

UNISON FARMS

BEEF AND POULTRY FARM

LOW DENSITY MOBILE OUTDOOR POULTRY FARM

ENVIRONMENTAL MANAGEMENT

PREPARED FOR EWEN NETTLETON

FEBRUARY 2025

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Document details:

Document history

Date	Document Name	Document manager	Summary of documentation	Client delivered
Feb 25	148 - EMP Unison Farms Rev1a-Feb25	JM	Draft for client review	Feb-25
Mar 25	148 - EMP Unison Farms Rev1b-Feb25	JM	Final	Mar-25

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1. Introduction

1.1. Background

1.1.1 Regenerative Agriculture: A Local Solution to Global Climate Challenges

Climate change is one of the most pressing global challenges, with agriculture contributing to approximately one-third of the world's carbon emissions. Every stage of food production—from cultivation and processing to transportation, distribution, and consumption—impacts not only the environment but also human health. Regenerative agriculture offers a transformative local solution to these global issues. By focusing on restoring soil health, enhancing biodiversity, and sequestering carbon, this approach directly addresses the environmental impact of traditional farming methods. On a local scale, practices of rotational grazing and daily poultry movement reduce the need for external inputs like chemical fertilisers, lowering greenhouse gas emissions. Regenerative farming also produces healthier, nutrient-dense food while improving ecosystems through enhanced water retention, reduced erosion, and thriving biodiversity. Furthermore, by utilising local abattoirs, suppliers, and markets, these farms significantly reduce food miles, cutting transportation emissions and strengthening local supply chains. This not only minimises the environmental impact but also supports local businesses, creates jobs, and fosters a resilient regional economy. By building connections within the community and prioritising sustainability, regenerative agriculture ensures a robust and climate-resilient food system that benefits both people and the planet.

This report presents an Environmental Management Plan (EMP) for a proposed low-density, low-risk poultry production at Lot 148 (No. 168) Skippings Rd Boyanup (herein referred to as 'the site'). Unison Farms (the proponent) is proposing an extension to the current beef enterprise to improve pastures, and farm viability to include the operation of a low-density, low-risk poultry production operation. The site is 64.4ha in size and is composed of cleared paddocks with an existing house and associated sheds on the property. The site is generally bounded by Skippings Road to the west, Brookdale Road to the North and existing rural properties to the north-west, east and south.



Figure 1. Stud bull grazing on regenerative pasture that has been enhanced by the movement of poultry.

The extension to the beef enterprise is proposed in two phases; the first is a continuation of current pastured broiler operation with up to 500 birds per week leaving the farm for processing (1000 adult birds and up to 2000 chicks at varying ages at any one time) and the second phase will be an addition of 2500 laying hens.

The EMP has been prepared to provide a guide to the environmental management of the poultry farm operations with a focus on ensuring that environmental risk is minimised.

1.2. Context

Poultry extension farm planning provisions

Poultry farm: Land used to keep or breed poultry. Included in: Animal production.

Animal Production: Land used to keep or breed farm animals for the production of livestock, eggs, fibre, meat, milk or other animal products. Included in: Animal husbandry.

Environmental guidelines for the egg industry have been issued by Australian Eggs Limited. The “Egg Industry Environmental Guidelines” were prepared in 2018. It provides advice on farm and site selection and the management of farms. In addition, Australian Eggs Limited have also prepared a range of factsheets, including “Free Range Production: Management of Range Areas”. At a state level, the government has prepared the “Environmental Code of Practice for Poultry Farms in Western Australia” (Government of WA, 2004).

Guidelines for environmental risk assessments have been prepared by DWER. “Guidance Statement: Risk Assessments” was prepared by DWER in 2017. They provide guidance for the Department when assessing license applications and provide the framework for an acceptable risk assessment matrix which can be applied to most environmental assessments. The risk assessment and a copy of the criteria used is provided below.

Further planning provisions for the classification of a low-density outdoor mobile poultry farm have been provided by the Victorian Government (53.09 11/04/2019 VC156 POULTRY FARM). The Victorian Low Density Mobile Outdoor Poultry Farm Planning Permit Guidelines – Checklist has been developed to ensure that all information required by the Low Density Mobile Outdoor Poultry Farm Planning Permit Guidelines has been prepared prior to submitting a planning permit application, this has been used in conjunction with similar documents supplied in WA.

The operation guidelines apply to farms that:

- a maximum of 5,000 chickens for egg production or 10,000 chickens for meat production
- a production system based on keeping poultry outdoors in paddocks.
- a maximum outdoor stocking density of 1,500 birds /hectare
- mobile housing and feeding infrastructure that is relocated at least every two weeks.
- adequate separation from waterways, residential areas and sensitive uses a nutrient management plan is in place and at least 50% ground cover is maintained.

1.3. Location

Rural Zones Allowed Uses - The property at 168 Skippings Rd, Boyanup WA 6237, is classified as ‘rural’ for the purpose of general farming. The zoning supports agricultural activities, including pastured poultry farming and egg production. Surrounding farms primarily run beef cattle, which complements the mixed-use agricultural system planned. The site’s sandy soil supports pasture

development, critical for the poultry rotation system. Water is sourced from a bore treated with an Elliotts filtration system, ensuring a reliable water supply for livestock and infrastructure.

2. Description of Proposal

Unison Farms Pty Ltd proposes to operate a Low Density Mobile Outdoor Poultry Farm for:

- Up to 1000 chickens and 2000 chicks of varying ages at any time for meat production.
- Egg production utilizing mobile egg trailers housing up to 2500 laying hens.

