3	E2-103-200-08	B

DATE PLOTTED: 19 February 2025 BY: RDC Engineers PTY LTD
FILE PATH: C:\RDC Engineers\RDCE - Projects\E2-103 Doolin Farming Springfield EIS\06 - ACAD MasterPlan\06.1 Drawings - CURRENT FILE NAME: E2-103 DF Springfield MASTERPLAN-00-20250108v8.dwg

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