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APPENDICES

1,000 HEAD CATTLE FEEDLOT AT 'CLEVECOURT'

August 2017

This is page number 264 of the minutes of the Ordinary Meeting held on Thursday 14 December 2017

Chairman

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DOCUMENT CONTROL

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Appendix 1 – Effluent Design Calculations

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Introduction

This report has been prepared to assess the effluent collection system for the Jac Wagyu Feedlot. The proposal involves establishing a controlled drainage area with surrounding diversion banks in the form of contour banks. Drainage from within the area will be captured in internal table drains and directed to a sediment pond for settlement of solids. The sediment pond would overflow into a holding pond. Effluent held in the holding pond would be irrigated by spray irrigation over an area of cultivation for production of improved pasture. Irrigation would occur on an opportune basis.

The following calculations include three methods:

- Assessment of a 1 in 24-hour rain event for sizing of the sediment and holding pond
- Calculation of the holding pond capacity using a 90-percentile wet year to ensure that the pond will only overflow in events exceeding this depth of rainfall runoff
- Review and recommendation to utilise contour banks within the irrigation area for capture of first 12mm of runoff.

Sediment Pond System

Must accommodate a 1 in 20-year design storm.

Calculations for a Single Sedimentation Basin:

- Basins cannot be deeper than 1.2 m
- Maximum velocity (v) = 0.005 m/s
- Scaling factor = 2.5
- Length to Width Ratio = 2 to 3

The following provides the design calculations for the sediment pond system.

PENS - FURTHEST PEN FROM OUTLET			
MAINFALL SLOPE	MAINFALL LENGTH	SIDEFALL SLOPE	PEN SIDEFALL LENGTH
%	m	%	m
5	40	1.67	36
OVERLAND FLOW SEGMENT			
SLOPE	LENGTH		
%	m		
5.27	53.81		
CATCHMENT	AREA (ha)	RUNOFF COEFFICIENT	
PENS/ROADS AREA	1.62	0.8	
GRASSED AREA	0.3	0.4	
TOTAL	1.92	0.7375	
DRAINS	SLOPE (%)	LENGTH (m)	
TAIL DRAIN BOTTOM OF PEN	1.67	180	
COLLECTOR DRAIN	1	110	

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AVERAGE COLLECTOR DRAIN			
SLOPE (%)	LENGTH (m)		
1.42	290		
SEDIMENT POND DESIGN (USE PC'S RATIONAL/KINEMATIC WAVE PROGRAM)		(1 IN 20yr STORM)	
OUTPUTS			
Tc	7.85	MINS	
PEAK DISCHARGE	0.62	CUMECS	
TOTAL RAIN	20.64	mm	
TOTAL RUNOFF	292.06	m ³	

SEDIMENT POND DESIGN		
$V = \frac{Q_p \left(\frac{l}{w} \right) \lambda}{v}$		
V = SEDIMENT POND VOLUME		
Qp = PEAK INFLOW FOR 20yr DESIGN STORM		
(l/w) = LENGTH TO WIDTH RATIO		
λ = lambda (SEE TABLE)		
v = FLOW VELOCITY (m/s)		
INPUTS TO EQUATION		
Qp =	0.62	
l/w =	3	
λ =	2.5	
v =	0.005	(m/s) - (MAX FLOW VELOCITY FOR WATER TO DROP SOLIDS)
THEREFORE		
SEDIMENT POND VOLUME =	930	m ³
	0.93	ML

The proposed sediment pond is to consist of a 1 ML hillside excavation using the fill to construction a horseshoe shaped embankment. Effluent will drain into the pond at the north and south ends. An overflow weir structure will be constructed at the northern end to drain the liquid from the sediment pond into the holding pond. The attached site plans show the location of the sediment pond. The pond will be lined with a CH clay material to ensure that it remains impervious. Final design plans will be completed in the construction phase of the project.

Holding Pond Calculations

Two assessment methods were adopted for assessment of runoff generated from the feedlot site to determine the required capacity of the holding pond. Method 1 involves a requirement for the pond to hold a 1 in 24-hour, 20-year ARI design storm event. Method 2 involves a water balance for a 90-percentile wet year where the pond capacity must be equivalent to or exceed the calculated volume to ensure that the pond does not overflow more than once in a 10-year rainfall period.

Method 1 is a simple catchment by rainfall runoff calculation. Rainfall is determined from an Intensity-Frequency calculation available from the Bureau of Meteorology. Hourly rainfall intensity for a 1 in 20-year, 24-hour rainfall event at Jac Wagyu is 5.89 mm. For a 24-hour period, this generates approximately 141 mm of rainfall. The catchment is assumed to be soaked as a result of the event and a runoff coefficient on 0.8 is adopted for the calculation.

Table 1: Pond Capacity calculation based on a 1 in 20-year, 24-hour rainfall event

HOLDING POND DESIGN	(1 IN20yr STORM - 24HRS OF RAINFALL)	
24hr RAIN DEPTH =	141	mm
RUNOFF COEFFICIENT =	0.8	
AREA OF CATCHMENT =	1.92	ha
HOLDING POND CAPACITY	2165.76	m ³
IN MEGALITRES	2.17	ML

Table 1 identifies a required pond capacity of 2.17 ML.

Method 2 adopts a USDA type rainfall runoff approach to determine rainfall runoff events accumulated on a monthly balance. This method assumes that runoff occurs from each rainfall event subject to the coefficient of runoff being applied, meaning that a coefficient of between 0.3 and 0.5 would result in 30 or 50 percent of the rainfall becoming runoff.

Method 2 provides a check on method 1 and is recommended by the Australian Feedlot guidelines.

Daily rainfall records were reviewed for Bingara to determine a rainfall runoff relationship. Daily records were available from 1941 to 2002. The following table provides a ranked listing of the highest annual rainfall records for this period.

Table 2: Ranked annual rainfall totals for Bingara 1941-2002

Rank	Year	Annual rainfall mm	No. of Rain Days	Calculated Runoff ML
1	1950	1124	100	11
2	1971	1090	81	20
3	1956	1071	108	16
4	1955	967	83	12
5	1959	956	87	7
6	1973	899	93	7
7	1954	883	68	8
8	1983	860	69	5
9	1978	852	77	5
10	1999	847	64	5

Statistical calculations indicate that an 880 mm of rainfall is equivalent to a 90-percentile rainfall year for this period of records. The year 1983 has been chosen as the equivalent year based on more recent rainfall patterns.

The standard method of rainfall runoff calculations adopted by Feedlot Guidelines is based on a monthly balance using total rainfall. The USDA model assesses antecedent moisture conditions for each rainfall event. This process is based on determining the moisture content of the surface prior to each rainfall event to determine whether runoff would occur. The criteria are based on 12-days prior rainfall and a threshold level of 12.5mm of rainfall before runoff. The method is therefore provides a more accurate assessment of potential runoff.

The following table presents 90-percentile actual and effective rainfall totals.

Table 3: 90-Percentile rainfall totals for Inverell

Month	1950 Monthly Rainfall total (mm)	Effective Rainfall producing runoff event (mm) USDA Calculations
Jan	73	9
Feb	17	4.6
Mar	57	20.6
Apr	46	29
May	140	34.8
Jun	61	52.6
Jul	40	27.4
Aug	62	40.8
Sep	54	0.8
Oct	156	96.4
Nov	61	53
Dec	94	23
Total rainfall	860	392

Table 3 indicates that less than half of the rainfall occurring in a 90-percentile wet year generates runoff. The time between rainfall events allows the catchment to dry out and then absorb part of the next rainfall event. The modelling estimate runoff once the catchment becomes saturated.

Utilising a monthly balance model for the basic assessment of the pond capacity design, therefore provides a conservative approach to ensuring that pond capacity is sufficient and may potentially be double the capacity required.

The proposed system will involve utilising available effluent captured in the holding pond for **irrigation**. This will be done on an opportunity basis, meaning that when effluent is available, it will be utilised to replace rainfall deficits. The crop to be utilised being pasture, will be semi-permanent and therefore could be irrigated throughout the year if effluent is captured in the pond. The overall pond balance can therefore include the use of effluent over the 10 Ha area based on a rainfall evaporation deficit.

Crops within the irrigation area will remain as improved pasture as the area is relatively steep and not suitable for regular cropping where bare soil may be exposed. The area would be cut and baled on occasion and utilised for cattle feed on the remainder of the farm. This process would remove nutrient from the irrigation area.

Cumulative Balance Calculation

The following table presents a cumulative annual water balance for the Feedlot. The table utilises actual monthly rainfall totals for the year of 1983.

The balance is based on:

- Monthly rainfall totals for a 90-percentile wet year,
- Runoff from the catchment based on a coefficient of 0.4,
- Rainfall captured in the pond,
- Losses from average evaporation rates,
- Use of the effluent for irrigation based on a rainfall evaporation deficit over 10 Ha of pasture and
- Determination of the maximum cumulative pond capacity requirement.
- No seepage loss component is included.

Table 4: Cumulative Annual Water Balance for 90-Percentile wet year at Jac Wagyu

Jac Wagyu Holding Pond Balance										
The 90 Percentile Year for the Bureau of Meteorology Data at Bingara (1941 to 2002) is 1983										
Month	1983 Monthly Rain (mm) *	1983 Monthly Rain (m) *	Rainfall on pond (m3)	Total Runoff (m3)	Av. Evap. (m) *	Evap. Loss (m3)	Net Volume (m3)	Net water available for irrigation (m3)	Irrigation of 8 Ha - Rainfall deficit	Net Storage
			a	b		c	a+b-c	0	Actual irrigation requirement	
Jan	73	0.07	515	1,194	0.21	1,472	237	237	13,490	0
Feb	17	0.02	118	272	0.17	1,189	-800	0	15,140	0
Mar	57	0.06	405	938	0.16	1,140	203	203	10,400	0
Apr	46	0.05	326	754	0.11	807	273	476	6,800	0
May	140	0.14	991	2,296	0.08	595	2,692	3,169	0	3,169
Jun	61	0.06	429	994	0.06	425	998	4,167	0	4,167
Jul	40	0.04	286	663	0.06	439	510	4,676	2,160	2,516
Aug	62	0.06	440	1,020	0.09	616	845	5,521	2,460	3,061
Sep	54	0.05	379	879	0.12	828	430	5,951	6,340	0
Oct	156	0.16	1,102	2,553	0.16	1,118	2,537	8,488	240	8,248
Nov	61	0.06	430	997	0.18	1,274	153	8,642	11,920	0
Dec	94	0.09	668	1,548	0.21	1,451	765	9,407	11,020	0
Total	860			14,109	1.60					
Assumptions										
Pond area				7,079.0						
Controlled Drainage Area				41,000.0						
Runoff Coefficient				0.4						
Required Pond Volume m3				8,248						
(b) Runoff = Controlled drainage area x rainfall x runoff coeff.										
(d) Evap. Loss = Evaporation x Total Pond area										

Table 4 indicates that with irrigation by rainfall deficit, the pond capacity required is 8,248 cubic metres.

Design Pond

The Feedlot site is located on a ridge area and drains to the western side of the ridge line. A first order stream is located on the western edge of the feedlot area. At present, the cattle holding area drains through this erosion channel into Antimony gully. Antimony gully is a second order stream. The gully draining the feedlot site is not marked on a topographic plan nor has it been named. The gully is fed by a system of contour banks which have been constructed to reduce soil erosion on cleared and partly cultivated grazing land. The gully has been dammed to provide an ephemeral source of stock water for the cattle yards.

A review of the DPI Water guidelines advising on "Do you need a Licence" included the following detail for "Special Dams".

"Dams for the capture, containment and recirculation of drainage and/or effluent that conform to best management practice or are required by regulation to prevent the contamination of a water source. The harvestable right is not intended to be contrary to initiatives to prevent pollution of water sources. Many landholders are required to install dams to capture contaminated water or to collect and re-use irrigation tailwater. These dams are not considered in assessing your harvestable right."

The proposed holding pond is therefore not considered as a harvestable right dam and therefore does not impact on the potential development of other on-farm dams to capture water from the remainder of the farm.

The holding pond can be built within this unnamed gully adjoining the feedlot site. Clean water diversion banks have been constructed as contour banks in the upper and adjoining catchment to the proposed holding pond. For the feedlot to proceed, contour bank extensions will be required to divert runoff from above the catchment around the proposed holding pond to ensure that the holding pond does not capture additional runoff than the volume calculated in the above water balance.

The holding pond would be constructed as a normal gully dam utilising the natural shape of the existing gully. A bywash would be developed on the west side of the dam to allow the effluent pond to overflow across a grass paddock before entering Antimony gully. The grassed area would provide a filter to capture any excess solids which have not been settled in the sediment or holding pond.

The dam site has a layer of clay material at the base. Dams on adjoining area developed for stockwater have sealed to an extent where losses are equivalent to evaporation. The clay material on the site seals to the equivalent of approximately 1×10^{-9} m/s infiltration. If gravelly material is encountered during construction, the gravel will be over-excavated and backfilled with a CH plastic clay material to an appropriate depth of 450 mm or more to ensure that the dam seals to the required extent.

Irrigation Area

The proposal will involve opportunistic irrigation of effluent and runoff captured in the holding pond. The effluent would be pumped from the pond to an area of improved pasture and irrigated using a portable travelling irrigator.

The area available is in excess of 10 Ha. A figure of 10 Ha has been identified in the annual balance for a 90-percentile rainfall year to ensure that sufficient area is available to eliminate a pond overflow under such a rainfall year.

The irrigation area includes contour banks which collect and hold some runoff for improved performance of the pasture. The contour banks drain to the southeast section of paddock and spill via a waterway into Antimony gully.

In accordance with Guidelines, a system of detention ponds are required for the irrigation area to capture the first 12mm of runoff from the area. For an area of 10 Ha, this would involve a total storage of 1.2 ML.

The potential exists to utilise the bed of the contour banks to detain sufficient runoff and settle any solids and concentrated nutrients applied through the irrigation system. This will involve construction of check banks to a minimal height along the length of the contour banks.

For the area closest to the creek, a buffer zone of 50m will be maintained to avoid any direct contamination of the creek.

Peter Taylor
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Environment and Resource Consultant

Appendix 2 – Harvestable Rights



Maximum Harvestable Right Dam Capacity

Information provided by the user

1. The location of the proposed dam is:
 - Latitude: -29.749406
 - Longitude: 150.484932
2. Total property area to use for calculating the size of the dam is 179 Hectares

Result

The maximum Harvestable right dam capacity for your property is 12.53 ML (Megalitres)

Date

03/08/2017

Name

SMK Consultants

Limitations of the calculator

a) Where to site a dam

You can only construct a harvestable rights dam where the Harvestable Rights Orders apply, refer to [NSW Government Gazette 40 dated 31 March 2006](#) (pages 1628 to 1631).

b) First and Second order streams

The maximum harvestable right calculator does not verify that the location of the proposed dam sits on a first or second order stream. A factsheet : "[Where can they be built without a licence?](#)" is available on the DPI Water website to help you work out the stream orders.

You will need to use the legislated topographic map for your area to identify the stream order. This map is the gazetted map as per [NSW Government Gazette 57 dated 23 March 2001](#) (pages 1481-1489).

c) Size of property and dam

The calculator does not take into account other dams already on your property. If you have existing harvestable rights dams on your property, you must take the capacity of these dams into account when constructing a new dam. In the Eastern and Central Divisions other dams must also be taken into account, as described in the [NSW Government Gazette 40 dated 31 March 2006](#) (pages 1628 to 1631).

d) Protected wetlands

The Harvestable Rights Orders specify that you are not allowed to build a dam on or within 3 km of a RAMSAR wetland site. There are 12 RAMSAR wetlands in NSW. Further information on the location of those [12 RAMSAR sites in NSW](#) can be found on the NSW Environment and Heritage government website.

Appendix 3 – 7 Part Test

NSW Threatened Species Assessment

Assessment of Eligibility for Consideration under the TSC Act 7-Parameter Test

A search of the National Parks and Wildlife Atlas of NSW Wildlife (BioNet) identified the following list of species with recorded sightings within 10km of the proposed development (Table 1).

Table 1: Species recorded within 10km of proposed development

Scientific Name	Common Name	TSC Act Legal Status	EPBC Act Legal Status
<i>Phascolarctos cinereus</i>	Koala	Vulnerable	Vulnerable
<i>Dichanthium setosum</i>	Bluegrass	Vulnerable	Vulnerable

A broader search for species, populations and communities known and predicted to occur within the Peel bioregion of the Gwydir Catchment was also conducted (Table 2). Species were considered with regards to their known distribution and habitat requirements, to assess whether the subject site is likely to serve as suitable habitat, and subsequently whether/how the development is likely to impact upon the species.

To define the boundaries of the subject site and study area to be considered for environmental impact by this assessment, the proposed operation of the feedlot must be considered. The feedlot will utilise water available under existing water entitlements and harvestable rights. The following mitigation measures will be in place to minimise the risk of environmental harm resulting from the feedlot operation:

- Construction of a diversion bank to direct clean water around the feedlot complex;
- Construction of a controlled drainage area which will capture all effluent water;
- Sustainable disposal of effluent water via irrigation and evaporation;
- Sustainable reuse of manure on site, and transportation of excess manure off-site;
- Construction of the feedlot complex on soils of low permeability, minimising the risk of groundwater seepage from the subject site; and
- No works will occur within 300m of Spring Creek (a tributary of the Gwydir River).

With appropriate mitigation measures in place, it is considered that impacts of the proposed development are to be highly localised. The development is unlikely to release pollutants into the wider environment or significantly alter hydrological patterns or release pollutants into the wider environment. The study area for the proposed development is therefore considered to be the feedlot site and manure/effluent reuse areas.

The study area consists of cropland (used for growing hay) and pasture, which has been extensively cleared and grazed for cattle production. The cropland has been cultivated and cleared of all native vegetation, and is regularly managed to control weed presence. The pasture supports a mixture of native and introduced species. Some sucker regrowth occurs throughout the farm, which is regularly managed as part of routine farm operations to maintain pasture growth. Species include Pine and Iron bark.

The following table 2 presents a data base search and comment of species which may be present in the area.

17-144 'Clevecourt' Feedlot NSW Threatened Species Assessment

Table 2: Species, populations and communities identified by BioNet predicted and known to occur within the Peel Bioregion of the Gwydir Catchment.

Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
Amphibia					
<i>Adelotus brevis</i>	Tusked Frog population in the Nandewar and New England Tableland Bioregions	<p>Region: Coast and adjacent ranges from central Queensland to southern NSW. Tusked Frogs were once found west to the New England Tableland and North West Slopes (Nandewar bioregion) but are now very rare there, and the population in these regions has been listed as an Endangered Population under the Threatened Species Conservation Act. They remain more common in lower elevation coastal areas.</p> <p>Habitat: Rainforests, wet forests and flooded grassland and pasture. They are usually found near creeks, ditches and ponds, and call while hidden amongst vegetation or debris.</p> <p>Preferred Food: Limited information available.</p> <p>Breeding: The species breeds from Spring through to Summer, with a peak during late Spring. Eggs are deposited in nests under leaf litter or other cryptic sites such as old yabbie burrows near or in water.</p> <p>Comment: The subject site is located on the mid-slope of a hill above the flood zone, and does not include watercourse areas. Potential habitat is therefore absent for this species.</p>	Endangered Population		No. Potential habitat unavailable.
Reptilia					
<i>Uvidicolus sphyrurus</i>	Border Thick-tailed Gecko	<p>Region: Found on the tablelands and slopes of northern NSW and southern Queensland, reaching south of Tamworth and west of Moree. Occurs at sites ranging from 500-1100m elevation, most common on the granite country of the New England Tablelands. Populations mostly fragmented, with over 50 discrete sites.</p> <p>Habitat: Often occurs on steep rocky or scree slopes, especially granite, yet recent records from basalt and metasediment slopes and flats indicate its habitat selection is broader than formerly thought, and it may have extended into areas cleared for agriculture. Favours forest and woodland with boulders, rock slabs, fallen timber and deep leaf litter. Occupied sites often have a dense canopy and sparse understorey.</p> <p>Preferred Food: Insects and spiders.</p> <p>Breeding: Limited information available.</p> <p>Comment: The subject site is located on basalt/metasediment slopes. Potential habitat unlikely to be present at the subject site as it has been cleared of trees but may be present within remnant vegetation within the study area.</p>	Vulnerable	Vulnerable	Yes. See below for assessment.