This operation emphasizes regenerative farming practices, enhancing soil health, biodiversity, and nutrient cycling. The focus is on integrating poultry into the existing cattle operations to promote a financially viable, balanced and sustainable ecosystem.

2.1. Detailed Objectives

Sustainable Meat Production: Chickens raised for meat will be housed in mobile shelters moved daily, promoting natural foraging and minimizing environmental impact through dispersed manure loads.

Egg Production System: Mobile egg trailers provide a humane and sustainable solution for laying hens. Hens will have constant access to fresh pasture while producing high-quality eggs. 2036 will see a federally mandated phasing out of caged eggs. Small scale replicable mobile egg farms ensure a resilient food system that positively benefits the environment and consumer.

Regenerative Agriculture Principles: The farm aims to restore soil fertility, create diverse biology and improve carbon sequestration by rotating poultry and cattle grazing on the same paddocks. This reduces reliance on synthetic fertilizers and encourages robust pasture growth.

Waste Management: Brooder litter, manure, and broken eggs are composted onsite to create a nutrient-rich amendment for pastures. This closed-loop system ensures efficient nutrient cycling.

Water Management: A reliable water supply from a bore, treated with an Elliotts filtration system, supports livestock and operational infrastructure. Measures are in place to avoid runoff and protect waterways.

3. Name and Contact Details:

Title	Details
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Trading name	Unison Farms
Phone number	0419315188
Postal address	168 Skippings Rd
Town	Boyanup, 6237
Email address	Unison.farms@gmail.com

4. Property Details

The property's general farming zoning permits activities related to pasture poultry farming and egg production. It aligns with local land-use policies promoting sustainable agricultural practices.

Property Identification Code (PIC)	WDCL0049
Property Address	168 Skippings Rd Boyanup
Lot and Plan number (s)	Lot 148
Local government area	Capel Shire
Total area of property (ha)	64.88 Ha (160 acres)

5. Planning Implications

5.1. Planning Zone

The property's general farming zoning permits activities related to pasture poultry farming and egg production. It aligns with local land-use policies promoting sustainable agricultural practices.

The poultry operation is an extension of the existing beef farm, designed to enhance the current agricultural practices by integrating a low-density, regenerative poultry system.

The farm is situated on Lot 148A (64.88 Ha), is classified as rural and zoned accordingly under the Greater Bunbury Region Scheme and Shire of Capel's Local Planning Scheme No. 8 (see Figures 2 and 3).

Lot 148 has dual frontage to Brookdale Road (north) and Skippings Road (west). The site is regionally located in the vicinity of other rural properties engaged in a variety of agricultural enterprises, including livestock grazing, orchards, beef feedlots, dairies, horse stables, goat dairy, a blueberry farm, an olive oil pressing facility, a former free range egg business and other mixed farming activities.

The location is suitable for a poultry extension as it encompasses minimal environmental impacts, has adequate land with sufficient distance from watercourses and neighbouring properties. This aligns with the relevant guidelines and zoning requirements for a rural activity.

Additionally, by adhering to the Greater Bunbury Region Scheme's goals of sustainable land development, conservation of natural resources, and maintaining a distinctive rural landscape, the extension of the beef farm into poultry aligns with the region's long-term agricultural and environmental objectives.

The regenerative operation utilising mobile shelters is also in full compliance with the Shire of Capel's Local Planning Scheme No. 8 supporting the preservation of the rural character and enhancing agricultural productivity.

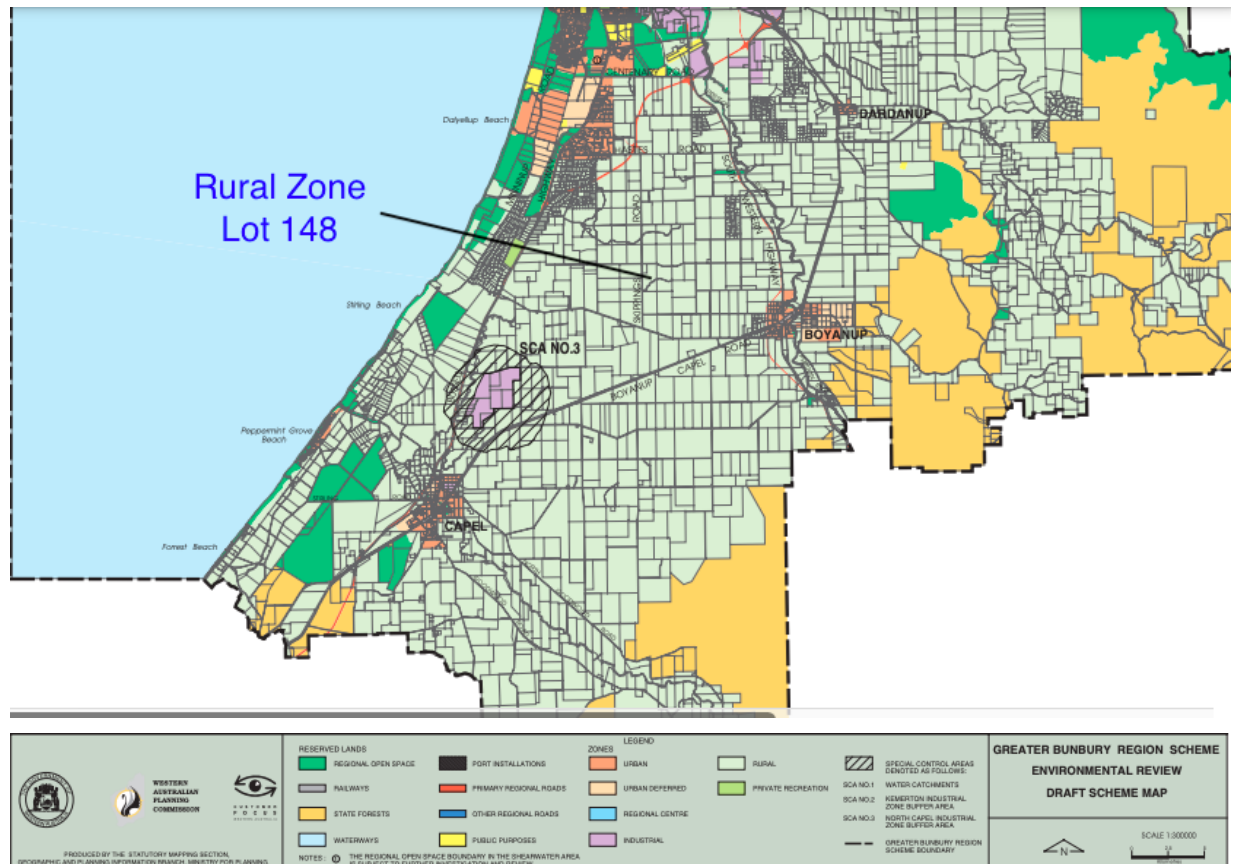


Figure 2. Map of Greater Bunbury Region Scheme highlighting the Rural Zoning for Lot 148 (GBRS) (EPA,2012)

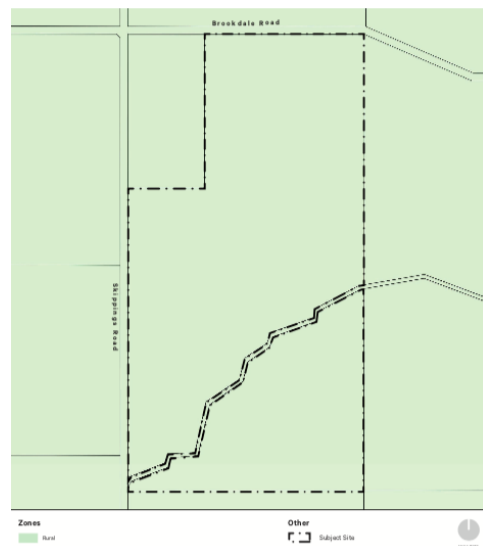


Figure 3. Greater Bunbury Region Scheme map of Lot 148 (GBRS) (EPA,2012)

5.2. Overlay(s) that Apply to the Property

The site features a Multiple Use Wetland (MU Wetland), classified as low environmental value. The geomorphic mapping of wetlands in South West Australia shows no conservation level wetlands downstream of the site for over 4km where seasonal water flow enters the Five Mile Brook. Protective measures ensure operations do not negatively impact wetland areas.

MU Wetland Audit MBS Environmental prepared an updated technical note re: MU Wetlands onsite (1127 & 1136)-see map below. The technical note concluded: The wetland is classified as a Multiple Use Wetland. The environmental value of the wetland is low.

Similar pastured poultry operations exist at Blue Tractor Farm - Shire of Nannup, Rosa Brook - Shire of Augusta Margaret River, Southampton - Shire of Donnybrook, Blackwood Valley Eggs - Shire of Bridgetown Greenbushes, Charcoal Springs - Shire of Manjimup, Blue Tractor Farm - Shire of Donnybrook, Runnymede Farm - Shire of Harvey. Numerous sites mentioned have conservation level wetlands bordering their respective properties and have been granted approval and no adverse environmental effects have been reported in the respective shires and therefore pose low risk to wetland areas.



Figure 4. Downstream view of sensitive wetlands extending 4km from Lot 148.