17-144 'Clevecourt' Feedlot				
NSW Threatened Species Assessment				
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status
<i>Hoplocephalus bitorquatus</i>	Pale-headed Snake	<p>Region: Patchy distribution from north-east Queensland to the north-eastern quarter of NSW. Has been historically recorded as far west as Mungindi, across the north-west slopes, and from the north coast from Queensland to Sydney. Few records are known for the New England Tablelands; majority of records from lower elevations. Although the pale-headed snake is very cryptic, it appears to have contracted to a patchy and fragmented distribution.</p> <p>Habitat: Found mainly in dry eucalypt forests and woodlands, cypress forest and occasionally in rainforest or moist eucalypt forest. In drier climates, it favours habitat close to riparian areas with a sandy soil. Shelters during the day between loose bark and tree trunks, or in hollow trunks and limbs of dead trees. Highly cryptic that can spend weeks at a time hidden in tree hollows.</p> <p>Preferred Food: Main prey is tree frogs, yet lizards and small mammals are also taken</p> <p>Breeding: Knowledge derived from observation of captive species. Species is live-bearing and gives birth to between 2-11 young around January. It is likely that females breed bi-annually.</p> <p>Comment: Potential habitat is not present.</p>	Vulnerable	No. Potential habitat unavailable.
Aves				
<i>Alectura lathami</i>	Australian Brush-turkey population in the Nandewar and Brigalow Belt South Bioregions	<p>Region: The Australian Brush-turkey has a largely coastal distribution from Cape York down to Illawarra, in forested and wooded areas of tropical and warm-temperate districts, particularly between 300m-1200m altitude. A population of brush turkeys is known from the Nandewar and Brigalow Belt South Bioregions, ranging from north east of Warialda to Narrabri, occurring within Yallaroo, Bingara, Narrabri, Barraba and Moree Plains LGAs.</p> <p>Habitat: In NSW, the preferred inland vegetation type is a dry rainforest community found within the Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions Endangered Ecological Community.</p> <p>Preferred Food: Seeds, fruits, grains, insects, earthworms, occasionally reptiles and carrion.</p> <p>Breeding: Limited information available.</p> <p>Nest: Nests constructed in mounds of groundcover material including dirt and organic material.</p> <p>Comment: Species unlikely to be present as remnant vegetation within the study area</p>	Endangered Population	No. Potential habitat unavailable.

17-144 'Clevecourt' Feedlot					
NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Botaurus poeciloptilus</i>	Australasian Bittern	is not consistent with Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions Endangered Ecological Community. Region: Widespread but uncommon over south-eastern Australia. Found throughout most of NSW except for the north-west. Habitat: Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes and spikerushes. Preferred Food: Frogs, rush, yabbies, spiders, insects, snails. Breeding: Occurs in summer from October to January. Usually six eggs to a clutch. Nests: Built in secluded places in densely-vegetated wetlands on a platform of reeds. Comment: Potential habitat unavailable within the study area due to absence of wetlands.	Endangered	Endangered	No. Potential habitat unavailable.
<i>Circus assimilis</i>	Spotted Harrier	Region: Occurs throughout the Australian mainland. Individuals disperse widely in NSW and comprise a single population. Habitat: Occurs in grassy open woodland including <i>Acacia</i> and mallee remnants, inland riparian woodland, grassland and shrub steppe. Found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. Preferred Food: Preys on terrestrial mammals (e.g. bandicoots and rodents), birds and reptiles, occasionally insects and rarely carrion. Breeding: Breeding season from spring to autumn. Nest: Stick nest in a tree. Comment: Potential foraging habitat is likely to be present within the study area.	Vulnerable		Yes. See below for assessment.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Region: The White-bellied Sea-Eagle is distributed along the coastline (including offshore islands) of mainland Australia and Tasmania. It also extends inland along some of the larger waterways, especially in eastern Australia. The inland limits of the species are most restricted in south-central and south-western Australia, where it is confined to a narrow band along the coast. Habitat: The White-bellied Sea-Eagle is found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). Birds have been recorded in (or flying over) a variety of terrestrial habitats. Birds have been recorded at or in the vicinity of freshwater swamps, lakes, reservoirs,	Vulnerable		No. Individuals present are likely to be vagrants.

17-144 'Clevecourt' Feedlot					
NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
		billabongs, saltmarsh and sewage ponds. Preferred Food: Fish, birds, reptiles, mammals, crustaceans, carrion and offal. Breeding: Breeding season from June to January. Nesting: The nest is a large structure composed of sticks and lined with leaves, grass or seaweed. Nests may be built in a variety of sites including tall trees (especially Eucalyptus species), bushes, mangroves, cliffs, rocky outcrops, caves, crevices, on the ground or even on artificial structures. Comment: Potential habitat unavailable within the study area as the study area is not considered to be coastal. Any individuals present in the region are likely to be vagrants.			
<i>Hieraetus morphnoides</i>	Little Eagle	Region: Occurs throughout the Australian mainland. Habitat: Occupies open eucalypt forest, woodland or open woodland. Sheoak or <i>Acacia</i> woodlands and riparian woodlands of interior NSW also used. Preferred Food: Birds, reptiles and mammals, large insects and carrion. Breeding: Lays two or three eggs in spring, young fledge in summer. Nest: Pairs build large stick nest in tall living trees within remnant patches in winter. Comment: Potential foraging habitat likely to be present within the study area.	Vulnerable		Yes. See below for assessment.
<i>Lophoictinia isura</i>	Square-tailed Kite	Region: Ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. In NSW, scattered records indicate species is a regular resident in the north, north-east and along major west-flowing river systems. It migrates to south-east Australia to breed. Habitat: Found in a variety of timbered habitats including dry woodlands and open forests. Shows preference for timbered watercourses. Preferred Food: Is a specialist hunter of passerines, nestlings and insects in the tree canopy. Breeding: Breeding from July to February. Breeding productivity is 0.7 young per pair per year in NSW. Nest: Nest sites located along or near watercourses, in a fork or on large horizontal limbs. Comment: Potential habitat unlikely to be present at the subject site as it has been cleared of trees, and therefore does not provide a suitable tree canopy for foraging or roosting.	Vulnerable		No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Falco subniger</i>	Black Falcon	<p>Region: Widely but sparsely distributed in NSW, mostly in inland regions. Assumed to be a single population in NSW that is continuous with a broader continental population, giving the falcons are highly mobile.</p> <p>Habitat: Found along tree-lined watercourses and in isolated woodlands, mainly in arid and semi-arid areas. Roosts in trees at night and often on power poles by day.</p> <p>Preferred Food: Birds, small mammals, insects, reptiles, sometimes carrion. Sometimes steals prey from other falcons.</p> <p>Breeding: Limited information available, but likely to have poor breeding success.</p> <p>Nest: Nest along tree-lined creeks and rivers of inland drainage basins.</p> <p>Comment: Potential foraging habitat likely to be available within the study area.</p>	Vulnerable		Yes. See below for assessment.
<i>Burhinus grallarius</i>	Bush Stone-curlew	<p>Region: Found throughout mainland Australia except for central and southern coast, inland, and the far south-eastern corner. Still common in northern Australia; either rare or extinct elsewhere throughout its former range.</p> <p>Habitat: Inhabits open forests and woodlands with sparse grassy ground layer and fallen timber.</p> <p>Preferred Food: Insects, small vertebrates such as frogs, lizards and snakes.</p> <p>Breeding: Nest on the ground in a scrape or small bare patch. Two eggs laid in spring and early summer.</p> <p>Comment: Potential habitat unlikely to be available within the study area as it has been cleared of trees and does not feature fallen timber.</p>	Endangered		No. Potential habitat unavailable.
<i>Irediparra gallinacea</i>	Comb-crested Jacana	<p>Region: The Comb-crested Jacana occurs on freshwater wetlands in northern and eastern Australia, mainly in coastal and subcoastal regions, from the north-eastern Kimberley Division of Western Australia to Cape York Peninsula then south along the east coast to the Hunter region of NSW, with stragglers recorded in south-eastern NSW (possibly in response to unfavourable conditions further north).</p> <p>Habitat: Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. Comb-crested Jacanas are dispersive, moving about in response to the condition of wetlands, and occasionally turn up well beyond normal range.</p> <p>Preferred Food: Insects and other invertebrates, as well as some seeds and other vegetation.</p> <p>Breeding: Breed mainly in spring and summer in NSW, with clutches recorded from September to April.</p>	Vulnerable		No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Rostratula australis</i>	Australian Painted Snipe	<p>Nest: The nest is a platform or shallow cup of vegetable material, though eggs sometimes laid directly onto a large leaf with no nest built.</p> <p>Comment: Potential habitat unlikely to be available due to absence of wetland habitat.</p> <p>Region: Most records from the south east, particularly the Murray Darling Basin. In NSW, most records associated with marshes, lakes and swamps in the Basin.</p> <p>Habitat: Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Forages on mud flats and in shallow water.</p> <p>Preferred Food: Worms, molluscs, insects, some plant matter.</p> <p>Breeding: Often in response to local conditions, generally occurs from September to December.</p> <p>Nest: A scrape in the ground lined with grasses and leaves.</p> <p>Comment: Species unlikely to be present due to absence of suitable water-based habitat.</p>	Endangered	Endangered	No. Potential habitat unavailable.
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	<p>Region: Uncommon although widespread through suitable forest and woodland habitats, from central Queensland coast south to East Gippsland in Victoria, inland to the southern tablelands and central western plains of NSW.</p> <p>Habitat: Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. In the Riverina, birds are associated with hills and rocky rises supporting Sheoak, but also recorded in open woodlands dominated by Belah.</p> <p>Preferred Food: Feeds almost exclusively on several species of sheoak (<i>Casuarina</i> and <i>Allocasuarina</i> species). Belah is also used as a critical food source for some populations.</p> <p>Breeding: A single egg is laid between March and May.</p> <p>Nest: Dependent on large hollow-bearing eucalypts for nest sites.</p> <p>Comment: Species unlikely to be present within the study area due to absence of suitable tree species.</p>	Vulnerable		No. Potential habitat unavailable.
<i>Glossopsitta pusilla</i>	Little Lorikeet	<p>Region: Distributed widely across the coastal and Great Divide regions of Eastern Australia, from Cape York to South Australia. NSW provides a large portion of the species' habitat, with individuals found westward as far as Dubbo and Albury. Nomadic movements common, influenced by season and food availability.</p> <p>Habitat: Forages primarily in open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats particularly used.</p>	Vulnerable		No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Lathamus discolor</i>	Swift Parrot	<p>Isolated flowering trees in open country also used to help sustain viable populations. Roosts in treetops, often distant from feeding areas.</p> <p>Preferred Food: Nectar and pollen, occasionally native fruits such as mistletoe, rarely in orchards.</p> <p>Breeding: Breeding season from May to September. In seasons with prolific flowering, lorikeet pairs can breed twice, producing 3-4 young per attempt. Survival rate of fledglings is unknown.</p> <p>Nest: In proximity to feeding areas if possible. Typically in hollows in the limb or trunk of smooth-barked Eucalyptus. Entrance of hollows typically small (3cm) and high above the ground (2-1.5m). The nests are often used repeatedly for decades, suggesting preferred sites are limited.</p> <p>Comment: Species unlikely to be present due to absence of trees on site.</p>	Endangered	Critically Endangered	No. Potential habitat unavailable.
<i>Neophema pulchella</i>	Turquoise Parrot	<p>Region: Southern Queensland through to northern Victoria, from coastal plains to western slopes of Great Diving Range.</p> <p>Habitat: Lives on edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.</p> <p>Preferred Food: Seeds, grasses, herbaceous plants, vegetable matter.</p> <p>Breeding: Nests in tree hollows, logs or posts, from August to December. Lays four to five white, rounded eggs on a nest of decayed wood dust.</p> <p>Comment: Potential foraging habitat may be available within the study area.</p>	Vulnerable		Yes. See below for assessment.

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NSW Threatened Species Assessment				
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status
<i>Ninox connivens</i>	Barking Owl	<p>Region: Found throughout continental Australia except for in the central arid regions. Species has declined in southern Australia, occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains (especially in the Pilliga) and in some northeast coastal and escarpment forests.</p> <p>Habitat: Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. Is flexible in its habitat use. Can hunt in closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats due to higher prey density on fertile soil.</p> <p>Preferred Food: Small arboreal mammals such as squirrel gliders and ringtail possums, birds, invertebrates, terrestrial mammals such as rodents and rabbits.</p> <p>Breeding: Two or three eggs laid in hollows of large, old trees. Nesting occurs during mid-winter and spring but is variable between pairs and among years.</p> <p>Comment: Potential foraging habitat may be available within the study area.</p> <p>Region: Records for this species fall within 90% of NSW, excluding the most arid north-western corner. Most common on the western plains.</p>	Vulnerable	Yes. See below for assessment.
<i>Tyto novaehollandiae</i>	Masked Owl	<p>Habitat: Lives in dry eucalypt forests and woodland from sea level to 1100m ASL.</p> <p>Preferred Food: Tree- and ground-dwelling mammals, especially rats.</p> <p>Breeding: Breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting. Breeds any time of the year, with clutch sizes of 2-3 eggs.</p> <p>Comment: Potential foraging habitat may be available within the study area.</p> <p>Region: Eastern Australia from SA to Cape York, Qld. Western boundary of the species' range runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo, Inverell.</p>	Vulnerable	Yes. See below for assessment.
<i>Climacteris picumnus victorinae</i>	Brown Treecreeper (eastern subspecies)	<p>Habitat: Mainly inhabits woodlands dominated by rough-barked eucalypts, usually with open grassy understorey, sometimes with one or more shrub species. Fallen timber is an important habitat feature.</p> <p>Preferred Food: Feeding predominantly on ants and other invertebrates and sometimes on nectar, sap, lizards and food scraps.</p> <p>Breeding: Usually produce 2-3 speckled and streaked pinkish eggs.</p> <p>Nest: Grass-lined hollow.</p> <p>Comment: Potential habitat unavailable within the study area due to an absence of fallen timber.</p>	Vulnerable	No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Cithanocola sagittata</i>	Speckled Warbler	<p>Region: Ranges throughout south-eastern Queensland, the eastern half of NSW and into Victoria. Most frequently reported from the hills and tablelands of the Great Dividing Range. Severe species decline observed where no vegetation remnants larger than 100ha survive.</p> <p>Habitat: Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or gullies. Large, relatively undisturbed remnants are required for species to persist in an area.</p> <p>Preferred Food: Seeds and insects.</p> <p>Breeding: Nests are rounded, domed and built of dry grass and strips of bark, located in a slight hollow in the ground or at the base of a low dense plant, often amongst fallen branches or litter. 3-4 eggs per clutch, laid between August to January. Eggs are a glossy red-brown.</p> <p>Comment: Potential habitat unavailable within the study area as it has been cleared and extensively used for agricultural production.</p>	Vulnerable		No. Potential habitat unavailable.
<i>Anthochaera phrygia</i>	Regent Honeyeater	<p>Region: Mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. The species' range has severely contracted in the last 30 years; only three known breeding regions remain (Chiltern-Albury region in Victoria, Capertree Valley in NSW and Bundarra-Barraba region in NSW). In NSW, distribution is patchy and mainly confined to breeding regions and surrounding remnant vegetation.</p> <p>Habitat: Dry open forest and woodland, particularly Box-ironbark woodland, and riparian forests of River Sheoak. Woodlands have significantly high species richness, large numbers of mature trees, high canopy cover and an abundance of mistletoes.</p> <p>Preferred Food: Generalist forager, which feeds mainly on eucalypt nectar.</p> <p>Breeding: Species breed between July and January. Usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria. Two or three eggs laid per clutch.</p> <p>Comment: Potential habitat unavailable within the study area as it has been cleared and extensively used for agricultural production.</p>	Critically Endangered	Critically Endangered	No. Potential habitat unavailable.
<i>Epthianura albigrons</i>	White-fronted Chat	<p>Region: Found across southern half of Australia. Potential to occur throughout NSW; most commonly found in southern half of the state.</p> <p>Habitat: Salt marsh and other damp, open areas with low vegetation such as swampy farmland and roadside verges.</p> <p>Preferred Food: Insects.</p>	Vulnerable		No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Grantiella picta</i>	Painted Honeyeater	Breeding: Breed from late July through to early March. Open cup nests usually built in low vegetation approximately 23cm above ground. Two to three eggs laid per clutch. Comment: Potential habitat unlikely to be present within the study area, as the study area is located on a mid-slope and is therefore unlikely to become swampy. Region: Nomadic species occurring at low densities throughout its range. Occurs throughout NSW, except in coastal areas and the south-western corner of the state. Greatest concentration and almost all breeding occurs on inland slopes of Great Dividing Range. Habitat: Boree/Weeping Myall, Brigalow and Box-Gum Woodlands and Box-Ironbark forests. Preferred Food: Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Breeding: Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, sheoak, paperbark or mistletoe branches. Comment: Potential habitat unlikely to be available as the study area has been cleared of trees.	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	Region: Widespread in NSW, most commonly recorded from tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. Habitat: Upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts. Also inhabits open forests of smooth-barked gums, stringybarks, river sheoaks (nesting habitat) and tea-trees. Preferred Food: Nectar, insects, honeydew. Breeding: Breeding occurs from June to December. Cup-shaped nest is placed in the high crown of a tree in the uppermost lateral branches, hidden by foliage. Two to three eggs per clutch. Comment: Potential habitat unlikely to be available as the study area has been cleared of trees.	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	Region: Eastern and northern Australia. Becoming rarer in settled areas. Habitat: A bird species common in Box-Gum, Box-Cypress & Open Box woodlands and scrubland. Birds are generally unable to cross large open areas. Preferred Food: Feed on invertebrates by foraging on the trunks and branches of eucalypts and other woodland trees or on the ground, digging and probing amongst	Vulnerable	Vulnerable	No. Potential habitat unavailable.