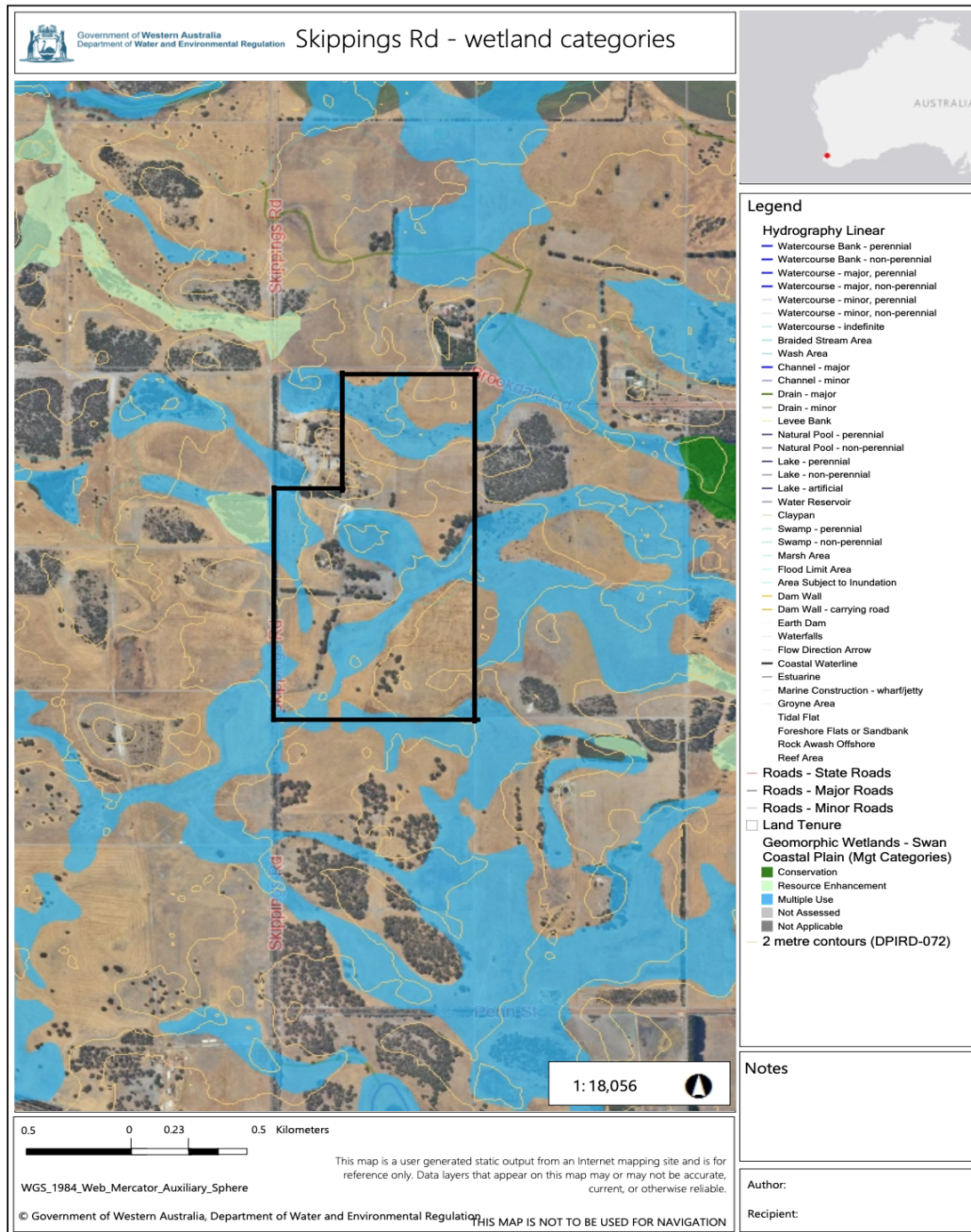


Figure 5. Geomorphic wetlands survey of Southwest Western Australia, Lot 148 is bordered in black.

5.3. Overlays Impacting Poultry Areas

Paddock layout and management strategies have been carefully designed to minimize disturbance to environmentally sensitive areas. By maintaining setbacks, rotational grazing

practices, and buffer zones, the farm ensures minimal impact on nearby wetlands and natural ecosystems. MU Wetland Audit MBS Environmental confirmed the wetland’s low environmental value, and all activities are aligned with protecting the site’s ecological balance.

5.4. Distance to receptors

The nearest residential property is over 100 meters away, the regenerative method of rotational movement significantly mitigates potential odour and noise impacts. The distance allows for natural dispersion of any emissions and ensures compliance with zoning requirements for low-density poultry farming. Additionally, noise control measures, such as efficient feed delivery and bird handling processes, further reduce disturbances to nearby residents. Zone 2 (Figure 7.) is set for use for the broiler part of the operation. These animals are quiet and have minimal noise and dust impact due to their sedate nature. Chickens will reside in Zone 2 for the months March through to December, avoiding the easterly prevailing winds associated with the hotter summer months that could cause any odour issues. The closest proximity with the designated 50m set back from the neighbouring property to the North West, will only be utilised during the prevailing North West / South West weather patterns from June to August (See Figure 6 for prevailing wind details of wind rose at Cape Leeuwin).

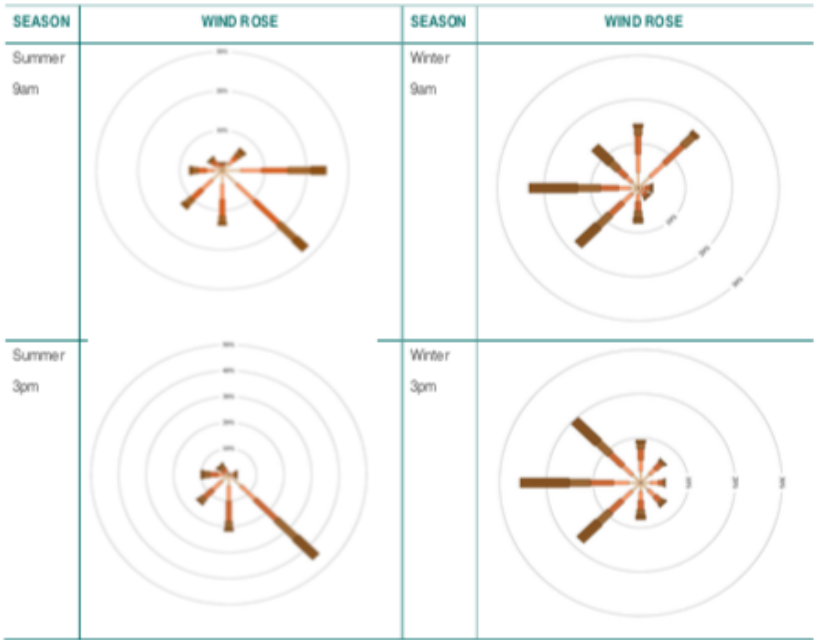


Figure 6. Wind rose data illustrates predominant wind patterns for Cape Leeuwin.