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Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Daphoenositta chrysoptera</i>	Varied Sittella	litter and tussock grasses. Breeding: Usually 2-3 eggs laid between July and February. Nest: Nest is a large, untidy dome of sticks lined with grass, bark, wool etc. 3-6m above ground. Comment: Potential habitat unlikely to be available as the study area has been cleared of trees. Region: Distribution in NSW nearly continuous from the coast to the far west. Habitat: Eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and <i>Acacia</i> woodland. Preferred Food: Arthropods. Breeding: Limited information available. Nest: Cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, often re-using the same fork or tree in successive years. Comment: Potential habitat unlikely to be available as the study area has been cleared of trees.	Vulnerable		No. Potential habitat unavailable.
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	Region: Widespread in eastern, southern and southwestern Australia. In New South Wales it is widespread from coast to inland, including the western slopes of the Great Dividing Range. Habitat: Predominantly woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. The Dusky Woodswallow is considered to be a woodland dependent bird. Preferred Food: Primarily eats invertebrates, mainly insects. Occasionally feeds on nectar, fruit and seeds. Breeding: Late September to late February, with eggs present between September and January, although most eggs are present between October and early December. Clutch size is 1-4 and pairs may nest twice in a season. Nest: The nest is an open shallow untidy cup, frequently in an open hollow, crevice or stump. Comment: Potential habitat unlikely to be available as the study area has been cleared of trees.	Vulnerable		No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	<p>Region: Widespread throughout Australia except for the driest deserts and wettest coastal areas. Rare throughout most of its range.</p> <p>Habitat: Lightly wooded country such as open eucalypt woodland, acacia scrub and mallee, often in or near clearings/open areas. Requires structurally diverse habitats including mature and young trees, shrubs and native grasses.</p> <p>Preferred Food: Insects.</p> <p>Breeding: Breed between July and November, often raising several broods. Two to three eggs per clutch.</p> <p>Nest: Small cup of bark, grasses and webs in a tree fork or crevice, from less than 1m to over 5m above ground.</p> <p>Comment: Species' distribution near clearings and open areas suggests the species may utilise these spaces for foraging. Potential habitat may be available within the study area.</p>	Vulnerable		Yes. See below for assessment.
<i>Petroica boodang</i>	Scarlet Robin	<p>Region: South east Queensland to south east South Australia, also in Tasmania and WA. In NSW, occurs from coast to inland slopes.</p> <p>Habitat: Dry eucalypt forests and woodlands. Understorey open and grassy with few scattered shrubs. Species lives in both mature and regrowth vegetation. Also, occasionally occurs in mallee or wet forest communities, in wetlands and tea-tree swamps. Breeds on ridges, hills and foothills of western slopes, Great Dividing Range and eastern coastal regions.</p> <p>Preferred Food: Insects and other invertebrates.</p> <p>Breeding: Breeding season between July and January, between two to three broods in each season. Eggs pale greenish-, bluish- or brownish-white, spotted with brown. Clutch size 1-4.</p> <p>Nest: Open cup made of plant fibres and cobwebs, usually more than 2m above ground. Nests usually on a dead branch in a live tree, or in a dead tree/shrub.</p> <p>Comment: Species unlikely to utilise habitat within the study area, as the study area has been cleared of trees.</p>	Vulnerable		No. Potential habitat unavailable.
<i>Petroica phoenicea</i>	Flame Robin	<p>Region: Near Queensland border to south east South Australia, also in Tasmania. In NSW, breeds in upland areas, and moves to inland slopes and plains in winter. Likely there are two separate NSW populations, one in Northern Tablelands, another ranging from Central to Southern Tablelands.</p> <p>Habitat: Breeds in upland tall moist eucalypt forests and woodlands, open on ridges and</p>	Vulnerable		Yes. See below for assessment.

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Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
		slopes. Prefers clearings and/or open understoreys, with ground layer of native grasses. In winter, birds migrate to drier, more open habitats in the lowlands, including dry forests, open woodlands, and in pastures and native grasslands with or without scattered trees. Preferred Food: Insects and other invertebrates. Breeding: Reproduce in spring to late summer. Clutch size three to four eggs. Nest: Open cup nest, often near ground in sheltered sites such as shallow tree cavities, stumps, banks. Eggs oval in shape, pale bluish- or greenish-white and marked with brownish blotches. Comment: Potential habitat likely to be available within the study area.			
<i>Stagonopleura guttata</i>	Diamond Firetail	Region: Endemic to south-eastern Australia, from central Queensland to South Australia. Widely distributed in NSW. Uncommon along the coast and west of the Darling River. Habitat: Grassy eucalypt woodlands. Often found in riparian areas, sometimes in lightly wooded farmland. Preferred Food: Grass and herb seeds, green leaves, insects. Breeding: Between August and January. Nests are globular structures either in shrubby understorey or higher up (especially under hawk's or raven's nests). Comment: Potential habitat likely to be available within the study area.	Vulnerable		Yes. See below for assessment.
Mammalia					
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Region: Eastern NSW, eastern Victoria, south- and north-eastern Queensland and Tasmania. Habitat: Range of habitats, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from sub-alpine to coastline. Individuals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Preferred Food: Generalist predator with preference for medium-sized (500g-5kg) mammals, including gliders, possums, birds, small wallabies, rats, reptiles, insects. Breeding: Average litter size is 5. Reach sexual maturity at one year of age. Life expectancy in the wild is 3-4 years. Comment: Potential habitat unlikely to be present within the study area as the area as been cleared and disturbed by farming activities.	Vulnerable	Endangered	No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Phascogalea cinerea</i>	Koala	<p>Region: Fragment distribution throughout eastern Australia from north-east Queensland to South Australia. In NSW, mainly occurs on the central and north coasts, and some populations in the west of the Great Dividing Range.</p> <p>Habitat: Eucalypt woodlands and forests.</p> <p>Preferred Food: Foliage of more than 70 eucalypt and 30 non-eucalypt species.</p> <p>Breeding: Females breed at two years of age and produce one young per year.</p> <p>Comment: Potential habitat unlikely to be available due to absence of suitable tree species in study area.</p>	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Petaurus norfolcensis</i>	Squirrel Glider	<p>Region: Species widely though sparsely distributed in eastern Australia, from northern Queensland to Victoria.</p> <p>Habitat: Mature or old growth Box, Box-Ironbark woodlands and River Red Gum forests west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Requires abundant tree hollows for refuge and nest sites.</p> <p>Preferred Food: <i>Acacia</i> gum, eucalypt sap, nectar, honeydew and manna, invertebrates, pollen.</p> <p>Breeding: Den and nest sites are tree hollows insulated with leaves. Females can breed from one year old, and bear 1-2 young between April and November, with up to 2 litters per year.</p> <p>Comment: Potential habitat unlikely to be present due to absence of suitable old-growth trees on site.</p>	Vulnerable		No. Potential habitat unavailable.
<i>Petaurides volans</i>	Greater Glider	<p>Region: The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest), with an elevational range from sea level to 1200 m above sea level.</p> <p>Habitat: The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. The greater glider is considered sensitive to forest clearance and have relatively low persistence in small forest fragments, and disperse poorly across vegetation that is not native forest. Modelling suggests that they require native forest patches of at least 160 km² to maintain viable populations.</p> <p>Preferred Food: Eucalypt leaves and flowers.</p> <p>Breeding: Single young born between March and June.</p>		Vulnerable	No. Potential habitat unavailable.

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Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Macropus dorsalis</i>	Black-striped Wallaby	<p>Comment: Potential habitat unlikely to be present within the study area as the area as been cleared and disturbed by farming activities.</p> <p>Region: From the Townsville area in Queensland to northern NSW where it occurs on both sides of the Great Dividing Range. On the north-west slopes of NSW it occurs in Brigalow remnants to south of Narrabri. Distribution is now patchy due to habitat clearing for agricultural development.</p> <p>Habitat: Dense woody or shrubby vegetation within three metres of the ground. This dense vegetation must occur near a more open, grassy area to provide suitable feeding habitat.</p> <p>Preferred Food: Grasses and forbs.</p> <p>Breeding: Breeds throughout the year. A single young is born after one month gestation, after which it spends the following 6-7 months in the pouch. Sexual maturity reached at 12-18 months.</p> <p>Comment: Potential foraging habitat may occur within the study area.</p>	Endangered		Yes. See below for assessment.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	<p>Region: Found within 200km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, may be found in unusual locations.</p> <p>Habitat: Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps, urban gardens, cultivated fruit crops. Roosting camps generally within 20km of a regular food source. Commonly found in gullies, close to water, in vegetation with a dense canopy.</p> <p>Preferred Food: Nectar, pollen, fruits.</p> <p>Breeding: Mating in January, conception from April to May. A single young is born in October or November.</p> <p>Comment: Potential habitat unlikely to be available as the site has been cleared of trees.</p>	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	<p>Region: The Yellow-bellied Sheath-tail-bat is a wide-ranging species found across northern and eastern Australia. There are scattered records of this species across the New England Tablelands and North West Slopes.</p> <p>Habitat: Forages in most habitats across its very wide Region, with and without trees; appears to defend an aerial territory. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows.</p> <p>Preferred Food: Insects</p>	Vulnerable		Yes. See below for assessment.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	<p>Breeding: Breeding has been recorded from December to mid-March, when a single young is born.</p> <p>Comment: Potential habitat may be available within the study area.</p> <p>Region: Range from Rockhampton in Queensland south to Bungonia in NSW Southern Highlands. Found mainly in areas with extensive cliffs and caves. Generally patchy distribution in NSW.</p> <p>Habitat: Roosts in caves, crevices in cliffs. Frequents low to mid-elevation dry open forest and woodland close to these features. Found in well-timbered areas containing gullies.</p> <p>Preferred Food: Probably small, flying insects.</p> <p>Breeding: Limited information available. Uncertain whether mating occurs early in winter or in spring. Likely to hibernate through the coolest months.</p> <p>Comment: Potential habitat unlikely to be available as the site has been cleared of trees.</p>	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Chalinolobus picatus</i>	Little Pied Bat	<p>Region: Found inland in Queensland and NSW (including Western Plains and slopes), extending slightly into South Australia and Victoria.</p> <p>Habitat: Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress pine forest and mallee and Bimil box woodlands. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. Can tolerate high temperatures and dryness but requires access to nearby water.</p> <p>Preferred Food: Moths and possibly other flying invertebrates.</p> <p>Breeding: Limited information available.</p> <p>Comment: Potential habitat unlikely to be available as the site has been cleared of trees.</p>	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	<p>Region: Occurs along east and north-west coasts of Australia. In NSW, extends west to Narrabri, Dubbo and Wagga Wagga.</p> <p>Habitat: Caves are primary roosting habitats, but also use man-made structures such as derelict mines, storm-water tunnels, buildings. Maternity caves have very specific temperature and humidity regimes. Hunt in forested areas, catching moths and other flying insects above the tree tops.</p> <p>Preferred Food: Moths and other flying insects.</p> <p>Breeding: Limited information available.</p>	Vulnerable	Vulnerable	No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat	<p>Comment: Potential habitat unlikely to be available as the site has been cleared of trees.</p> <p>Region: The distribution of the south-eastern form coincides approximately with the Marry Darling Basin, with the Pilliga Scrub region being the distinct stronghold for this species.</p> <p>Habitat: A variety of vegetation types. More common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices and under loose bark. Slow flying agile bat, utilising the understorey to hunt non-flying prey - especially caterpillars and beetles - and will even hunt on the ground.</p> <p>Preferred Food: Non-flying prey, especially caterpillars and beetles.</p> <p>Breeding: Mating takes place in autumn with one or two young born in late spring to early summer.</p> <p>Comment: Potential habitat unlikely to be available as the site has been cleared of trees.</p>	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	<p>Region: The Greater Broad-nosed Bat is found mainly in the gullies and river systems that drain the Great Dividing Range, from north-eastern Victoria to the Atherton Tableland. It extends to the coast over much of its range. In NSW it is widespread on the New England Tablelands, however does not occur at altitudes above 500 m.</p> <p>Habitat: Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Open woodland habitat and dry open forest suits the direct flight of this species as it forages. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m.</p> <p>Preferred Food: Beetles and other large, slow-flying insects. Has been known to eat other bats.</p> <p>Breeding: Single young born in January.</p> <p>Comment: Potential habitat unlikely to be available as the site has been cleared of trees.</p>	Vulnerable		No. Potential habitat unavailable.
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	<p>Region: Found in a broad band on both sides of the Great Dividing Range from Cape York to Kempsey, with records from the New England Tablelands and the upper north coast NSW. The western limit appears to be the Warrumbungle Range.</p>	Vulnerable		No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
		<p>Habitat: Usually found in dry open forest and woodland, near cliffs or rocky overhangs. Has been recorded in disused mines. Occasionally found along diff-lines in wet eucalypt forest and rainforest.</p> <p>Preferred Food: Limited information available.</p> <p>Breeding: Limited information available.</p> <p>Comment: Potential habitat unlikely to be available as the site has been cleared of trees.</p>			
Flora					
<i>Tylophora linearis</i>		<p>Region: Majority of records occur in the central western region. Records from Goonoo, Pillaga West, Pillaga East, Bibblewindi, Cumbil and Eura State Forests, Coolbaggie NR, Goobang NP and Beni SCA.</p> <p>Habitat: Grows in dry scrub and open forest. Recorded from low altitude sedimentary flats in dry woodlands of <i>Eucalyptus fibrosa</i>, <i>Eucalyptus sideroxylon</i>, <i>Eucalyptus albens</i>, <i>Callitris endlicheri</i>, <i>Callitris glaucophylla</i> and <i>Allocasuarina luehmianii</i>. Also grows in association with <i>Acacia hakeoides</i>, <i>Acacia lineata</i>, <i>Melaleuca uncinata</i>, <i>Myoporum</i> species and <i>Casuarina</i> species.</p> <p>Flowering: Flowers in spring, with flowers recorded in November or May with fruiting probably 2 to 3 months later.</p> <p>Comment: Potential habitat unlikely to be available due to absence of associated tree species.</p>	Vulnerable	Endangered	No. Potential habitat unavailable.
<i>Picris evae</i>	Hawkweed	<p>Region: Known in NSW north from the Inverell area, in the north-western slopes and plains regions. It has been collected from Elsmore and Myall Creek (both near Inverell) as well as in Inverell, Oxley Park (Tamworth) and also from Dangar Falls in the Oxley Wild Rivers National Park in the northern tablelands of NSW. The species also occurs in the Darling Downs and Moreton regions of south-eastern Queensland.</p> <p>Habitat: Its main habitat is open Eucalypt forest including a canopy of <i>Eucalyptus melliodora</i>, <i>E. crebra</i>, <i>E. populnea</i>, <i>E. albens</i>, <i>Angophora subvelutina</i>, <i>Allocasuarina torulosa</i>, and/or <i>Casuarina cunninghamiana</i> with a <i>Dichanthium</i> grassy understorey. All recent collections appear to come from modified habitats such as weedy roadside vegetation and paddocks. Soils are black, dark grey or red-brown (specified as shallow, stony soil over basalt for one collection) and reddish clay-loam or medium clay soils.</p> <p>Flowering: October to January, potentially as late as May.</p>	Vulnerable	Vulnerable	Yes. See below for assessment.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Acalypha eremorum</i>	Acalypha	Comment: Potential habitat may be present, as the species is capable of growing in disturbed paddock habitats on clay soils. Region: Though widespread and moderately common in south-east Queensland, in NSW it occurs in only a few localities, including the Chaelundi, Lismore and Burringbar areas. Habitat: Subtropical rainforest, dry rainforest and vine thickets. Flowering: Limited information available. Comment: Potential habitat not present within the study area.	Endangered		Not. Potential habitat unavailable.
<i>Acacia atrox</i>	Myall Creek Wattle	Region: Myall Creek Wattle is known from two populations near Delungra and Gurley. Each population occupies less than 10 hectares. Individuals on Kirramingly Nature Reserve have been described as a separate subspecies <i>Acacia atrox</i> subsp. <i>planiticola</i> . Habitat: Myall Creek Wattle grows in deep clay soils on basalt on the upper slope and crest of a low hill. The type subsp. occurs in a partly cleared paddock in box woodland with a native grassy understorey. <i>A. planiticola</i> exists on a plain of basalt-derived cracking clay loam. Flowering: Sporadic flowering throughout the year. Comment: Site inspection did not identify this species within the study area. Therefore, this species will not be impacted by the proposed development.	Endangered		No. Species not identified during site visit.
<i>Commersonia procumbens</i>		Region: Endemic to NSW, mainly confined to the Dubbo-Mendooran-Gilgandra region, but also in the Pilliga and Nymagee areas. Habitat: Sandy sites. Often a pioneer of disturbed sites, including roadsides, edges of quarries and recently cleared easements under power lines. Also found in Eucalypt woodlands. Flowering: August to December, with fruiting from summer to autumn. Comment: Potential habitat unlikely to be present as the study area is dominated by clay soils.	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Eucalyptus mckieana</i>	McKie's Stringybark	Region: Confined to the drier western side of the New England Tablelands of NSW, from Torrington to Bendemeer. Most populations occur on private property, but it does occur in Kings Plain National Park, Torrington State Conservation Area and Severn River Nature Reserve. Habitat: <i>Eucalyptus mckieana</i> is found in grassy open forest or woodland on poor sandy loams, most commonly on gently sloping or flat sites. Associated species at Northern Tablelands sites include <i>Angophora floribunda</i> , <i>Eucalyptus amplifolia</i> , <i>Eucalyptus</i>	Vulnerable	Vulnerable	No. Species not identified during site visit.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
		<i>andrewsii</i> , <i>Eucalyptus bridgesiana</i> , <i>Eucalyptus youmanii</i> , <i>Eucalyptus nicholii</i> , <i>Eucalyptus blakelyi</i> and <i>Eucalyptus conica</i> , and at North Western Slopes sites <i>Eucalyptus andrewsii</i> , <i>Eucalyptus stannicola</i> , <i>Eucalyptus prava</i> and <i>Angophora floribunda</i> . <i>Mickie's</i> Stringybark is locally abundant, forming in places a moderately dense forest in association with other local trees. Flowering: March to May. Comment: Site inspection did not identify this species within the study area. Therefore, this species will not be impacted by the proposed development.			
<i>Homoranthus prolixus</i>	Granite Homoranthus	Region: Occurs in scattered locations between Inverell and Manilla. This species is conserved in Ironbark Nature Reserve, Gwydir River National Park and Tingha Plateau and Goonowigal State Conservation Areas west of Guyra. Habitat: Heath patches in skeletal soil among crevices of granite outcrops. Flowering: October to November. Comment: Potential habitat is not available for this species within the study area due to absence of suitable granite outcrops and associated heath patches.	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Dichanthium setosum</i>	Bluegrass	Region: New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, extending to northern Queensland. It occurs widely on private property, including in the Inverell, Guyra, Armidale and Glen Innes areas. Habitat: Associated with heavy basaltic black soils and red-brown loams with clay subsoils. Found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. Flowering: Mostly in summer. Comment: Potential habitat likely to be present within the study area.	Vulnerable	Vulnerable	Yes. See below for assessment.
<i>Digitaria porrecta</i>	Finger Panic Grass	Region: In NSW, occurs on the North West Slopes and Plains, from near Moree south to Tambar Springs and from Tamworth to Coonabarabran. Habitat: Native grassland, woodlands or open forest with a grassy understorey, on richer clay soils. Also occurs in sites disturbed by road and farm machinery and grazing. Flowering: Mid-January to late February, with seeds maturing soon afterwards. Comment: Potential habitat likely to be present within the study area.	Endangered		Yes. See below for assessment.
<i>Homopholis belsonii</i>	Belson's Panic	Region: It occurs on the northwest slopes and plains of NSW, mostly between Wee Waa, Goondiwindi and Glen Innes. It also occurs in Queensland, mainly in the Brigalow Belt South bioregion. Habitat: Ecology poorly known, so key habitat features are uncertain. Occurs in dry	Endangered	Vulnerable	No. Potential habitat unavailable.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Polygala linariifolia</i>	Native Milkwort	woodland, often on poor soils, but has also been found in basalt-enriched soils and in alluvial days. Species appears to be shade-dependent. Flowering: Summer. Comment: Habitat unlikely to be present on site for this species, as the site has been cleared of trees yet the species is shade-dependent. Region: North from Copeton Dam and the Warialda area to southern Queensland; also found on the NSW north coast near Casino and Kyogle, and there is an isolated population in far western NSW near Weebah Gate, west of Hungerford. This species also occurs in Western Australia. Habitat: Sandy soils in dry eucalypt forest and woodland with a sparse understorey. In Inverell and Torrington districts, found on dark sandy loam on granite in shrubby forest, and in yellow podsolc soil on granite in layered open forest. In Pilliga area, found in Fuzzy Box woodland, White Cypress Pine-Bulloak - Ironbark woodland, Rough-barked Apple riparian forb-grass open forest, and Ironbark - Brown Bloodwood shrubby woodland. Flowering: Spring to summer. Comment: Potential habitat unlikely to be present within the study area due to an absence of sandy/loam soils.	Endangered		No. Potential habitat unavailable.
<i>Boronia ruppii</i>	Rupp's Boronia	Region: Restricted to Woodsreef, east of Barraba where it occurs on serpentine geology. In the past, this species was considered to occur more widely in the Hunter Valley, but these records are now recognised as a separate species - <i>Boronia rubiginosa</i> . Habitat: Rupp's Boronia grows in dry eucalypt woodland on soils derived from serpentinite rock. Flowering: July to November. Comment: Potential habitat absence within the study area due to absence of serpentinite soils.	Endangered		No. Potential habitat unavailable.
<i>Phebalium glandulosum</i> subsp. <i>eglandulosum</i>	Rusty Desert Phebalium	Region: Found in the Torrington district and in Severn River Nature Reserve north-west of Glen Innes, on the New England Tablelands. Also occurs in Queensland. Closely related subspecies of Desert Phebalium occur from Queensland to Victoria and South Australia. Habitat: Restricted to granite outcrop country on the New England Tablelands. Favours exposed and heathy granite areas with cracks and depressions of skeletal sandy soil located amongst the boulders. Sites tend to be relatively open, with the shrubs forming	Endangered	Vulnerable	No. Potential habitat unavailable.

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Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
		a spreading habit over the bare rocks. Associated species at sites include <i>Acacia fimbriata</i> , <i>Acacia latiseptala</i> , <i>Leptospermum polygalifolium</i> , <i>Kunzea obovata</i> , <i>Brachyoloma daphnoides</i> , <i>Calytrix tetragona</i> , <i>Micromyrtus ciliatus</i> , <i>Micromyrtus sessilis</i> , <i>Prostanthera staurophylla</i> and <i>Prostanthera teretifolia</i> . Flowering: Flowers in spring, with fruiting occurring in spring/summer. Comment: Potential habitat absent within the study area due to absence of granite outcrops.			
<i>Thesium australe</i>	Austral Toadflax	Region: Austral Toadflax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. It is also found in Tasmania and Queensland and in eastern Asia. Habitat: Grassland on coastal headlands, or grassland and grassy woodland away from the coast. Occurs on a range of soils. Associated with Kangaroo Grass. Flowering: Spring and summer. Comment: Potential habitat absent due to absence of Kangaroo Grass on site.	Vulnerable	Vulnerable	No. Potential habitat unavailable.
<i>Dodonaea stenophylla</i>		Region: <i>Dodonaea stenophylla</i> is currently found in south-west Queensland, and the Northern Territory. It is considered extinct in NSW. Habitat: Shrubby woodland, generally on sandy loamy soils. Flowering: Limited information available. Comment: Potential habitat not available as the study area is characterised by clay soils and has been cleared of trees.	Presumed Extinct		No. Potential habitat unavailable.
<i>Cadellia pentastylis</i>	Ooline	Region: Occurs along the western edge of the North West Slopes from north of Gunnedah to west of Tenterfield. Also occurs in Queensland. The natural range of Ooline is from 24°S to 30°S in the 500 to 750 mm per annum rainfall belt. Habitat: Low to medium nutrient soils of sandy clay or clay consistencies. Typical soil profile has sandy loam topsoil, grading to light then medium clay with depth. Forms a closed or open canopy, mixing with eucalypt and pine species. Flowering: October to January. Comment: Site inspection did not identify this species within the study area. Therefore, this species will not be impacted by the proposed development.	Vulnerable	Vulnerable	No. Species not identified during site visit.
Endangered Ecological Communities					
Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains Bioregions		Description: The Brigalow community is a low woodland or forest community dominated by Brigalow (<i>Acacia harpophylla</i>), with pockets of Belah (<i>Casuarina cristata</i>)	Endangered Ecological Community	Endangered	No. Community not

17-144 'Clevecourt' Feedlot					
NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Cadellia pentastylis</i> (Ooline) community in the Mandewar and Brigalow Belt South Bioregions		and Poplar Box (<i>Eucalyptus populnea</i> subsp. <i>binbil</i>). The canopy tends to be quite dense and the understorey and ground cover are only sparse. Distribution: Scattered remnants on the North West Slopes and Plains and Darling River Plains in NSW; also in Queensland. Usually occurs on heavy clay soils. Habitat and Ecology: This community has been extensively cleared for agriculture, with most surviving remnants along roadsides and paddock edges. It provides important habitat for rare native wildlife such as the Black-striped Wallaby. Comment: Community not present within the study area during site inspection. Description: The Ooline community is an unusual and distinctive forest community with the canopy dominated by the tree Ooline (<i>Cadellia pentastylis</i>). Other canopy species include White Box (<i>Eucalyptus albens</i>), Ironbarks (<i>E. beyeriana</i> and <i>E. melanophloia</i>), Dirty Gum (<i>E. chloroclada</i>), Narrow-leaved Grey Box (<i>E. pilligaensis</i>), Green Mallee (<i>E. viridis</i>) and White Cypress Pine (<i>Callitris glaucochylla</i>). The understorey is made up of a range of shrubs, such as Wattles (<i>Acacia</i> spp.), and grasses. Distribution: Extensively cleared and now known from only seven main locations on the North West Slopes in NSW, between Narrabri and the Queensland border, and also in Queensland. Habitat and Ecology: Usually occurs on undulating terrain on a variety of soil types, between 300-450 m altitude. Comment: Community not present within the study area during site inspection.			present within study area.
Carbeen Open Forest Community in the Darling Riverine Plains and Brigalow Belt South Bioregions		Description: This was previously an open forest community of flora and fauna that may now exist as woodland or as remnant trees. Characteristic tree species are Carbeen (<i>Corymbia tessellaris</i>) and White Cypress Pine (<i>Callitris glaucochylla</i>). Associated trees include <i>Corymbia dolichocarpa</i> , <i>Eucalyptus populnea</i> , <i>E. camaldulensis</i> , <i>Casuarina cristata</i> and <i>Allocasuarina leuhmannii</i> . Distribution: Carbeen Open Forest Community is a distinctive plant community on the riverine plains of the Meehi, Gwydir, Macintyre and Barwon Rivers and in small remnants farther south. Habitat and Ecology: Occurs on siliceous sands, earthy sands and clayey sands. It is found on flats and gentle rises of alluvial or aeolian sandy soils derived from ancient watercourses (it also occurs on some clay alluvial soils but is mostly restricted to well-drained sandy sites). These rises or lenses are remnants of prior streams and are often distant from existing rivers. The structure of the community was previously open forest,	Endangered Ecological Community		No. Community not present within study area.
			Endangered Ecological Community		No. Community not present within study area.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
		but extensive clearing and grazing disturbances have reduced it to a mid-high or tall woodland of isolated remnant stands. Comment: Community not present within the study area during site inspection.			
<i>Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobarr Peninsular, Nandewar and Brigalow Belt South Bioregions</i>		<p>Description: Inland Grey Box Woodland includes those woodlands in which the most characteristic tree species, <i>Eucalyptus microcarpa</i> (Inland Grey Box), is often found in association with <i>E. populnea</i> subsp. <i>bimbi</i> (Bimble or Poplar Box), <i>Callitris glaucochylla</i> (White Cypress Pine), <i>Brachychiton populneus</i> (Kurralong), <i>Allocasuarina lehmannii</i> (Bullock) or <i>E. melliodora</i> (Yellow Box), and sometimes with <i>E. albens</i> (White Box). Shrubs are typically sparse or absent, although this component can be diverse and may be locally common, especially in drier western portions of the community. A variable ground layer of grass and herbaceous species is present at most sites. At severely disturbed sites the ground layer may be absent. The community generally occurs as an open woodland 15–25 m tall but in some locations the overstorey may be absent as a result of past clearing or thinning, leaving only an understorey.</p> <p>Distribution: Inland Grey Box Woodland occurs predominately within the Riverina and South West Slopes regions of NSW down to the Victorian border. It includes Albury to the east and may extend out west towards Hay. This community also extends across the slopes and plains in Central and Northern NSW up to the Queensland Border. This includes Yetman and Inverell in the North, Molong to the east of the Central Slopes and plains and out towards Nymagee to the west.</p> <p>Habitat and Ecology: Inland Grey Box Woodland occurs on fertile soils of the western slopes and plains of NSW. The community generally occurs where average rainfall is 375–800 mm pa and the mean maximum annual temperature is 22–26°C. There is a correlation between the distribution of <i>Eucalyptus microcarpa</i> communities and soils of Tertiary and Quaternary alluvial origin, largely corresponding with the Red Brown Earths. The majority of remnant patches of Inland Grey Box Woodland survive with trees largely intact but with the shrub or ground layers degraded to varying degrees through grazing or pasture modification. Some species that are part of the community appear intolerant to heavy grazing by domestic stock and are confined to the least disturbed remnants.</p> <p>Comment: Community not present within the study area during site inspection.</p>	Endangered Ecological Community	Endangered	No. Community not present within study area.

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NSW Threatened Species Assessment					
Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
<i>Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions</i>		<p>Description: A low, dense form of dry rainforest generally less than 10 m high, made up of vines and rainforest trees as well as some shrubs. This community often stands out as a bright green against surrounding woodland due to many species having bright-coloured leaves. The main canopy is dominated by rainforest species such as Red Olive Plum (<i>Cassine australis</i> var. <i>angustifolia</i>), Wilga (<i>Geijera parvifolia</i>) Native Olive (<i>Notelaea microcarpa</i> var. <i>microcarpa</i>) and Peach Bush (<i>Ehretia membranifolia</i>), with taller eucalypts and cypress pines surrounding woodland vegetation emerging above the main canopy. Currant Bush (<i>Carissa ovata</i>) is often present and typical vines include Gargaloo (<i>Parsonsia eucalyptophylla</i>) and Wonga Vine (<i>Pandorea pandorana</i>).</p> <p>Distribution: A scattered distribution near Gunnedah, Barraba, Bingara and north of Warialda on the NSW North West Slopes and Plains, and also in Queensland.</p> <p>Habitat and Ecology: This community often occurs on rocky hills, in deep, loam, high nutrient soils derived from basalt or other volcanic rocks, in areas which are sheltered from frequent fire.</p> <p>Comment: Community not present within the study area during site inspection.</p>	Endangered Ecological Community	Endangered	No. Community not present within study area.
<i>White Box Yellow Box Blakely's Red Gum Woodland</i>		<p>Description: An open woodland community (sometimes occurring as a forest formation). Commonly co-occurring eucalypts include Apple Box (<i>E. bridgesiana</i>), Red Box (<i>E. polyanthemosa</i>), Candlebark (<i>E. rubida</i>), Snow Gum (<i>E. pauciflora</i>), Argyle Apple (<i>E. cinerea</i>), Brittle Gum (<i>E. mannifera</i>), Red Stringybark (<i>E. macrorhyncha</i>), Grey Box (<i>E. microcarpa</i>), Cabbage Gum (<i>E. amplifolia</i>) and others. The understorey in intact sites is characterised by native grasses and a high diversity of herbs: the most commonly encountered include Kangaroo Grass (<i>Themeda australis</i>), Poa Tussock (<i>Poa sieberiana</i>), wallaby grasses (<i>Austrodanthonia</i> spp.), spear-grasses (<i>Austrostipa</i> spp.), Common Everlasting (<i>Chrysopsis apiculatum</i>), Scrambled Eggs (<i>Goodenia pinnatifida</i>), Small St John's Wort (<i>Hypericum gramineum</i>), Narrow-leaved New Holland Daisy (<i>Vittadinia muelleri</i>) and blue-bells (<i>Wahlenbergia</i> spp.).</p> <p>Distribution: Box-Gum Woodland is found from the Queensland border in the north, to the Victorian border in the south. It occurs in the tablelands and western slopes of NSW. Remnants generally occur on fertile lower parts of the landscape where resources such as water and nutrients are abundant.</p> <p>Habitat and Ecology: Sites that retain only a grassy groundlayer and with few or no trees remaining are important for rehabilitation, and to rebuild connections between sites of better quality. The Australian Government listing of White Box-Yellow Box-</p>	Endangered Ecological Community	Critically Endangered	No. Community not present within study area.

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Scientific Name	Common Name	Habitat	TSC Act Legal Status	EPBC Act Legal Status	Assessment of Significance
		<p>Blakely's Red Gum Grassy Woodland and Derived Native Grassland is slightly different to the NSW listing. Areas that are part of the Australian Government listed ecological community must have either:</p> <ul style="list-style-type: none">• An intact tree layer and predominately native ground layer; or• An intact native ground layer with a high diversity of native plant species but no remaining tree layer. <p>Comment: Community not present within the study area during site inspection.</p>			

SMK
CONSULTANTS

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Chairman

Section 5A Assessment – The 7 Parameter Test

The seven (7) part test as required under section 5A of the EP&A Act has been applied to determine whether there is likely to be a significant effect on the threatened species recorded at or likely to occur at the site. Interpretations of the factors of assessment and definitions of specific terminology used in this assessment are consistent with the NSW "Threatened Species Assessment Guidelines – The Assessment of Significance" (DECC 2007).

The following species will be considered in the Assessment of Significance (Table 3).

Table 3: Threatened Species to be Considered in the Assessment of Significance

Scientific Name	Common Name	TSC Act Legal Status	EPBC Act Legal Status
<i>Uvidicolus sphyrurus</i>	Border Thick-tailed Gecko	Vulnerable	Vulnerable
<i>Circus assimilis</i>	Spotted Harrier	Vulnerable	
<i>Hieraetus morphnoides</i>	Little Eagle	Vulnerable	
<i>Falco subniger</i>	Black Falcon	Vulnerable	
<i>Neophema pulchella</i>	Turquoise Parrot	Vulnerable	
<i>Ninox connivens</i>	Barking Owl	Vulnerable	
<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable	
<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	Vulnerable	
<i>Petroica phoenicea</i>	Flame Robin	Vulnerable	
<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable	
<i>Macropus dorsalis</i>	Black-striped Wallaby	Endangered	
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	Vulnerable	
<i>Picris evae</i>	Hawkweed	Vulnerable	Vulnerable
<i>Dichanthium setosum</i>	Bluegrass	Vulnerable	Vulnerable
<i>Digitaria porrecta</i>	Finger Panic Grass	Endangered	

The following factors are to be taken into consideration in deciding 'significance' in the context of whether the development is likely to significantly affect a threatened species or population, or its habitat.

- a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life-cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

In its current state, the subject site does not constitute important habitat for any identified threatened fauna species, yet may serve as foraging habitat for some. Three flora species have the potential to be present within the study area, although it should be noted that these species were not observed during site inspection.

The total area to be impacted by the feedlot development is expected to be less than one hectare. The scale of the development and extent of impacted area is therefore considered small and in a highly disturbed state as the majority of this area is utilised as a holding pen for cattle. The pen floor is bare of native vegetation.

The manure and effluent utilisation area covers 43 hectares of land, which is currently used for crop production and as such fertilisers are regularly applied to this area as part of ongoing farm

management. Application of manure and effluent to this site is therefore not considered to degrade the land as such application is consistent with current, ongoing farm management practices.

The region surrounding the proposed development site is characterised by pastures and cropland, interspersed with regions of regrowth and remnant vegetation. Extensive regions of remnant vegetation, including Warialda National Park, are located to the east of the study area. Such vegetation is likely to serve as significant remnant vegetation for a variety of threatened species, and is considered to be the preferred habitat for threatened species over the study area. The proposed development will not impact upon this habitat.

The proposed development is therefore not considered to pose a risk to identified threatened species as the area of disturbance is small, and the region to be disturbed is not considered to be significant refuge habitat within the region.

- b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that the viable local population of the species is likely to be placed at risk of extinction,**

No endangered populations were identified within the study area.

- c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:**

- i. Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction,
- ii. Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

No endangered or critically endangered ecological communities were identified within the study area.

- d) In relation to the habitat of a threatened species, population or ecological community:**

- i. The extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The proposed development involves the conversion of an existing cattle holding pen and a small area of modified pasture to be used for feedlot infrastructure. The pasture is considered as low habitat value to identified threatened species. No trees are to be removed for this development.

- ii. Whether the area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The proposed development does not involve land clearing. Therefore, the proposal will not result in habitat fragmentation.

- iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community,

The cultivated land to be modified by the proposed development is of low habitat value, and is therefore not considered to be important with regard to the long-term survival of identified species.

- e) Whether the proposed action is likely to have an adverse effect on critical habitat (either directly or indirectly),**

No critical habitat has been declared for the area.

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

Recovery plans exist for the following species under consideration:

- NSW Recovery Plan for Large Forest Owls: Powerful Owl (*Ninox strenua*), Sooty Owl (*Tyto tenebricosa*) and Masked Owl (*Tyto novaehollandiae*).
- Draft Recovery Plan for the Barking Owl *Ninox connivens*

The objectives of these recovery plans generally involve the protection and enhancement of existing habitat, by preventing clearing and adverse modification of native vegetation communities and aquatic habitats. The proposed development is not expected to adversely impact habitat quality beyond the study area, as it involves no land clearing, will not result in pollutant discharge, and only intends to utilise water within pre-existing water licences. Therefore, the development is not considered to pose a risk to these species.

Five threat abatement plans relevant to the proposed development area have been identified:

- NSW Fox Threat Abatement Plan
- National Threat Abatement Plan for Predation by the European Red Fox
- Threat Abatement Plan for Competition and Land Degradation by Rabbits
- Threat Abatement Plan for Competition and Land Degradation by Unmanaged Goats
- Threat Abatement Plan for Predation by Feral Cats

These threat abatement plans highlight maintenance of habitat values, minimisation of habitat fragmentation, pest control programs and ongoing research as key elements to minimise each threat. The proposed development is unlikely to degrade habitat quality beyond the study area, will not result in habitat fragmentation, and is not relevant to pest control and research programs. Therefore, the proposed development is considered consistent with threat abatement plans.

g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process,

The action proposed does not constitute nor is it part of a key threatening process, nor is it likely to result in the operation of, or increase the impact of, a key threatening process.

Seven Parameter Test Conclusions

The subject site at 'Clevecourt' is a cleared and disturbed habitat, utilised for grazing and crop production. The study area is considered to provide potential habitat for:

- 12 threatened fauna species
- 3 threatened flora species

The above assessment was conducted under the provisions of Section 5A of the EP&A Act and determined that the proposal would not have a significant impact on any listed threatened species their habitat and as such a Species Impact Statement is not required.