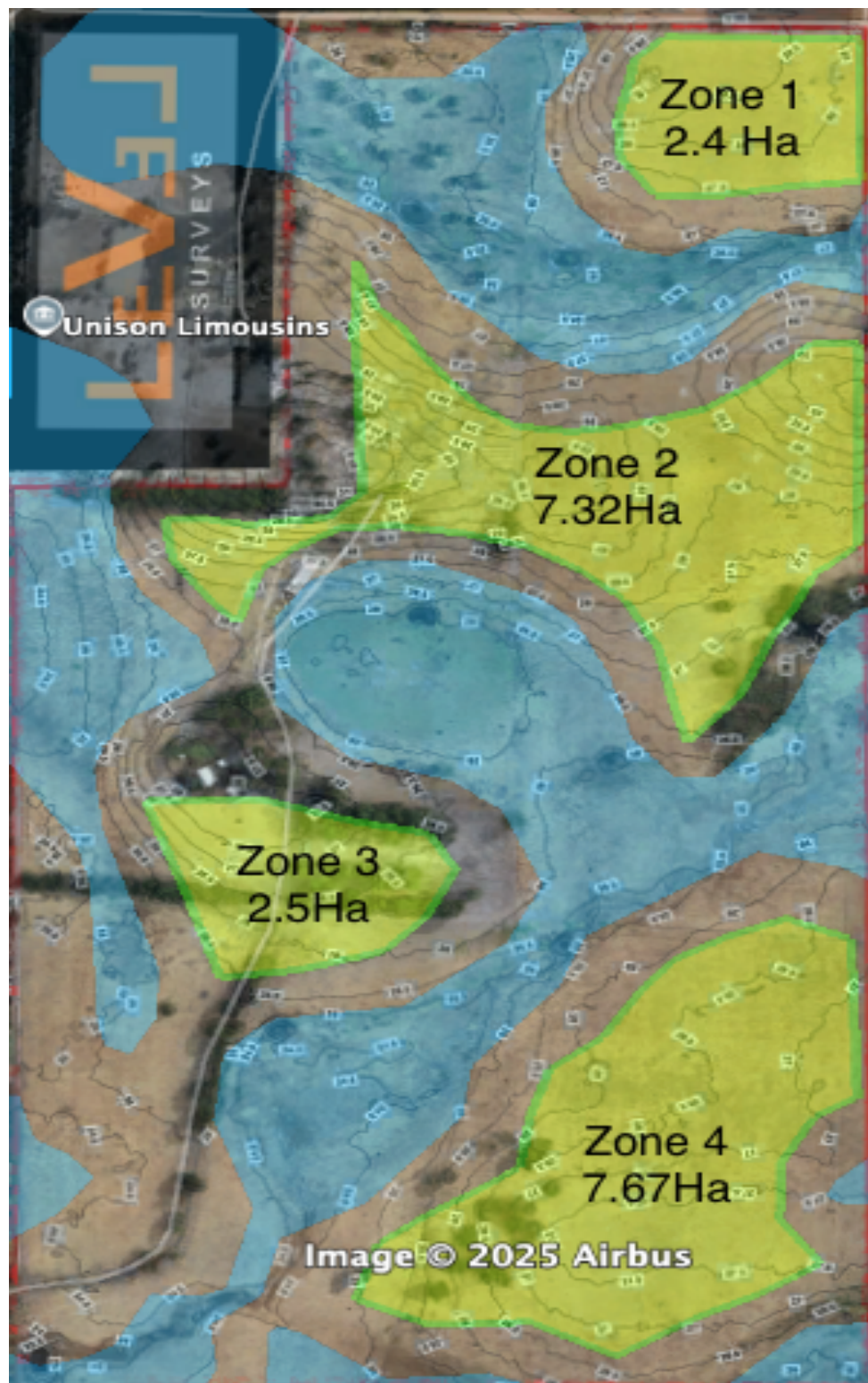


Figure 7. Poultry production zones with a 50m buffer to wetlands. Each zone is marked with the area for poultry.

5.5. Setbacks from Waterways

The farm maintains setbacks of 50 meters from wetlands and waterways, in compliance with environmental guidelines. These setbacks are reinforced by fencing and vegetative buffer zones, which help to filter runoff, prevent erosion, and protect water quality (further details are outlined in the nutrient management plan). Regular monitoring ensures that these buffers remain effective, and best practices are followed to minimize any risk of contamination (See Figure 7.)

5.6 Traffic volumes from proposal

Traffic impact is minimal due to the low scale nature of the operations. Vehicle movements consist of daily movement of shelters, monthly feed deliveries, two processing trips per week (one for broilers and one for eggs), and fortnightly chick deliveries. The property well-maintained has sufficiently maintained roads to support operational requirements without causing significant wear or disruptions to local traffic. The neighbours that frequently use Skippings Rd have been notified and have no objection to the use of the road for the intended purpose.

6 Production System

6.1. Production System

The farm currently operates a rotational cattle grazing model and is now proposed to extend into mobile shelters for laying and broiler chickens. Frequent movement prevents overgrazing and supports pasture regeneration. This regenerative system is designed to enhance nutrient recycling and soil health benefiting the environment and animal welfare. Figure 8 highlights the improvement to pasture from the movement of the chickens.

The regenerative poultry area is designed to complement and support the existing beef farm. The poultry numbers will be maintained at a level that aligns with regenerative agricultural practices promoting pasture growth, ensuring the operation remains environmentally sustainable. The operation requires frequent rotational grazing and poultry unit movement to maintain at least 50% ground cover. This approach helps prevent any negative impacts on the land, such as manure accumulation, while promoting healthy pasture growth and improving soil quality.



Figure 8. Positive impact of chicken movement of pasture. The greener areas have had chicken activity.

6.2. Chicken Numbers and Composition

6.2.1. Broilers in brooder

Day old chicks are delivered to the farm and placed in the brooder for the first 21 days to allow for feathering and thermoregulation. Up to 2000 chicks will be in the brooder at any one time. Two brooders are in operation in existing sheds and one mobile trailer (see figure 9, 10 and 11). 100 - 150mm of sawdust is spread as litter to provide a high carbon-nitrogen ratio to keep chicks in optimal health (see figure 10). Chicks at 21 days are then transferred to pasture for approximately 3 to 4 weeks (25 days).