Prepared by:

Natasha Livingstone

Natasha Livingstone BSc Hons.
Environment and Resource Consultant

References

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Website: <http://www.bionet.nsw.gov.au/>

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Appendix 4 – Matters of National Significance
Assessment

EPBC Protected Matters Assessment

Matters of National Environmental Significance

The *Environment and Biodiversity Conservation Act 1999* requires consideration of the effect of an action on the following 7 Matters of National Environmental Significance (MNES):

- World Heritage Properties
- National Heritage Places
- Ramsar wetlands of international importance
- Nationally threatened species and communities
- Migratory species protected under international agreements
- Nuclear actions, including uranium mining, and
- The Commonwealth marine environment.

The impact of an action on these matters is assessed under the criteria specified in: Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (DoE 2013).

Consideration of EPBC Matters

A search of the proposed 'Clevecourt' Feedlot site was undertaken using the EPBC Protected Matters Search Tool (PMST) (DoEE 2017) to generate a list of World Heritage Properties, National Heritage Places, Ramsar wetlands and nationally threatened species, communities and migratory species protected under international agreements that may occur on or within the region surrounding the proposed development (Figure 1).

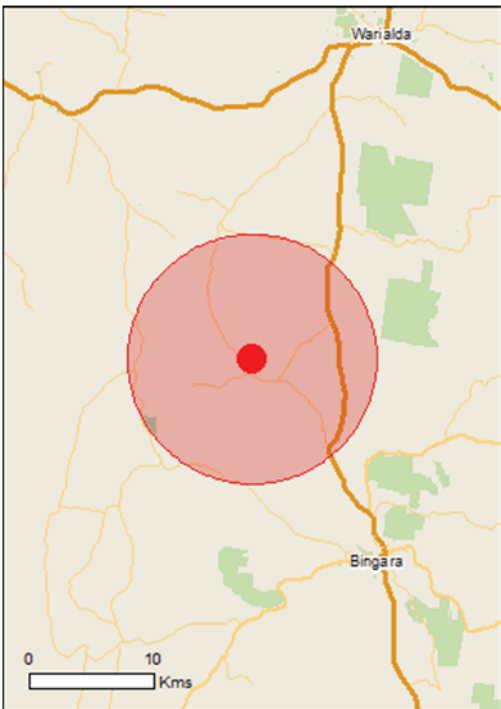


Figure 1: Region searched for MNES using the EPBC PMST.

Results of Database Search

The EPBC PMST does not list any World Heritage Properties or National Heritage Places on or within the search area. Additionally, the PMST identified no wetlands downstream of the subject site; therefore, the proposal is not considered to impact on these matters. Further, the proposal does not involve nuclear actions or impact on the marine environment; consequently, these matters are also not relevant to this assessment.

Nationally threatened species and communities and migratory species protected under international agreements have been initially defined within the search area outlined in Figure 1 using the PMST. Only those species and/or communities, either known to occur, or predicted to occur on the project area, are considered under the *Significant Impact Guidelines*. These species and communities are listed in Tables 1 and 2.

In preparation of this report, only threatened ecological communities identified as present on the impact area during site inspection will be considered. No threatened ecological communities were identified as present, and therefore have not included as part of this assessment.

Table 1: Threatened flora and fauna species predicted or known to occur on the proposal area

Category	Scientific Name	Common Name	Legal Status
Birds	<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered
	<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered; Listed Migratory (Bonn, CAMBA, JAMBA, ROKAMBA); Listed Marine
	<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable
	<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	Vulnerable
	<i>Grantiella picta</i>	Painted Honeyeater	Vulnerable
	<i>Rostratula australis</i>	Australian Painted Snipe	Listed Endangered as <i>Rostratula australis</i> ; Listed marine as <i>Rostratula benghalensis</i> (sensu lato)
Fish	<i>Maccullochella peelii</i>	Murray Cod	Vulnerable
Mammals	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat, Large Pied Bat	Vulnerable
	<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat, South-eastern Long-eared Bat	Vulnerable
	<i>Petauroides volans</i>	Greater Glider	Vulnerable
	<i>Phascogalea cinerea</i> (combined populations of NSW, QLD & ACT)	Koala (combined populations of NSW, QLD & ACT)	Vulnerable
	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable
Reptiles	<i>Anomalopus mackayi</i>	Five-clawed Worm-skink, Long-legged Worm-skink	Vulnerable
	<i>Uvidicolus sphyrurus</i>	Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko	Vulnerable
	<i>Wollumbinia belli</i>	Bell's Turtle, Western Sawshelled Turtle, Namoi River Turtle, Bell's Saw-shelled Turtle	Vulnerable
Plants	<i>Cadellia pentastylis</i>	Ooline	Vulnerable
	<i>Dichanthium setosum</i>	Bluegrass	Vulnerable
	<i>Homopholis belsonii</i>	Belson's Panic	Vulnerable
	<i>Thesium australe</i>	Austral Toadflax, Toadflax	Vulnerable

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EPBC Protected Matters Assessment

Category	Scientific Name	Common Name	Legal Status
	<i>Tylophora linearis</i>		Endangered

CAMBA = China Australia Migratory Bird Agreement; JAMBA = Japan Australia Migratory Bird Agreement; ROKAMBA = Republic of Korea Australia Migratory Bird Agreement; Bonn = Convention on the Conservation of Migratory Species of Wild Animals

Table 2: Migratory species predicted to occur on the proposal area

Category	Scientific Name	Common Name	Legal Status
Migratory Marine Birds	<i>Apus pacificus</i>	Fork-Tailed Swift	Listed Migratory (CAMBA, JAMBA, ROKAMBA); Listed Marine
Migratory Terrestrial Species	<i>Hirundapus caudacutus</i>	White-throated Needletail	Listed Migratory (CAMBA, JAMBA); Listed Marine as <i>Hirundapus caudacutus</i> Listed Migratory (ROKAMBA) as <i>Chaetura caudacuta</i>
	<i>Motacilla flava</i>	Yellow Wagtail	Listed Migratory (CAMBA, JAMBA, ROKAMBA); Listed Marine
	<i>Myiagra cyanoaleuca</i>	Satin Flycatcher	Listed Migratory (Bonn); Listed Marine
	<i>Rhipidura rufifrons</i>	Rufous Fantail	Listed Migratory (Bonn); Listed Marine
Migratory Wetland Species	<i>Actitis hypoleucos</i>	Common Sandpiper	Listed Migratory (Bonn, CAMBA, JAMBA); Listed Marine as <i>Actitis hypoleucos</i> Listed Migratory (ROKAMBA) as <i>Tringa hypoleucos</i>
	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Listed Migratory (Bonn, CAMBA, JAMBA, ROKAMBA); Listed Marine
	<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered; Listed Migratory (Bonn, CAMBA, JAMBA, ROKAMBA); Listed Marine
	<i>Calidris melanotos</i>	Pectoral Sandpiper	Listed Migratory (Bonn, JAMBA, ROKAMBA); Listed Marine
	<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	Listed Migratory (Bonn, JAMBA, ROKAMBA); Listed Marine
	<i>Pandion haliaetus</i>	Osprey	Listed Migratory (Bonn); Listed Marine

CAMBA = China Australia Migratory Bird Agreement; JAMBA = Japan Australia Migratory Bird Agreement; ROKAMBA = Republic of Korea Australia Migratory Bird Agreement; Bonn = Convention on the Conservation of Migratory Species of Wild Animals

Assessment of Significance

Vulnerable Species

An action has, or will have, or is likely to have a significant impact on a vulnerable species if it does, will or is likely to:

- **Lead to a long-term decrease in the size of an important population of species**

The study area consists of cropland (used for growing hay) and pasture, which has been extensively cleared and grazed by cattle. The cropland has been cultivated and cleared of all native vegetation, and is regularly managed to control weed presence. The pasture supports a mixture of native and invasive grass, herb and forb species commonly found in pastures throughout the region. Some regrowth trees occur throughout the wider region (including iron bark, white box and pine trees), which are regularly managed as part of routine farm operations and are not considered to provide

significant habitat to native species (such as tree hollows). It should be noted that vulnerable plant species identified by the PMST were not observed during site inspection.

In its current state, the subject site does not constitute important habitat for identified species. The region surrounding the proposed development site is disturbed by agricultural activities. Extensive regions of remnant vegetation, including Warialda National Park, are located to the east of the study area. Such vegetation, in addition to water-based habitat within the riparian zone of the Gwydir River, is likely to serve as significant remnant vegetation for a variety of threatened species, and is considered to be the preferred habitat for vulnerable species over the study area. The proposed development will not impact upon this habitat.

The total area to be impacted by the feedlot development is expected to be less than one hectare. The scale of the development and extent of impacted area is therefore considered to be small.

The manure and effluent utilisation area covers 43 hectares of land, which is currently used for crop production and as such fertilisers are regularly applied to this area as part of ongoing farm management. Application of manure and effluent to this site is therefore not considered to degrade the land as such application is consistent with current, ongoing farm management practices.

Therefore, the development is not considered to negatively impact upon habitat which is likely to be utilised by the identified species. The proposal will therefore not lead to a decrease in the size of a population of the identified species.

- ***Reduce the area of occupancy of an important population***

The habitat of the subject site is unlikely to be utilised by identified species. Modification of the site as a result of the proposed development is therefore unlikely to reduce the occupancy of identified species.

- ***Fragment an existing important population into two or more populations***

No land clearing is to occur as part of the development proposal. Areas of remnant and riparian vegetation within the wider region will not be disturbed during the development of the storage.

- ***Adversely affect habitat critical to the survival of a species***

The proposed storage construction is not in an area identified as critical habitat for any of the listed species.

- ***Disrupt the breeding cycle of an important population***

The proposal is unlikely to disrupt the breeding cycle of any individuals which constitute an important population, as the habitat values of the subject site are considered to be marginal. Species are more likely to utilise either remnant or riparian/water-based habitat in the vicinity of the proposed development, rather than the development site itself. Modification of the development site is therefore highly unlikely to impact breeding cycles.

- ***Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline***

Whilst some modification of potential habitat may occur as a result of the proposed development, this modification will occur on a small scale (the footprint of the feedlot is expected to cover less than one hectare). Further, the habitat values of the subject site are considered to be moderate as a result of agricultural practices including historic clearing activities and ongoing grazing. Species are more likely to utilise either remnant or riparian/water-based habitat in the vicinity of the proposed development, rather than the development site itself.

Therefore, modification of habitat on site is unlikely to result in the decline of any identified species.

- ***Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat***

Runoff from the feedlot has the potential to lead to changes in soil chemistry, soil hydrology and soil biota. Changes in nutrient availability and hydrological processes can lead to a decline in native species diversity and/or abundance and can favour the establishment of introduced species.

A series of mitigating strategies will be implemented to minimise the risk of indirect off-site impacts, including:

- A diversion bank is installed directing clean water around the Feedlot;
- The controlled drainage area is designed and constructed in accordance with the recommendations included in the Statement of Environmental Effects and the National Guidelines.
- The feedlot is located on a surface with low permeability (such as heavy clay soils) to minimise the risk of groundwater contamination.

These mitigating measures are considered to be sufficient to minimise the risk of the feedlot resulting in the spread of invasive species.

- ***Introduce disease that may cause the species to decline, or***

The risk of introducing diseases into remnant habitat within the project area results from the potential export of contaminants from the feedlot site in the surface runoff and/or leakage into groundwater. It is considered that, providing appropriate mitigation measures are implemented, the proposed development will not introduce disease that may cause any vulnerable species to decline.

- ***Interfere substantially with the recovery of the species***

Ensuring the recovery of a species generally involves the protection and enhancement of existing populations and habitat, by preventing further clearing and modification of native vegetation communities and protecting water quality values. As discussed previously, existing populations and habitat for flora and fauna will be maintained by ensuring:

- A diversion bank is installed directing clean water around the Feedlot;
- The controlled drainage area is designed and constructed in accordance with the recommendations included in the Statement of Environmental Effects and the National Guidelines.

- The feedlot is located on a surface with low permeability (such as heavy clay soils) to minimise the risk of groundwater contamination.

Consequently, it is considered the proposed development will not substantially interfere with the recovery of any identified species.

Critically Endangered and Endangered Species

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

- **Lead to a long-term decrease in the size of a population**

Similarly to vulnerable species, the proposed development site is not considered to constitute preferred habitat for endangered or critically endangered species. Development of the subject site is therefore not considered likely to result in a decrease in the size of endangered and/or critically endangered species which may be present within the region. It should be noted that no endangered flora species were observed on site during the site inspection.

- **Reduce the area of occupancy of the species**

The habitat of the subject site is unlikely to be utilised by identified species. Modification of the site as a result of the proposed development is therefore unlikely to reduce the occupancy of identified species.

- **Fragment an existing population into two or more populations**

No land clearing will occur as a result of the development. Therefore, the proposal will not fragment existing populations by impacting landscape connectivity.

- **Adversely affect habitat critical to the survival of a species**

There is no critical habitat for identified endangered and critically endangered species on the development site.

- **Disrupt the breeding cycle of a population**

There is no habitat on the development sites that would be considered suitable for breeding for any listed endangered and critically endangered species, as the sites have previously been cleared and is currently regularly disturbed by grazing practices. It is considered that endangered and/or critically endangered species would be more likely to utilise remnant and/or riparian habitats to the south and east of the subject site.

- **Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline**

Whilst some modification of potential habitat may occur as a result of the proposed development, this modification will occur on a small scale (the footprint of the feedlot is expected to cover less than one hectare). Further, the habitat values of the subject site are considered to be moderate as a result of agricultural practices including historic clearing activities and ongoing grazing. Species are more likely to utilise either remnant or riparian/water-based habitat in the vicinity of the proposed development, rather than the development site itself.

Therefore, modification of habitat on site is unlikely to result in the decline of any identified species.

- **Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the critically endangered or endangered species' habitat**

Runoff from the feedlot has the potential to lead to changes in soil chemistry, soil hydrology and soil biota. Changes in nutrient availability and hydrological processes can lead to a decline in native species diversity and/or abundance and can favour the establishment of introduced species.

A series of mitigating strategies will be implemented to minimise the risk of indirect off-site impacts, including:

- A diversion bank is installed directing clean water around the Feedlot;
- The controlled drainage area is designed and constructed in accordance with the recommendations included in the Statement of Environmental Effects and the National Guidelines.
- The feedlot is located on a surface with low permeability (such as heavy clay soils) to minimise the risk of groundwater contamination.

These mitigating measures are considered to be sufficient to minimise the risk of the feedlot resulting in the spread of invasive species.

- **Introduce disease that may cause the species to decline, or**

The risk of introducing diseases into remnant habitat within the project area results from the potential export of contaminants from the feedlot site in the surface runoff and/or leakage into groundwater. It is considered that, providing appropriate mitigation measures are implemented, the proposed development will not introduce disease that may cause any endangered or critically endangered species to decline.

- **Interfere substantially with the recovery of the species**

Ensuring the recovery of a species generally involves the protection and enhancement of existing populations and habitat, by preventing further clearing and modification of native vegetation communities and protecting water quality values. As discussed previously, existing populations and habitat for flora and fauna will be maintained by ensuring:

- A diversion bank is installed directing clean water around the Feedlot;
- The controlled drainage area is designed and constructed in accordance with the recommendations included in the Statement of Environmental Effects and the National Guidelines.
- The feedlot is located on a surface with low permeability (such as heavy clay soils) to minimise the risk of groundwater contamination.

Consequently, it is considered that the proposed development will not substantially interfere with the recovery of any identified species.

Listed Migratory Species

An action is likely to have a significant impact on a migratory species if there is a real change or possibility that it will:

- **Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for migratory species**

The region is unlikely to support an ecologically significant proportion of the population of any listed migratory species, as they are all classed as marine species. While the habitat may be occasionally used, it is not considered of critical importance to any particular life stage of any listed species, nor is it at the limit of the range of any identified species. Therefore, the habitat at and immediately adjacent to the proposal area cannot be considered as 'important habitat' for any identified migratory species.

- ***Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or***

Changes in nutrient availability and hydrological processes can lead to a decline in native species diversity and/or abundance and can favour the establishment of introduced species. Appropriate mitigation measures, if implemented, will minimise surface water runoff and leakage into groundwater systems which will protect higher quality habitat areas. Therefore, it is expected that the proposed development would not result in the introduction of harmful species to habitat areas for any important population of migratory species.

- ***Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species***

As discussed above, it is considered that the proposal will not lead to a long-term decline in a local population, fragment existing important habitat or adversely affect habitat critical to any species' survival. It is therefore considered that (assuming appropriate environmental management systems are installed), the proposal will not seriously disrupt the life cycle of an ecologically significant proportion of the population of any of the migratory species under consideration.

Assessment of Significance Conclusions

The subject site at 'Clevecourt' is a cleared and disturbed habitat, utilised for grazing and crop production.

In its current state, the subject site does not constitute important habitat for identified species. Extensive regions of remnant vegetation, including Warialda National Park, are located to the east of the study area. Such vegetation, in addition to water-based habitat within the riparian zone of the Gwydir River, is likely to serve as significant remnant vegetation for a variety of threatened species, and is considered to be the preferred habitat for vulnerable species over the study area. The proposed development will not impact upon this habitat.

It is the conclusion of this assessment that there will be no significant long-term impacts on any listed ecological community, threatened or migratory species of national environmental significance as a consequence of the proposed development, providing:

- The design and management of the storage is in accordance with best management practices and relevant guidelines.
- Appropriate mitigation measures are implemented throughout the construction and operation of the storage.

Prepared by:

Natasha Livingstone

Natasha Livingstone BSc Hons.
Environment and Resource Consultant

Reviewed by:

J. Maxwell

James Maxwell MEnvMgt. B.Sc. MEIANZ
Environment and Resource Consultant

References

DoE (2013) *Matters of National Environmental – Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999*. Department of the Environment

DoEE Protected Matters Search Tool (accessed 2017). Department of the Environment and Energy
Website: <http://www.environment.gov.au/epbc/protected-matters-search-tool>

This is page number 320 of the minutes of the Ordinary Meeting held on Thursday 14 December 2017

Chairman

Appendix 5 – AHIMS Search Results



AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Clevecourt 2
Client Service ID : 287523

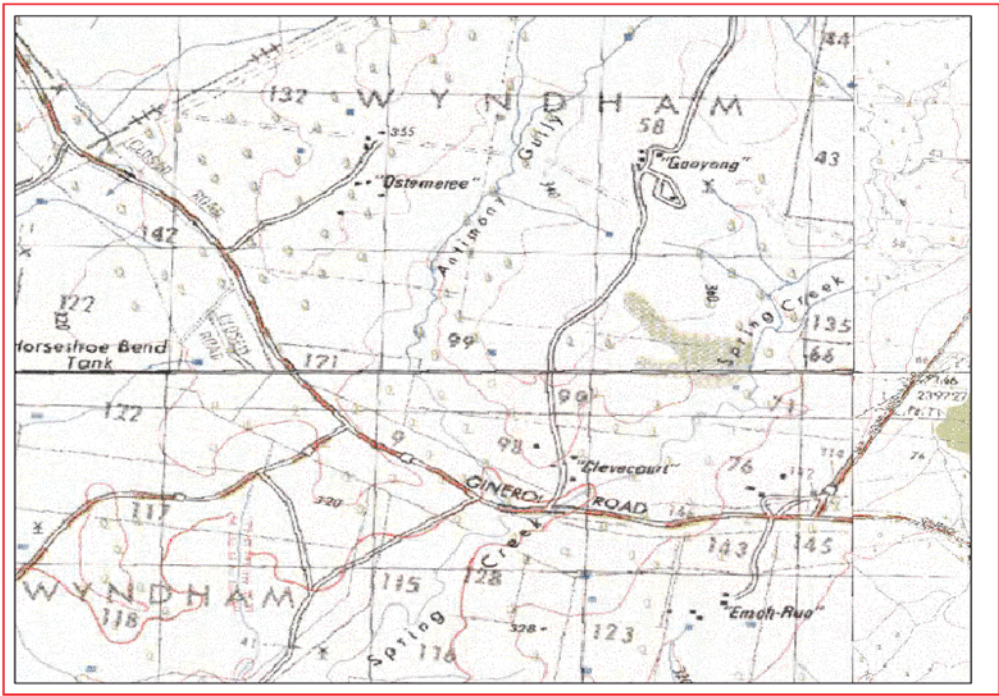
SMK Consultants
P O Box 774
Moree New South Wales 2400
Attention: Natasha Livingstone
Email: natasha@smk.com.au

Date: 21 June 2017

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 99, DP:DP754864 with a Buffer of 1000 meters, conducted by Natasha Livingstone on 21 June 2017.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

if your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette](http://www.nsw.gov.au/gazette) (<http://www.nsw.gov.au/gazette>) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.



AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Clevecourt 1
Client Service ID : 287522

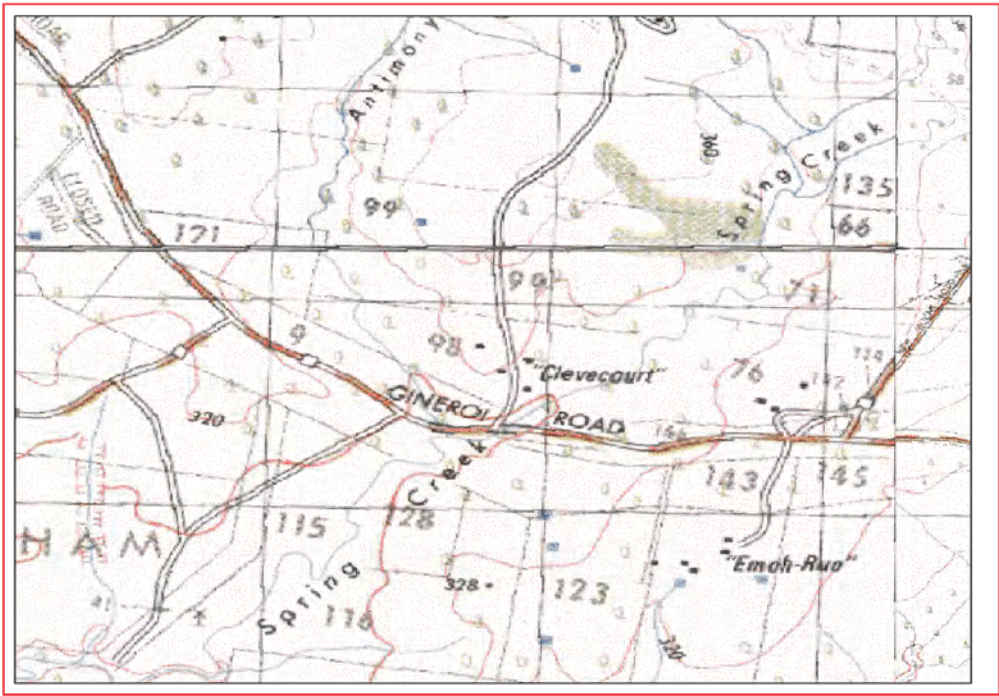
SMK Consultants
P O Box 774
Moree New South Wales 2400
Attention: Natasha Livingstone
Email: natasha@smk.com.au

Date: 21 June 2017

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 9, DP7:P7548, 68 with a Buffer of 1000 metersD
conducted by Natasha Livingstone on 21 June 2015.

The context area of your search is shown in the map below. 7lease note that the map does not accurately
display the exact boundaries of the search as defined in the paragraph above. The map is to be used for
general reference purposes only.



^ search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information
Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

This is page number 324 of the minutes of the Ordinary Meeting held on Thursday 14
December 2017

Chairman

if your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette](http://www.nsw.gov.au/gazette) (<http://www.nsw.gov.au/gazette>) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Appendix 6 – Odour Assessment

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Level 1 Odour Assessment for a proposed 1,000 Head Cattle Feedlot at “Clevecourt”

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Prepared by:
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August 2017

Clevecourt Feedlot

Level 1 Odour Impact Assessment 17-144

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1 Executive Summary

SMK Consultants were engaged by Jason Lewis Of Jac Wagyu to prepare a Level 1 Air Quality Impact Assessment (AQIA) for the proposed 1000 head feedlot 'Clevecourt' located in the Gwydir Shire in northern New South Wales.

A Level 1 Odour Assessment was carried out in accordance with relevant assessments and guidelines. 14 rural dwellings were located within a 5km radius of the proposed development, with the nearest township (Bingara) located approximately 15km south-south-east of the development site.

The nearest rural dwelling is located 1,020m from the development site, yet only requires a minimum distance of 791m from the feedlot to avoid adverse odour emissions. Similarly, Bingara requires a separation distance of 3.2km, yet is located 15km from the site. The maximum feedlot size permitted by current constraints is 1,661 head, well above the current proposal for 1,000 head.

The results demonstrate the development easily passes the assessment criteria. Subsequently, it is not considered necessary to proceed to a Level 2 or 3 Odour Assessment.

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2 Introduction

2.1 Aims and Objectives

This assessment aims to ensure that potential offensive odours that may be generated by the feedlot do not cause unreasonable interference to the community. Accordingly, feedlots should be separated from sensitive receptors by a sufficient distance to limit any adverse impacts resulting from odour, dust, noise or aesthetic considerations to an acceptable level.

The proposed objectives for the Clevecourt feedlot are to:

- Minimise odour emissions and their impacts;
- Ensure that the feedlot facilities do not expose neighbouring land users to an unacceptable level of odorous emission; and
- Ensure that the feedlot operates in such a manner that the odour emissions are managed within the accepted criteria.

2.2 Legislation

This assessment was prepared in accordance with the following relevant legislation and NSW EPA required guidelines:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *Protection of the Environment Operations Clean Air Regulation 2010* (POEO Clean Air Regulation)
- *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW 2005*
- *Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW, DEC, 2006* (Technical Framework)
- *Technical Notes: Assessment and Management of Odour from Stationary Sources, DEC, 2006* (Technical Notes)
- *Local Government Act 1993* (LG Act)

3 Methodology

3.1.1 Classifying Odour

Odour can generally be classified into the following categories:

- **Point source:** broadly contains activities that involve stack emissions of odour. Generally, these are controllable through waste reduction, minimisation and cleaner production principles or conventional emissions control equipment.
- **Diffuse/ Fugitive source:** activities that are generally dominated by area or volume source emissions of odour, which can be more difficult to control (e.g. intensive agricultural activities)¹.

¹ *Technical Notes: Assessment and Management of Odour from Stationary Sources, DEC, 2006*

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3.1.2 Odour Measurement

Odour is typically measured in odour units (OU) that indicate the concentration of odorous mixtures. The detectability of an odour is a sensory property that refers to the theoretical minimum concentration that produces an olfactory response or sensation. This point is called the 'odour threshold'. The number of odour units (OU) is the concentration of a sample divided by the odour threshold or the number of dilutions required for the sample to reach the threshold. This threshold is the numerical value equivalent to when 50% of a testing panel correctly detect an odour. Therefore, an odour criterion of less than 1 OU would theoretically result in no odour being experienced. For complex mixtures of odours, odour is specified in OU/m³ (odour units per cubic metre) as a nose-response-time average.

3.1.3 Odour Criteria

The proposed development involves the development of an intensive agricultural activity, which under the Technical Framework is considered an activity with the potential to produce a complex mixture of air pollutants. The following criteria is recommended as threshold criteria in order to protect the majority of the population living within the vicinity of activities that emit odour. The impact assessment criteria for complex mixtures of odorous air pollutants in Table 1 have been extracted from the *Approved methods for the modelling and assessment of air pollutants in NSW* and are further outlined in the Technical Framework.

Table 1: Odour Criteria

Population of affected community	Odour assessment criteria ² (OU)
Rural single residence	7.0
~ 10	6.0
~ 30	5.0
~ 125	4.0
~ 500	3.0
Urban area (≥2000) and/or schools and hospitals	2.0

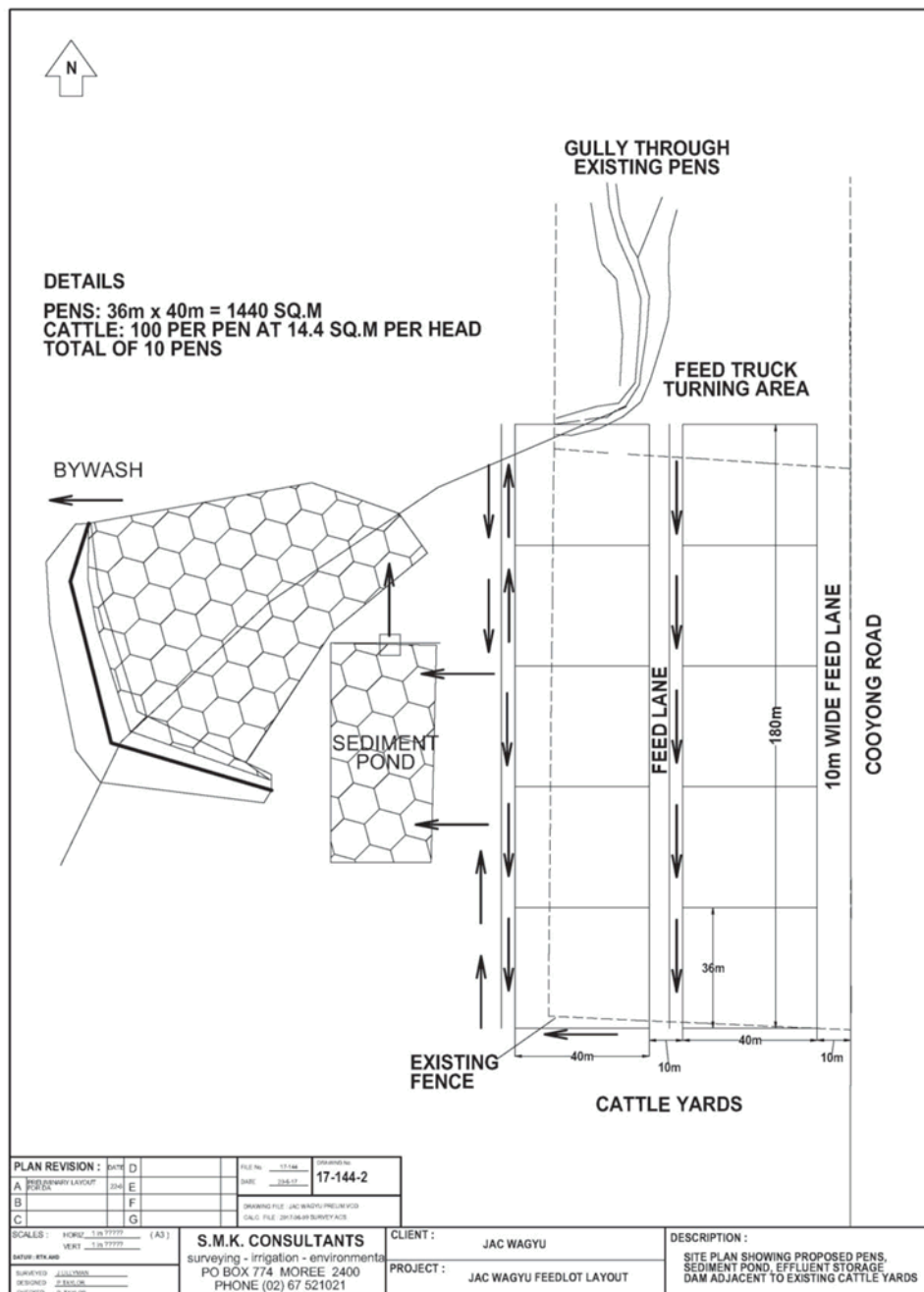
Source – Table 7.5: Approved methods for the modelling and assessment of air pollutants in NSW (2005)

The odour assessment criteria applicable to rural single residences located close to Clevecourt is 7.0 OU. The criteria applicable to the township of Bingara is 2.0 OU. To be considered within the acceptable limits of the criteria, the predicted odour levels must not be exceeded for 99% of the time.

4 Development Proposal and Site Factors

The proposed development is for the construction and operation of a 1,000 head cattle feedlot. The proposal would involve the construction of up to 10 production pens stocked at a density of 14 m²/head, a carcass disposal area, an effluent holding pond and a stormwater diversion bank and channel. The following Figure 1 presents a preliminary plan of the proposed feedlot complex.

² Nose-response-time average, 99th percentile, AS4323.3-2001



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4.1.1 Potential Odour Generating Operations

The following Table identifies and describes the potential sources of odour that may be generated from the completed feedlot.

Table 2: Sources of Odour

Source	Odour Type	Description
Feedlot Pens	Diffuse Source	The feedlot pens are the primary odour source on a feedlot. As the manure pad accumulates, the waste starts to decompose anaerobically. This is the process which generates odours. The level of odour is exacerbated in wet weather if the pad does not dry out.
Sediment Ponds	Diffuse Source	Sediment ponds are designed to temporarily capture runoff and slowly release into holding ponds. The effluent water and solid particulate matter can remain in the ponds for a number of days. This facilitates anaerobic decomposition.
Holding Ponds	Diffuse Source	Holding ponds are designed to hold effluent until it is appropriate to apply the effluent to the reuse areas. Anaerobic conditions develop in the ponds on occasion. This is exposed as the ponds are emptied.
Drains and Collection Channels	Diffuse Source	Drains and collection channels have the potential to produce odour after rain events if the drains do not dry out. Sediment can also accumulate in drains between cleaning and be left to decompose.
Manure Storage/Compost Areas	Diffuse Source	Manure and composting areas can be a source of odour as the compounds heat up and decompose, especially when wet. The stockpiles are generally aerated during the composting process in order to avoid excessive odour generation.
Manure Spreading	Diffuse Source	Land application of manure has the potential to cause odour unless the manure is dry or incorporated through cultivation.
Feed Storage and Processing Areas	Diffuse Source	The steam flaking mill produces a slightly sweet odour and the extended storage of feed can generate some odour.
Carcase Disposal Areas	Diffuse Source	The anaerobic decomposition of organic matter can generate odour emissions.

The odour sources listed above are predominantly diffuse sources and most effectively managed through good design and operating practices. For example, routine pen cleaning, the removal of manure, well-designed slopes and continued maintenance to enhance drainage would significantly reduce the potential for odour generation in the feedlot pens.

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4.1.2 Odour Prevention and Control

The prevention of odour is considered the most effective method in controlling the risk of odour impacts to the community. The following management practices are therefore recommended for the prevention and control of odour at the proposed development:

- The pen slope will be between 2-5% with drains of approximately 1% to provide sufficient drainage to avoid wet spots.
- The pens will be constructed from compacted materials to provide a durable all weather surface that promotes drainage and rapid drying.
- The designed minimum stocking density of 9 - 15m²/head provides optimum moisture condition in the pad.
- Pen cleaning intervals should not exceed 26 weeks, and should include cleaning manure from under fence lines and out of catch drains to allow runoff to drain freely out of the pens, and eliminate wet manure patches.
- Spilt feed should be removed from the Feedlot immediately.
- The holding and sediment ponds should be allowed to completely dry and should be cleaned as required.

4.1.3 Topography, Climate and Surrounding Land Uses

The site is located within the Gwydir Catchment. The topography of the area includes undulating hills as part of the North-West Slopes. The wider region surrounding the subject site has been extensively cleared for grazing activities, with scattered patches of remnant and regrowth vegetation remaining. The proposed feedlot site is located mid-slope with a south-westerly aspect.

The property covers an area of approximately 180ha, which is utilised for mainly improved pasture production and grazing of cattle. The surrounding farms are utilised for cattle grazing and dryland cultivation. The closest town is Bingara which is located approximately 15 km in a straight line to the south-south east of the site.

The subject site is located in a climatic transition zone between NSW's semi-arid interior and the wetter coastal zones. Rainfall in the area is variable with monthly averages ranging from approximately 50mm in winter to 90 mm in summer. The wettest months of the year are November to February. Temperature also varies with averages of about 16°C to 34°C in summer and about 2°C to 18°C in winter.

5 Assessment of Risk

The potential discharge of fugitive (diffuse) emissions from the feedlot are predominantly a concern in terms of the risk of impacts to existing amenity. The level of expected odour is not considered to have any direct effect on the environment or pose a risk to human health.

5.1 The Model

The Level 1 Odour Impact Assessment is the most conservative of the three levels of assessment and is recommended for use with diffuse sources. It is a screening-level technique that is based on generic parameters for the type of activity and site. It may be used to assess site suitability and

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odour mitigation measures for new or modified activities. The Level 1 assessment is a rigorous numerical impact assessment that overestimates the potential for odour impacts to produce a conservative estimation of likely odour impacts and required separation distances.

The Level 1 odour impact assessment for diffuse sources is based on the following parameters:

- Type of operation
- Size of operation
- Proposed management practices
- Density of populations likely to be impacted, ranging from a single rural residence to a predominantly urban setting
- Local topography (flat, undulating, high relief, low relief or drainage flows)
- Surrounding vegetation (none, light or heavy tree cover)
- Local meteorology (high, average or low frequency winds toward sensitive receptor)
- Possibility of cumulative impacts

For a Level 1 assessment, a 'pass' suggests the calculated extent of the odour impact is less than the distance to the nearest receptor and that the proposed management practices are sufficient to prevent odour problems. If a Level 1 assessment conclusively demonstrates that adverse impacts will not occur, it is not considered necessary to progress to a Level 2 or 3 Odour assessment. Furthermore, a clear 'pass' at a Level 1 assessment for odour impacts is generally considered acceptable for other potential air quality impacts such as dust and noise.

5.2 Justification

SMK Consultants reviewed the three levels of odour assessment and we consider the Level 1 method sufficient for the proposed development. The reasons that support the use of the Level 1 method are:

- **Location:** The proposed feedlot is suitably sited a considerable distance from the closest township and other potentially sensitive receptors, in this case being isolated rural residences.
- **The characteristics of the receiving environment:** The topography and vegetation surrounding the feedlot visually shield the site from the closest receptors. The vegetation surrounding the feedlot provides some impact in relation to air flow disturbance to encourage dispersion of air masses.
- **The type and quantity of pollutants emitted:** The odour emissions expected from the feedlot are generally diffuse source emissions. Whilst odour impacts from these sources are difficult to contain, the potential impacts are most effectively managed through careful site selection, appropriate design and layout and good management practices. The scale of the proposed feedlot is relatively small and the quantity of odour emitting pollutants is expected to be low.