Figure 9. Brooder inside existing shed



Figure 10. Inside the shed brooder



Figure 11. Mobile brooder

6.2.2. Broilers in Paddock

1000 adult chickens and at any one time at a stocking density of 6.5 birds per square meter. Once chickens reach a live weight between 3 and 3.6kg they are transported, once a week, to the micro abattoir in Balingup for processing.

Daily rotation of a maximum of 20,000 chickens per year over 10 months will require approximately 7.5ha. Shelters 12m x 4m will protect the chickens for the duration of their time on pasture. Currently 6 shelters have been constructed with 3 more needed to accommodate further expansion. Current production is 12,000 chickens per year. Year on year growth and demand has the potential to increase by a further 8,000 chickens in the coming years.

6.2.3. Laying hens

2500 laying hens housed in mobile egg trailers. There will be a total of 5 egg trailers which can house 500 laying birds. The egg mobile has a section in the front for egg collection from the conveyor belt, which is out of the elements and away from chickens to help maintain egg hygiene and there is a shelf above the conveyor belt to place spare egg trays and full trays of eggs.

6.3. Area Available for Birds

The property is 66.4Ha in total. Allowing for a 50m buffer to wetlands there is 22ha that is considered for the poultry production area. A property plan showing the layout of available poultry range areas is available in Figure 7. It shows the details of the area and paddock numbers.

6.3.1. Phase 1: Broiler

Broilers housed in 9 shelters measuring 12m x 4m shelters will traverse over Zone 2, in the central region of the farm (Figure 7). The system allows the pasture to rest encouraging plant diversity, avoiding issues of overgrazing creating shallow rooted monocultures and creates a healthy soil biome with adequate summer coverage to shelter soil microfauna from UV and excessive heat. From observations pasture recovery is seen three weeks after impact from chicken movement during the growing season.

6.3.2. Phase2: Egg production system

Area in use by the entire flock at any point in time: 0.5ha per shelter for laying utilising mobile poultry netting and mobile trailers traversing a total of 12.5Ha. Laying hens housed in mobile egg trailers have continuous access to fresh pasture. These trailers are equipped with wheels and are moved frequently to new grazing areas, following a strategic rotation schedule. This constant movement supports optimal pasture utilization and reduces the accumulation of waste in any single area. The rotation system also aligns with regenerative agriculture principles by promoting biodiversity, soil aeration, and natural fertilization through evenly distributed manure. The total number of paddocks available for use by the birds is 4 paddocks. Zones 1,3 and 4 will be the predominant location for the laying hens (See Figure7).

6.4 Chicken Movements

Chicken movements are a critical component of the farm's operational efficiency and sustainability.

6.4.1. Broilers

Broilers are initially reared in the brooder shed until they reach a suitable age and size for pasture. Once mature, they are transferred to mobile shelters where they graze on fresh pasture daily. These shelters are relocated daily to new sections of zone 2, ensuring even distribution of nutrients, promoting grass regrowth, and minimizing the risk of soil compaction or overgrazing.



Figure 12. Aerial photographs of the broiler shelters illustrating daily movement and positive impact on pasture.



Figure 13. Aerial photograph shows rotational grazing of cattle (top left of image) with the poultry extension improving pastures.

6.4.2. Layers

Laying hens housed in mobile egg trailers have continuous access to fresh pasture and are not contained to shelters but free range over netted area (0.5ha). These trailers are equipped with wheels and are moved daily to new grazing areas, following a strategic rotation schedule. This constant movement supports optimal pasture utilization and reduces the accumulation of waste in any single area. The rotation system also aligns with regenerative agriculture principles by promoting biodiversity, soil aeration, and natural fertilization through evenly distributed manure.

The movement schedules for both broilers and laying hens are carefully planned to allow paddocks sufficient rest periods, typically three months, before being revisited. This rest period ensures the recovery of vegetation and helps maintain at least 50% ground cover, reducing the risk of erosion and nutrient leaching into waterways. Regular monitoring and adjustments to these schedules ensure the health of both the birds and the land they inhabit.



Figure 14. Aerial photo showing impact of chicken movement on pasture (Image courtesy of Simple Ben Stories)



Figure 15. Hen movement over pasture and the impact of egg enterprise in Harvey (Image courtesy of Simple Ben Stories)

7. Poultry Housing, Fencing, Feeding and Water

7.1. Poultry Housing

7.1.1. Broilers Chicks:

The brooder shed are 10 metres x 4 metres with a concrete floor. The walls and roof are constructed using cool room panels. The brooder shed are in an existing shed and will house young chickens until the appropriate age/size is reached, before moving to pasture. Chicken litter from the brooder shed will be swept out, composted and eventually applied to the land.

7.1.2. Broilers:

Shelters constructed with galvanized steel frames and tarpaulin roofing for durability and weather protection. Nine chicken shelters are sized appropriately to accommodate up to 300 birds at any one time. A skidding hoop structure 12m by 4m which allows a vehicle with a winch is used to pull the shelter forward easily.



Figure 16. Broilers in a shelter with feed trough and drinker lines suspended from the structure. The same feeding and drinker system will be utilised for both laying hens and broilers.

7.1.3. Egg Layers:

Mobile egg trailers equipped with nesting boxes, roosting bars, waterer, feeder and weatherproof design to support year-round production.

All infrastructure such as feeders, waters etc are part of the shelters and moved daily to avoid any areas of over grazing near feeders and to ensure nutrient load is evenly spread, groundcover is managed, and birds access fresh range areas. Water is supplied by 60L containers. Water then feeds into lines of nipple/cups drinkers. Feed is placed into troughs which are suspended from the roof of the structures.



Figure 17. Poultry housing for laying hens. It contains roosting space, hanging feeders, nesting boxes and nipple drinkers

7.2 Fencing

Secure fencing is a vital component of the farm's infrastructure, designed to protect poultry from predators while maintaining effective containment. The fencing system will also consist of netting for egg laying birds to deter potential predators such as foxes and wild dogs. The electric components are strategically installed to ensure comprehensive coverage without gaps, providing a reliable barrier to safeguard the birds.

Fencing not only secures the perimeter of the paddocks but also aids in controlled grazing rotations by delineating grazing areas. This supports the systematic movement of poultry shelters and egg trailers while maintaining the integrity of buffer zones near environmentally sensitive areas. Routine inspections are conducted to ensure the fencing remains in optimal condition, with immediate repairs made when necessary.



Figure 18. Electric netting used to keep laying hens in designated areas and keep them safe for predators.

7.3 Water and Feed Infrastructure

7.3.1 Water

A robust water and feed infrastructure is integral to supporting the health and productivity of the poultry. Water is sourced from an on-site bore, treated with an advanced Elliotts filtration system to ensure a clean and reliable supply (See figure 19). This water is distributed through nipple cup drinkers suspended off the ground, in both mobile shelters and egg trailers, guaranteeing consistent access for all birds. Waterers are designed to minimize waste and prevent contamination, with regular maintenance to ensure functionality.

The Skippings Rd property is located within the Five Mile Brook catchment area and the Bunbury West Groundwater Area, and as such, we will adhere to all relevant regulations for water extraction.

The Skippings Rd property holds a groundwater licence (GWL 60185(3)) for 2000kL from the Yarragadee, primarily for domestic use and stock watering. Ongoing monitoring of water quality parameters such as salinity, turbidity, iron and contamination levels and ensure that the water supplied to the poultry is safe for consumption. To ensure safe water quality we have implemented a whole-farm filtration system designed by Elliot's Filtration. (See 13.2 Appendix 2: Water testing results)



Figure 19. Water filtration unit to treat bore water

7.3.2 Feed

Feed is sourced from local mills that have the capacity to provide high quality feed to promote healthy animals and manure deposition. Feed deliveries occur once per month. All feed is stored in closed containers to reduce contamination from wild birds.

8. Feed – Type, Amount and Storage

8.1. Type of Feed

The broilers and laying hens graze on pasture and are supplemented with high-quality grain feed. Feed is sourced from local mills that have the capacity to provide high quality feed for the best animal welfare. Feeders in the mobile shelters and egg trailers are adjusted to meet the specific needs of meat birds and laying hens, ensuring optimal nutrition. Regular monitoring of feed consumption allows for efficient management and helps minimize waste.

Type of Feed	Amount kg/day used
Layer mix	~250kg
Broiler mix	~250kg

8.2. Feed Storage

Feed storage facilities are strategically located in proximity to paddocks for ease of distribution. These facilities are vermin-proof, constructed with sealed containers and raised platforms to prevent contamination and procedures are in place to ensure spilt feed is cleaned up immediately.

8.3. Maintenance of Groundcover

The chicken production area will be a designated area located within the central portion of the site and achieves the minimum separation requirements outlined within the Code of Practice (WABGA & PFAWA 2004) and draft advice note (DWER2017). Chickens will be housed in coops that will be moved on a regular basis to allow soil and pasture to recover, with a minimum of 50% pasture cover maintained. In addition to grazing by chickens, paddock grasses will be grazed by cattle and/or harvested (as appropriate), to promote growth and nutrient uptake.

Paddock areas: the generation of dust and growth of pasture within the site will be managed based on ensuring paddock grasses and groundcover remains intact. Chicken coops (along with the cattle) will be moved on a regular basis to ensure a 50% pasture cover is always maintained. In the unlikely event that the groundcover cannot be maintained by moving the coops daily straw/hay will be placed over bare areas of earth to minimise the generation of dust.

8.4. No return period and pasture management

Once poultry have left a paddock (or area of a paddock) they will not return to the same area for a period of 3-6 months. This is a guide as the pasture will be inspected and chicken will only return if sufficient ground cover has been achieved during the fallow period. This is to allow the pasture to recover, maintain species diversity and actively grow.

9. Farm Management Details

9.1 Dust minimisation

- Grass coverage of 50% always maintained.
- Regular movement of shelters to minimise disturbance to the pasture
- Buffer zone of 50m from the boundary

- Production close to neighbouring properties will only be utilised during appropriate prevailing winds.
- Broilers will be used as closest proximity to neighbours to mitigate dust potential.
- Natural screening is in place on the northern boundary of Lot 148 and Lot 379.

Dust minimisation will be effectively managed through several strategies designed to reduce airborne particulates that could impact both the local environment and surrounding properties. The rotational grazing system, which moves the poultry units regularly across fresh pasture, helps maintain soil structure and cover, significantly reducing dust generation. As noted by the Department of Primary Industries and Regional Development (DPIRD), maintaining consistent ground cover is crucial for preventing dust in farming operations, especially during dry periods. This system ensures grass cover year-round, which plays a vital role in stabilising the soil and preventing erosion. A natural vegetation and topography screen is in place on the northern boundary to Lot 379. Broiler production will be designated to Zone 2. The inherent characteristics of broilers mean they have minimal disturbance to the soil surface therefore mitigating dust potential. The design of the system is based on, improves pastures therefore overall dust mitigation will improve year on year as chickens pass over the area.