5.3 Variable Separation Distances

The following variable separation distance equations are used to calculate the allowable cattle numbers (N) at any one time for a site at distance (D) metres from an impact distance, or the distance for a specified number of cattle. The result, either cattle numbers or distance, is considered to be an acceptable limit to ensure that offensive odours do not cause unreasonable interference to the community or specific receptor amenity. Both equations are outlined in the Technical Notes.

Equation 7.1: Allowable cattle number, given the distance

$$N = (D \div S)^2$$

Equation 7.2: Separation distance, given the number of cattle

$$D = S \times \sqrt{N}$$

Where:

- D = separation distance in metres from pens and stockpiles
- N = cattle numbers in SCU
- S = composite site factor (S1 x S2 x S3 x S4 x S5)

The variable separation distance calculations use several different factors to determine the minimum separation distance that is required between a feedlot in a specific location and the closest sensitive receptors. The factors include:

- S1 = stocking density
- S2 = receptor type (e.g. small or large town, rural residence and public use areas e.g. school, rural church, national park)
- S3 = topography
- S4 = intermediate landscape (surface roughness / vegetation)
- S5 = wind frequency factor

The following summarises the variable separation distance calculations for the Level 1 method as described in the Technical Notes.

5.3.1 Composite Site Factors

Stocking Density Factor (S1)

The stocking factor varies with the level of design standards implemented and minimum stocking density proposed. The feedlot will operate with a target stocking density of 15 m²/ head allowing for optimum occupational rates. The Australian Feedlot guidelines have adopted a policy that all feedlots are to be built and operated to a Level 1 or Level A standard making it unacceptable to operate without appropriate pen management. Stocking factor S1 is determined from Table 3.

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Moisture content and the rate of deposition of manure are major factors influencing odour production rate from the manure pack.

Values of S1 have been derived for selected stocking densities. Data collected in published research field trials and field observations was used to identify the relationship between odour production rate and the stocking density. The values were derived using field trial relationships between odour generation rates and stocking density for the various feedlot categories (defined by pad moisture content) and with modelled odour levels at impact locations (calibrated using the observed odour impact at some existing feedlots).

Table 3: Stocking Density Factor, S1, average annual rainfall less than 750mm³

Feedlot Class	Stocking Density (m ² / beast)		
	10	15	20
1	65	52	40
2	95	78	58
3	128	103	78
4	158	127	96

As the annual average rainfall for Clevecourt is less than 750mm per year, Table 3 is appropriate. Accordingly, for a Class 1 designed feedlot, with an average stocking density of 15m² per beast, the site composite factor, S1 equals 52.

Receptor Factor (S2)

The receptor factor S2 varies depending on the likely impact area and is determined from Table 4. Impact location may be a neighbour's house, small town or a large town that may be affected by odour generated at the feedlot. The separation distances to impact locations are usually the key factors, which limit the number of cattle that could be accommodated on a site.

Table 4: Receptor Factor, S2⁴

Receptor Type	Value
Large Towns >2000 persons	1.6
Medium Towns 500-2000 persons	1.2
Medium Towns 125-500 persons	1.1
Small Towns 30-125 persons	1.0
Small Towns 10-30 persons	0.6
Single Rural Residence	0.3
Public Area (occasional use)	0.05*

The closest sensitive receptors to the Feedlot were identified to consist of single rural residences. The closest township, Bingara was also included as a medium town with a population 500-2000 people.

³ Table 7.2a from the Technical Notes

⁴ Table 7.3 from the Technical Notes

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The following table summarises the receptors considered to be subject to the potential odour impacts associated with the feedlot.

Table 5: Receptor Types

Receptor	Receptor Type	Direction	Distance (m)
1	Rural Dwelling	ESE	1,020
2	Rural Dwelling	SE	1,130
3	Rural Dwelling	NNE	1,520
4	Rural Dwelling	NNW	1,570
5	Rural Dwelling	NE	2420
6	Rural Dwelling	SE	2,580
7	Rural Dwelling	NE	2,620
8	Rural Dwelling	SSW	3,170
9	Rural Dwelling	WSW	3,220
10	Rural Dwelling	WNW	3,670
11	Rural Dwelling	NNW	3,840
12	Rural Dwelling	NE	4,000
13	Rural Dwelling	WNW	4,500
14	Rural Dwelling	NNE	4,910
Bingara	Medium Town	SSE	15,030

Figure 2 shows an aerial image locating the closest individual receptors to the feedlot complex including respective separation distances. Figure 2 indicates that the feedlot is separated from the township of Bingara by approximately 15km.

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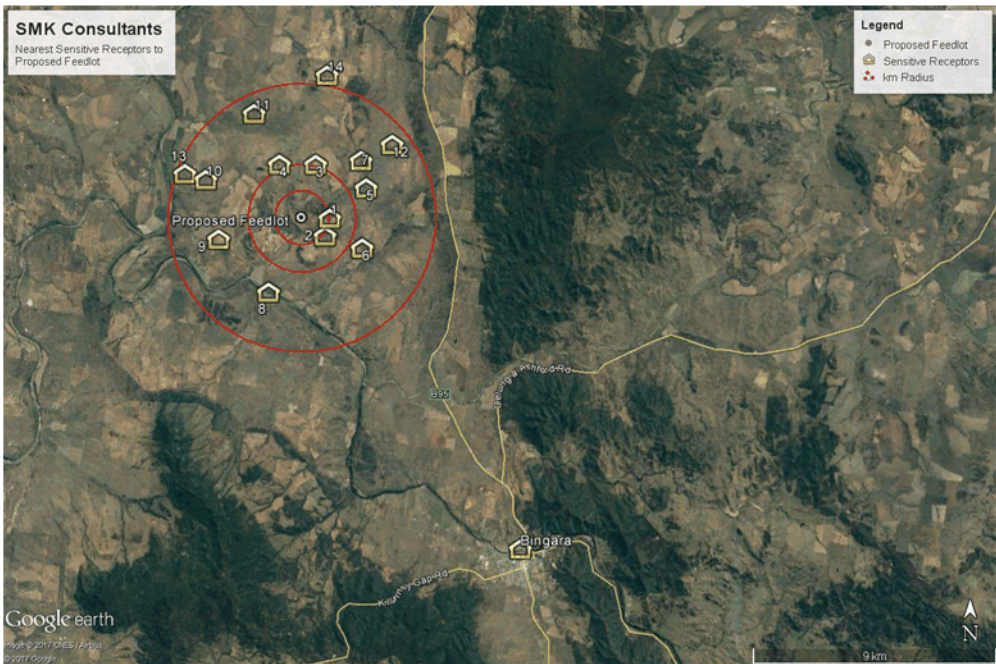


Figure 2: Aerial Image Identifying the Closest Sensitive Receptors

Terrain Factor (S3)

The terrain factor S3 varies according to topography and is determined from Table 6.

- **Flat** is regarded as less than 10% upslope, 2% downslope and not in valley drainage zone.
- **High relief** is regarded as up-slope terrain of a hill that projects above the 10% rising grade line from the feedlot. Thus the receptor location will be either uphill from the feedlot or be behind a significant obstruction.
- **Low relief** is regarded as terrain, which is generally below the 2% falling grade line from the feedlot. Thus the receptor will be downhill from the feedlot.
- **Undulating hills** is regarded as terrain where the topography consists of continuous rolling, generally low level hills and valleys with minimal vegetation cover, but without sharply defined ranges, ridges or escarpments.
- A **valley drainage zone** has topography at low relief (as above) with significant confining sidewalls.

Topographical features of the selected site may adversely affect the odour impact under certain circumstances. During the early evening or night time under low wind speed conditions, population centres located in a valley complex at a lower elevation than a feedlot may be subject to higher odour concentrations as a result of down-valley wind or the occurrence of low-level inversions.

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Table 6: Terrain Factor, S3⁵

Terrain	Value
Valley Drainage Zone	2.0
Low Relief	1.2
Flat	1.0
Undulating country between cattle feedlot and receptor	0.9
High relief or significant hills and valleys between cattle feedlot and receptor	0.7

The site occurs within a gently undulating landscape. No receptors are located immediately downslope of the proposed feedlot. Therefore, the appropriate S3 value for identified receptors is 0.9.

Vegetation Factor (S4)

The vegetation factor S4 varies according to vegetation density and is determined from Table 7. The vegetation density is assessed by the effectiveness with which the vegetation stand will reduce odour by dispersion.

Few trees, long grass is regarded as open country with a permanent covering of grass or pasture of around 1 m or more in height and with a light scattering of timber which is distributed continuously across the buffer area. Topography would be predominantly flat to slightly undulating. Isolated clumps of trees would not be sufficient to attract this concession. Land being actively cropped would not attract this concession because of the extended periods when it is bare or carrying only very low ground cover.

Wooded country is regarded as open forest country with tree density not sufficient to provide a continuous canopy, but sufficiently dense to influence air movement. There would be little or no lower storey vegetation. The density needs to be such that the vegetation can be considered as a contiguous belt and isolated clumps would not attract this concession. The minimum tree height is 4 m and the minimum extent in the direction of the receptor is 400 m.

Heavy timber is regarded as tall forest areas with dense timber stands providing a continuous canopy. There is limited understorey vegetation, mainly associated with regrowth. The minimum tree height is 4 m and the minimum extent in the direction of the receptor is 400 m.

Heavy forest, upper and lower storey is regarded as dense layers of taller timber with an interlocking canopy and with extensive amounts of lower storey vegetation of various species resulting in almost complete ground cover and a dense upper canopy. The minimum tree height is 4 m and the minimum extent in the direction of the receptor is 400 m.

The tree cover should be maintained, as far as practicable, during the life of the cattle feedlot.

Table 7: Vegetation Factor, S4⁶

⁵ Table 7.4 from the Technical Notes

⁶ Table 7.5 from the Technical Notes

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Vegetation	Value
Crops only, no tree cover	1.0
Few trees, long grass	0.9
Wooded country	0.7
Heavy timber	0.6
Heavy forest (both upper and lower storey)	0.5

The region surrounding the proposed feedlot is primarily used for grazing, with some mixed cropping. Areas of natural open woodland and remnant vegetation are scattered across the landscape, which would disrupt some airflow. The most appropriate vegetation factor is 0.9.

Wind Frequency Factor (S5)

The wind frequency S5 factor is determined from Table 8. Wind speed and direction varies by the season and by the hour of the day. Although there is generally one direction that is the most frequently observed (prevailing wind), the wind direction usually blows from all directions at some time.

The wind can be classed as **high frequency** towards the receptor if the wind is blowing towards the receptor (± 40 degrees) with a frequency of at least 60% of the time for all hours over a whole year.

The wind can be classed as **low frequency** towards the receptor if the wind is blowing towards the receptor (± 40 degrees) with a frequency of less than 5% of the time for all hours over a whole year.

Table 8: Wind Frequency Factor, S5⁷

Wind Frequency	Value
High frequency towards receptor (greater than 60%)	1.5
Normal wind conditions	1.0
Low frequency towards receptor (less than 5%)	0.7

To determine the wind frequency factor, data was examined from Inverell, which is the nearest weather station which records wind data (Figure 3). As illustrated through Figure 3, no receptor is downwind of the feedlot for more than 60% of the time. All of the receptors are located in directions that experience normal wind conditions. Therefore, a site factor value of 1.0 is appropriate.

⁷ Table 7.6 from the Technical Notes

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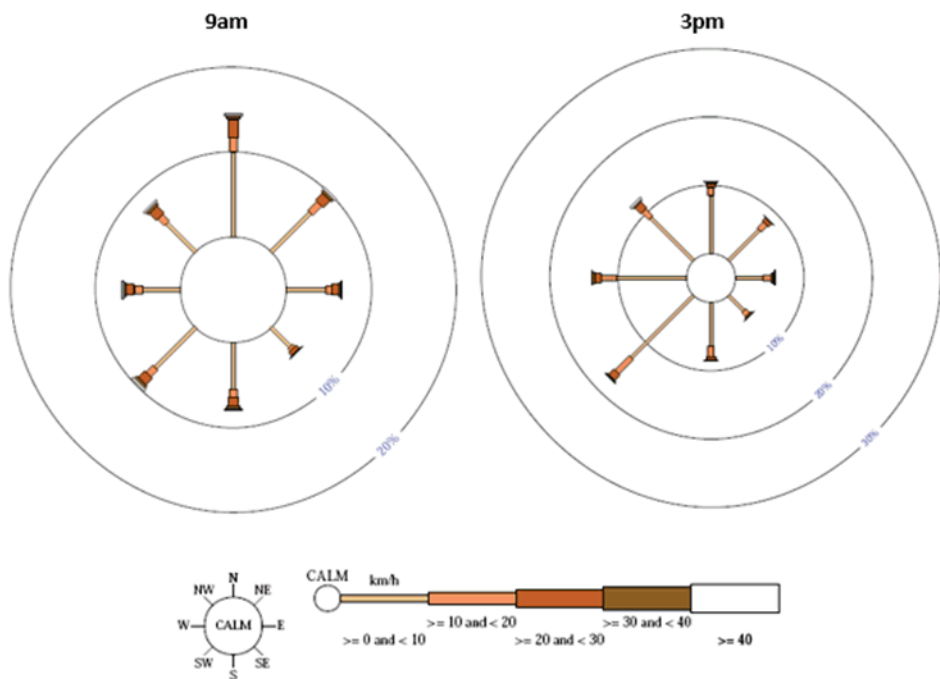


Figure 3: Wind Roses for Inverell. Source: BOM Data 1874-1997

5.3.2 Cumulative Impacts

The feedlot site and identified sensitive receptors are unlikely to be subjected to any cumulative impacts associated with the surrounding land uses. The receiving environment is currently deemed unlikely to generate significant odour pollution, and consultation with the Warrumbungle Shire Council has indicated that no proposed developments are currently foreseen that would require consideration within this assessment. The surrounding landuse is predicted to continue as open stock grazing and cultivation.

6 Analysis and Results

This assessment aims to ensure that offensive odours do not cause unreasonable interference to the receptors described in Table 5. Equation 7.2 was applied using the site-specific composite factors and the results are summarised in Table 9. This analysis identifies the minimum separation distance between the Feedlot and receptors.

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Table 9: Results of Equation 7.2 for Minimum Required Separation Distances

Receptors	Feedlot Capacity (head)	Composite Site Factors					Required Minimum Distance (m)	Available Distance (m)
		(S1)	(S2)	(S3)	(S4)	(S5)		
1	1,000	52	0.3	0.9	0.9	1	400	1,020
2	1,000	52	0.3	0.9	0.9	1	400	1,130
3	1,000	52	0.3	0.9	0.9	1	400	1,520
4	1,000	52	0.3	0.9	0.9	1	400	1,570
5	1,000	52	0.3	0.9	0.9	1	400	2420
6	1,000	52	0.3	0.9	0.9	1	400	2,580
7	1,000	52	0.3	0.9	0.9	1	400	2,620
8	1,000	52	0.3	0.9	0.9	1	400	3,170
9	1,000	52	0.3	0.9	0.9	1	400	3,220
10	1,000	52	0.3	0.9	0.9	1	400	3,670
Bingara	1,000	52	1.2	0.9	0.9	1	1600	15,030

Table 9 indicates the Feedlot indicates that the Feedlot should have a minimum buffer distance of 400m from a rural residence and a buffer distance of 1600m from Bingara. These distances are available as the closest neighbouring residence is 1020 m away and Bingara is 15 km from the site.

The operation of the Clevecourt Feedlot to accommodate a maximum capacity of 1,000 head has resulted in a clear 'pass' from the Level 1 Odour Impact Assessment. The results conclusively demonstrate that adverse impacts will not occur if the proposed design is adopted. It is therefore considered unnecessary to undertake additional assessment. Furthermore, a clear 'pass' at a Level 1 assessment for odour impacts is generally considered acceptable for other potential air quality impacts such as dust and noise.

6.1.1 Consideration of a Worst-Case Scenario

The closest receptor is located to the east-south east of the feedlot site across undulating terrain. The distance between the feedlot and the residence on this property is approximately 1020 m. Potential dispersion of an air mass moving from the feedlot over this distance to reduce the level of odour. It is noted that this house is separated from the Feedlot by a valley. The tendency would be for the feedlot odour to potentially accumulate in the valley under inversion conditions but not travel up the slope to this neighbour.

The frequency of wind toward Residence "1" is estimated to be less than 20% based on a plus or minus 40-degree vector. The frequency of wind moving toward the receptor is therefore considered within the normal range.

Worst case atmospheric conditions would tend to be created under still air with an inversion layer trapping the warmer air rising from the feedlot. The warm feedlot air would therefore be subject to katabatic flow. The landscape falls to the south to follow Spring Creek. The valley is dominated by open pastures used for grazing, with sporadic patches of remnant vegetation. No houses are located

Clevecourt Feedlot

Level 1 Odour Impact Assessment 17-144

on the banks of Spring Creek downstream of the feedlot. Therefore, it is unlikely that residences will be impacted in the event of katabatic flow occurrence from the feedlot.

No other residences are at high risk of odour impacts under worst case conditions. The air mass from the feedlot under worst case conditions is predicted to be trapped within the Spring Creek valley. Most of this area is utilised for grazing pasture. The feedlot odour would therefore tend to disperse across this agricultural and not disturb adjoining residences.

Conclusions

The proposed development and associated activities are considered to meet the required separation distances, based on the Level 1 Odour Assessment method from NSW Odour Framework and Notes. In particular, this assessment addresses the potential for "offensive odour" and demonstrates full compliance with relevant legislation including the provisions for offensive odours contained in Section 129 of the POEO Act. The analysis has identified the proposed development can be given a "pass" under the framework of the relevant Guidelines and recommendations.

Based on this assessment the proposed feedlot is considered to be within the required odour criteria, and meet acceptable impact standards with minimal interference to community amenity. Furthermore, the assessment demonstrated that the feedlot site is adequately separated from the closest receptors to prevent adverse odour, dust and noise impacts from the operation of the feedlot.

Natasha Livingstone

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Environment and Resource Consultant
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Appendix 7 – Traffic Calculations

**Traffic Calculations at Maximum
 Capacity (100% Occupancy)**

Overall Assumptions	
Movement is One-Way: ie. A truck entering then leaving is considered 2 Movements	
Cattle Trucks Enter and Leave Full	
Feed Trucks Enter Full and Leave Empty	

Staging			
Full Capacity	SCU	Mill Feed Production (Head)	On-Farm Feed Production (tonne/year)
Completed Feedlot	1,000	1,000	400

General Assumptions	
SCU on Site	1,000
1 SCU	600 Kg
Pens	5
Number of Head Bred on Farm	500 head/year
Average Time at Feedlot	11.5 Months
Pen Occupancy	100%
Feed/Head Required (Kg)	14.0 Kg
Average Weight	IN 350 Kg
	OUT 700 Kg
	Polled Yes

Transport Assumptions		
Deck Space	Semi-Trailer (12.25 m x 2.4 m)	29.40 m ²
	B-Double (18.8 m x 2.4 m x 2 decker)	90.24 m ²
	2 Trailer Road Train (2 x 12.25 m x 2.4 m)	58.80 m ²
	3 Trailer Road Train (3 x 12.25 m x 2.4 m)	88.20 m ²
Number of Head	Semi-Trailer (IN)	30 head
	Semi-Trailer (OUT)	18 head
	2x Decker B-Double (IN)	92 head
	2x Decker B-Double (OUT)	55 head
	2-Trailer Road Trail(IN)	60 head
	2-Trailer Road Trail(OUT)	36 head
	3-Trailer Road Trail (IN)	90 head
	3-Trailer Road Trail(OUT)	54 head
Vehicle Breakdown	Semi-Trailer	
	B-Doubles	100%
	2-Trailer Road Trains	
	3-Trailer Road Trains	

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Feed Assumptions		
	Feed Required	14 Kg/day/head
	Average on Feed	1,000 head
	Total Feed Required	5,110 tonne/year
Feed Required to be Trucked in		4,710 tonne/year
Vehicle Capacity	Semi-Trailer	25 tonne/truck
	B-Double	38 tonne/truck
	2-Trailer Road-Train	50 tonne/truck
	3-Trailer Road-Train	75 tonne/truck
Vehicle Breakdown	Semi-Trailer	
	B-Doubles	100%
	2-Trailer Road-Train	
	3-Trailer Road-Train	

Loading Density		
Mean Live Weight	Minimum Floor Area (m2/head) standing	Number of Head per 12.25 m x 2.4 m deck
100	0.31	94
150	0.42	70
200	0.53	55
250	0.77	38
300	0.86	34
350	0.98	30
400	1.05	28
450	1.13	26
500	1.23	24
550	1.34	22
600	1.47	20
650	1.63	18
<i>Source: Australian Animal Welfare Standards and Guidelines: Land Transport of Livestock</i>		

Completed Feedlot	
Head Processed	1,043.5 Annually
Cattle Truck Movements	24.8 Annually 0.5 Weekly 0.1 Daily
Feed Truck Movements	247.9 Annually 4.8 Weekly 0.7 Daily
Total Truck Movements	272.7 Annually 5.2 Weekly 0.7 Daily



P. C. & A. M. MACK



"Peranjou"
653 Gineroi Rd
Bingara, NSW 2404
Friday, 27 October 2017

The General Manager
Gwydir Shire Council
Locked Bag 5
Bingara NSW 2404

Dear Sir,

Re: Development Application No 38/2017 – 'Clevecourt'
756 Gineroi Rd, Gineroi

The following submission primarily relates to the impact on my adjoining property 'Cooyong' 122 Cooyong Rd, Gineroi, however some points will also impact my property 'Peranjou' 653 Gineroi Rd, Gineroi which also joins the property 'Clevecourt / Clevecourt South'.

This submission is based on careful consideration of the covering letter supplied along with the Statement of Environmental Effects and Appendices. As well as the potential detrimental affect the proposed feedlot will have on the enjoyment our family currently receives from our land.

We understand Mr Lewis' actions toward trying to changing his farming enterprise to become more active in the beef industry. We commend anyone who wishes to try new and innovative ideas to make money and support their family. However, we do have concerns about the proposal that has been put forward for a feed lot enterprise on the property 'Clevecourt' for the reasons outlined below.

Currently the property 'Clevecourt' conducts Intensive Livestock Agriculture, feeding of cattle from feeders in small paddocks on a steep slope with little effluent mitigation and using the Cooyong Rd as a way of moving the prepared feed to the different feeders.



"PERANJOU" GINEROI RD BINGARA NSW 2404

MOBILE: 0427 715 726 ABN: 75 712 913 832

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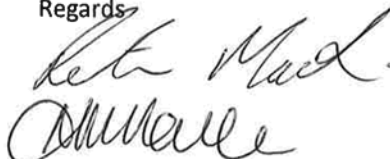
Chairman

Our main concern: Is the proposed feedlot for 1000 head to be in excess of the numbers already fed or to include those currently being intensively fed and what impact this operation will have on our own enterprise?

The application advises that the development will produce social benefits to the surrounding area. These have not been made clear in the supporting documentation.

We look forward to the Gwydir Shire Council giving this submission due consideration when looking at the proposed development and recommend Councilors take the time to view the site first hand as part of the process.

Regards



Peter and Ann Mack

PC & AM MACK "PERANJOU" GINEROI RD BINGARA NSW 2404

MOBILE: 0427 715 726 ABN: 75 712 913 832

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Property Value

- We are uneasy about the possibility of the feedlot impacting on the value of my property 'Cooyong' as access to the homestead needs to be directly alongside the feedlot operation. We would like to have the opportunity to sell the 'Cooyong' property to support our future interests at any time we wish, and are fearful the feedlot proposal could have an effect on resale value.
- Similarly, our farm stay units and homestead on the property 'Peranjou' look directly at the feedlot on entry to both residences. People come to our farm stay for the views, peace and quiet. This experience will not be as genuine with the current proposal. We are also uneasy about potential for odours especially in continued hot weather, and even though have been assured in the proposal that this will be minimal, a similar enterprise in the past which was not quite as close did have significant odour issues which impacted on our daily life.

Access

- The access to our property 'Cooyong', is also the road which is to be the main access for the majority of feed lot activity. This road is called Cooyong Road. We are concerned about the possibility of biohazard material being transferred to the property in daily coming and goings if Cooyong Rd is to be used as a major route for daily feeding.
- There is no plan to mitigate the runoff from the eastside of Row 1 and the feed lane onto Cooyong Rd. The proposed site of the feedlot sits between 750mm and 1300mm above and slopes toward the Cooyong Rd. Currently runoff from the proposed site, cattle yards and shed run onto Cooyong Rd causing ruts, wash and muddy slush to run across the road, which has to then be maintained by Gwydir Shire Council.
- The Statement of Environmental Effects point 6.9.1 – Odour and Dust, dot point 6 advises that Odour and Dust during operation of the feedlot will be mitigated by *Setting a low speed limit on 'Clevecourt' to minimise the generation of dust on internal roads. Point 3.2.2 advised that Cooyong Rd was to be used as an internal road. This is not acceptable for a public road. Previously the applicants have tried to reduce the speed of vehicles travelling on the Cooyong Rd by posting 15 per km signs on the entry ramp without consultation with the relevant authorities.
- The Statement of Environmental Effects, 3.2.4 Traffic and Access advises that heavy vehicle movements will increase to 5.2 per week. We would like to know if the Mt Rodd Rd, from Alan Cunningham Way, which is not sealed with a number of ramps is part of this proposal as we feel it would significantly impact the road as it currently rated as a low use road and is already suffering from deterioration from general use.

PC & AM MACK "PERANJOU" GINEROI RD BINGARA NSW 2404

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Biosecurity

- We are apprehensive that daily movement activities may be hampered by extra biosecurity screening on Cooyong Rd under the feedlot proposal. Under new biosecurity laws, there are restrictions placed movement of people between high risk areas, of which a feedlot is one example. Because we need to use Cooyong Rd, and this takes us directly through the feedlot operation, we would like to know if additional biosecurity procedures will be required to those which we already have to adhere to. If so, this would place unneeded restrictions on time and management of our property and our business in general.
- We have a second property, 'Peranjou', approx. 3.5km from the property 'Cooyong' and Cooyong Rd is the only access road between the two properties. From time to time we do transfer stock by truck and by foot between the two properties, using Cooyong Rd. If there is a different level of biosecurity, we are concerned that there will be restrictions placed on cattle movements. We are very worried we will no longer be able to walk cattle by foot, which places further management issues and increased transport costs upon us. The last time we walked cattle down Cooyong Rd, which is our right, the owner of 'Clevecourt' would not agree for us to pass until we would guarantee to pay for any damages to his property or equipment. We do not wish to be restricted in any stock movements we need to make in the future, especially when Cooyong Rd will also be used by the feedlot proposal at 'Clevecourt' for stock movements. The road is a public road, and is our only point of access to the property 'Cooyong', and we hope that we will be able to use it as such with the full rights of anyone who has access to a public road.
- The general area currently has a significant population of feral pigs that has grown over the last few years. These pigs are attracted to the current feeding situation in the 'Clevecourt' paddocks where cattle are fed prepared rations. We have a concern that these feral pigs numbers will increase further when more feed is available to them. We are interested to know how the problem of feral pigs will be addressed.

Water

- We are anxious about the use of bore water in the feedlot proposal. We use bore water on the property 'Cooyong' and am very reliant on this water source for both stock and domestic use. If the proposed feedlot bore is on the same underground line as ours, and 'Clevecourt' is using a significant amount, we are worried we may not have water in the future. We would also like assurance that the proposed new bore for the feedlot would not interfere with the creek called Spring Creek, where



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the proposed bore is to be located, by being the recommended legal distance from the creek.

Feeding Practices

- Aside from the proposed feedlot, the current feeding practices on 'Clevecourt' do concern me. We understand that a feedlot situation is when:
 - cattle are fed more than 70% of their feed in rations
 - Cattle are not fed on slopes exceeding 5%
 - Cattle are not fed near or on gully's or waterways
 - Cattle do not have water troughs at the top of the slope and feeders at the bottom with cattle walking straight up and down the slope
 - cattle are not fed straight off a public road
 - There are water control methods and effluent control in place
 - Waste water does not flow directly into a creek or water course.

We have seen these listed practices in action over the last few years and are concerned about environmental damage and the impact these will have on future practices carried out in the new proposal at 'Clevecourt'.

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Appendix

Current view driving up Cooyong Rd, reflecting existing Livestock Feeding and gradient of land



Current feeding pens on
Clevecourt, adjoining
Cooyong reflecting the
gradient and land
degradation



PC & AM MACK "PERANJOU" GINEROI RD BINGARA NSW 2404
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Current feeding pen,
running alongside
Cooyong Rd

SMK

CONSULTANTS

surveying – irrigation – environmental – planning

ABN 63 061 919 003

14th November 2017

Gwydir Shire Council
Locked Bag 5
Bingara NSW 2404

Attention: Patsy Cox, Planning Officer

39 Frome Street
PO Box 774
Moree NSW 2400
Ph 02 6752 1021
Fax 02 6752 5070
natasha@smk.com.au

Other offices: Goondiwindi,
Miles, Gatton, Brisbane

www.smk.com.au

Our Reference: 17/144

RE: Response to Additional Information Request Regarding Clevecourt Feedlot – DA38-2017

We are in receipt of the correspondence received by Council from a neighbouring property to Clevecourt in relation to the proposed development of Feedlot facility.

The following points were raised in the submission:

1. *Property Value impacts*
2. *Farm Stay Units*
3. *Use of Cooyong Road as a public road;*
4. *Management of feedlot drainage;*
5. *Odour and Dust management*
6. *Access via Mount Rodd road*
7. *Biosecurity hazards associated with the use of Cooyong Road and proposed control measures;*
8. *Feral Pigs - pest management strategies to be adopted;*
9. *Feedlot water supply*
10. *Outline of social benefits derived from the proposed development;*
11. *Existing cattle operations on Clevecourt*

The following provides a response for each of the points raised.

1. Property Values

Some American publications (A. Kilpatrick, *Animal Operation and Residential Property Values*, 2015) have identified issues of property value reductions relating to a reduction in local purchases by an intensive animal facility and impact on more residential type land values. Neither of these parameters would be impacted by the proposal due to the scale of the facility and the intent to buy local in addition to the separation from rural residential areas.

Guidelines have been established by Government agencies to ensure appropriate separation distances are maintained between a feedlot and a residence. It is noted that this separation distance is based on mainly odour with the assumption that if odour impacts are considered acceptable, all other impacts such as dust and noise are also acceptable. These separation distances are based on independent research.

It is noted from property sales that values of properties adjoining other feedlot developments in the Gwydir Shire, including Myola Feedlot, Tullin Tulla Feedlot and Gunyerwarildi Feedlot have remained

unaffected by the presence of the feedlots. Property value have aligned with current property price trends.

It is noted that where the adjoining properties can produce commodities such as grain or silage suitable for feedlot consumption, financial benefits in the form of sale of these commodities have stabilised farm production and farm income to the benefit of the adjoining landholder.

Where cattle are produced on adjoining properties, the potential exists for production of cattle for processing through the feedlot. This benefits the adjoining landowner and the feedlot for market security.

2. Farm Stay Units

The proposed cattle feedlot will be screened by trees along the eastern side and therefore once these trees reach a height of approximately 1.5m, the feedlot would not be visible from *Peranjou*.

The issue of odour has been assessed in the Level 1 odour assessment. The calculations indicate that the nearby residences are sufficiently separated from the feedlot to ensure minimal impact on their amenity.

The Feedlot proponent notes that the Farm Stay facility was given approval *on the basis that it has no impact on farming activity*. This should be considered in relation to a feedlot proposal which is permissible with consent in rural areas of the Gwydir Shire.

3. Clarification of the intended use of Cooyong Road as a public road

Cooyong Road is a public road which is maintained by Council. The Proponent recognises the right of the public to utilise this road. Public access to Cooyong Road will not be limited by the proposed development.

The road will not be utilised as an internal road to the proposed feedlot development. The proposed feedlot will be located to the west of the road. Traffic travelling along Cooyong Road will not enter the boundary of the feedlot premises.

A buffer area is to be established along the road to provide an appropriate separation distance from the road to the closest feed bunk and to allow feed vehicles to travel to and from the feedlot pens without entering the public road.

It is also acknowledged that this road has been a matter of concern between the applicant and "Peranjou" prior to this application. The road passes close to the Clevecourt residence and through the centre of the farm workshops on the property. This area is regularly used by children and is unfenced. This is an historical issue that Council is aware of but is unable to resolve to the satisfaction of the applicant or adjoining property owner. Use of this road is controlled by Council and therefore not the subject of this application as the application does not impact the road.

Consultation with Council and Crown Lands in relation to restrictions on this road for appropriate use, suggests that users of the road should drive at a speed appropriate to road conditions. Such road conditions include dust generated off the road and the proximity of buildings that would be used by farm staff and residents, including children. For the convenience of safe road use, agreements that already exist should remain in place.

4. Outline of proposed management of feedlot drainage

The proposed feedlot is located on a hill a westerly sloping hill. The site has been surveyed and will be subject to some earthworks to ensure that all feedlot runoff is captured within a controlled drainage area. The controlled drainage area slopes west of Cooyong road.

Runoff from the Feedlot will not impact upon Cooyong Road. The road will remain subject to local runoff only.

5. Odour and Dust Management

The proposed feedlot will adopt a standard management regime to develop an appropriate depth of manure on the feedlot pad. An appropriate depth is between 25mm and 50mm. This depth will be maintained by pen cleaning. Removal of the manure is one mechanism that aims to reduce the potential for feedlot odour. Other actions include feed bunk cleaning, removal of spilt feed and maintenance of the pens to prevent wet areas developing. The feedlot ration will be controlled to minimise the level of raw grain in the manure. Improvements in feed efficiency has been identified as a key parameter for reducing odour in the manure pad.

In relation to dust management, the level of moisture in the feedlot pad will dictate the level of dust generated from the open pen area. The issue of dust would arise if the pad becomes dry. The level of moisture can be controlled by the density of cattle in the pen (production of urine and wet manure). Control of dust in the pens has a significant impact on cattle health. Avoidance of dust significantly reduces respiratory diseases in the cattle. In consideration of the high value Wagyu that are to be fed in this proposal, the Proponent has a significant financial benefit if dust is avoided and cattle remain healthy. Management can therefore alter pen density to suit conditions. Alternative, water can be applied to manage dust.

6. Access via Mount Rodd Road

Mount Rodd road is not identified as a road to be used by cattle trucks or truck associated with the Feedlot development. It may on occasion be utilised by local trucks generated from local producers of cattle or grain that supply to obtain commodities from the feedlot. This would result in the redirection of these local trucks which would already be considered as Mount Rodd road users.

The primary road to be used by trucks associated with the feedlot will be Gineroi road.

7. Biosecurity hazards associated with the use of Cooyong Road and proposed control measures

Cooyong road is a public road and therefore subject to Council control. Biosecurity matters for road users would remain the same as any other Council road. This may include covering of loads and avoidance of the spread of weed species that may be carried on vehicles or farm equipment.

It is noted that the adjoining landowner who utilises this road as a main access, occasionally utilises this road to move stock. As the road is not fenced, appropriate discussions with Clevecourt would be expected as part of normal neighbourly relations. Appropriate discussions have occurred in the past and therefore would be expected to continue.

Additional biosecurity measures associated with the feedlot are not anticipated.

8. Feral Pigs and Pest Management Strategy

The proposed feedlot will adopt a standard management practices to control the incidence of pests, including feral pigs. Management strategies are based on recommendations outlined in the National Biosecurity Manual for Beef Cattle Feedlots (2013). Strategies include:

- Implementation and maintenance of pest and vermin control programs;
- Checking of bait stations weekly, with fresh baits set as required; and
- Record keeping of pest control activities.

Bait stations should be placed away from access by cattle, and designed to minimise the opportunity for other animals and birds to access the bait.

The problem of feral pigs cannot be solely related to activities on Clevecourt. Pigs generally cover a wide home range which is dictated by seasonal conditions. Standard pig cull operations would be adopted.

9. Feedlot Water Supply

The Feedlot intends to utilise their harvestable right to obtain water for the feedlot as the primary source. This consists of capturing up to 10% of farm runoff as outlined in legislation. The intention is to utilise on-farm dams for this purpose. This may involve extension of existing dams.

Additional water would be obtained from bore water obtained from the Upper Gwydir Valley alluvial sources. This water is based on river gravels and not the fractured rock aquifers available in the hills of Clevecourt and adjoining properties. This local fractured rock aquifer may drain toward the alluvial aquifer but extraction from the alluvial aquifer will not have an impact on the fractured rock aquifer system.

10. Outline of social benefits derived from the proposed development

The development is considered to have positive benefits for the local and regional economies. The construction phase will generate employment opportunities and income for contractors in the local area. Once the feedlot is operational it will offer the equivalent of 2 full-time employment positions on site.

Further, the feedlot will increase Clevecourt's current demand for external resources, such as purchase of grain. This will generate additional work for those involved in haulage, and increased demand and market opportunities for cattle feed produced locally and regionally.

The proposed feedlot is therefore predicted to improve local employment opportunities and income levels in nearby towns such as Bingara. This has the potential to generate positive flow-on effects throughout the local economy through increased spending.

Provision of rural employment opportunities also has the potential to increase the capacity of the area to retain younger working demographics, which otherwise may be required to migrate to regional centres to obtain suitable employment opportunities.

The proposal will also assist in stabilising and supporting employment opportunities in local industries, such as abattoirs, trades and rural suppliers through the purchase of goods and services from local providers. This is considered as a standard economic flow on effect from capital expenditure.

Overall, social benefits derived from the proposed development are closely aligned with the regional economic opportunities that the development offers.

11. Existing cattle operations on Clevecourt

The proposed feedlot will be limited to a capacity of 1,000 head as per the application. No additional feedlot activities will occur on the property of Clevecourt.

Clevecourt will continue to be used as a grazing enterprise to breed cattle for feeding through the proposed feedlot as well as for sale as grass fed animals. The enterprise will continue to produce Wagyu cattle for direct sale to other properties. Only selected cattle will be processed through the feedlot.

Once the feedlot is operational, the area of holding pens which currently extends to the north of the feedlot side will be utilised as part of the normal cattle yards and not used for feeding of cattle within a confined yard area. The northern section of the existing yards will be remediated back to a grass paddock and used for rotational grazing.

Development of the Feedlot will result in an overall increase in cattle numbers on the property as the feedlot will offer the opportunity for an intensive animal facility. Cattle density in the surrounding grazing paddocks will remain subject to management and ongoing operations of the farm. These operations are permissible without consent in a rural zoned area.

Please do not hesitate to contact our office should you require any further information or have any questions.

Regards,

Natasha Livingstone

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