9.2. Visual impact

- Regular movement of shelters
- Natural vegetation and contour barriers (can be extended if necessary)

Visual impact of the poultry operation will be minimal, in keeping with the surrounding rural landscape. The mobile poultry units are designed to blend into the environment, with their temporary nature and frequent rotation ensuring they are not permanently visible in one area. The units are placed across the paddocks in a manner that prevents long-term visual disruption and maintains the rural character of the property.

According to the Shire of Capel's guidelines, maintaining the visual amenity of rural areas is a priority, and the operation aligns with these expectations. Additionally, by using rotational grazing practices and keeping the operation small-scale, the land will maintain continuous grass cover, further integrating the operation into the natural environment. As noted by the Australian Farm Institute, "well-managed farming systems, especially those that embrace rotational grazing, have minimal visual disruption and are integrated into the broader landscape." This ensures that the operation complements, rather than detracts from, the visual appeal of the surrounding rural

setting. Currently, there is a natural vegetation barrier to Lot 379 On the northern boundary of Lot 148. This can be extended to the western boundary if there is a perceived problem.

9.3. Odour management

- Regular movement of shelters
- Location of animals will be dependent on prevailing winds to minimise negative impacts on neighboring property.
- Appropriate location and compost management will reduce potential for odour related problems.

Odour management will be effectively addressed through the extensive rotational grazing system, which provides poultry with continuous access to fresh pasture. By rotating the mobile poultry units regularly, we prevent the accumulation of manure in one location, ensuring that odour is consistently minimised. This extensive method not only reduces waste build-up but also ensures that grass cover remains uninterrupted, allowing the pasture to naturally absorb nutrients and avoid any potential for unpleasant odours. As noted by the Rodale Institute, a leader in regenerative agriculture, states, "Regenerative farming practices, such as rotational grazing, not only improve soil health but also reduce odour, as they prevent the over-concentration of waste in any one area." The incorporation of pasture improvement practices ensures the land remains healthy, further supporting its ability to process nutrients and reduce odours.

Additionally, the poultry extension benefits from effective composting of mortalities and accumulated manure. Accumulated bedding material from brooding will be applied to pasture using a multi-spreader, which contributes to soil fertility while mitigating the risk of odour. Where material cannot be immediately spread it will be composted as outlined in Appendix 6, SAO004. Regular monitoring of the brooder bedding material will be conducted to ensure any concerns are promptly addressed, supporting a healthy and sustainable farming system. This approach exemplifies how responsible waste management practices can be integrated into a low-impact, regenerative farming model.

9.4. Waste management

Waste management is a critical component of diversifying beef farms to improve pasture including regenerative poultry, and we adhere to the relevant guidelines set by the Shire of Capel to ensure compliance with local environmental standards. Poultry manure is managed through a rotational

grazing system, where chickens are regularly moved across the paddocks. This evenly distributes waste, acting as a natural fertiliser that supports pasture growth without the need for chemical fertilisers.

As the American Pastured Poultry Producers Association (APPPA) states, "Rotating pastured poultry helps manage manure efficiently, allowing it to be spread evenly across the land and contributing to soil health." Regular rotation ensures a thin, even application of manure, reducing the risk of pest build-up. According to the Rodale Institute, "Regenerative farming practices, such as rotational grazing, reduce pest populations by disrupting breeding cycles, including stable flies." By avoiding over-concentration of manure, thus preventing environmental impact and health concerns related to waste accumulation.

Manure levels will be constantly monitored to ensure compliance with the environmental guidelines of this report. The operation's design prioritises sustainability and animal welfare, reflecting the commitment to exceeding regulatory standards while promoting ecological health.

Broken eggs are collected daily and added to the composting process. Compost management includes regular turning and monitoring to ensure decomposition and pathogen control. SOP 004 Waste disposal from the Unison Food Safety Manual details the management of waste disposal. Well managed compost and evenly spreading to the paddocks is designed to complete the nutrient cycle, whilst minimising possible impacts on the environment.

10. Mortalities Management

10.1. Mortalities Management

Dead birds are composted on-site in a dedicated area designed to contain odours and pathogens. SOP 004 Waste disposal from the Unison Food Safety Manual details the management of waste disposal.

10.1.1. Mass Mortalities Contingency Plan

In the event of a disease outbreak, the site will follow any veterinary instruction and the AUSVETPLAN Enterprise Manual Poultry industry (Chickens, Ducks and Turkeys) for guidance

on managing a disease outbreak. Which if required will include contacting the emergency disease watch hotline.

For mass mortality events (disease or other events such as heat stress) any veterinary advice will be followed, along with council and EPA instruction and AUSVETPLAN Operational Manual: Disposal for managing the mortalities.

Contact details:

Company	Number
Poultry Vet - Portec Veterinary Service	Kim - 0429960051
Emergency disease watch hotline	1800 675 888
Capel Shire	9727 0222
EPA	1300 372 842.

11. Pest Management - Predators, Pests, Rodents and Wild Birds

Effective pest management for free-range chickens involves targeted strategies for common threats. For rodents, secure feed storage, regular cleaning, traps, and natural predators like barn owls are effective. Bird control includes covering feed and water, using netting, and employing deterrents to minimize disease risks. Foxes can be managed with electric barriers, lights, guard animals and control measures.

11.1. Rodents

Rodent bait stations using tomcat stations with bait blocks containing brodifacoum are checked monthly in the dry good store. No other rodent stations are used near the shelters to reduce the risk of rodenticides contaminating the birds or eggs.

11.2 General Hygiene

11.2.1. Broilers brooder:

Cleaning of the brooder is undertaken between each batch to ensure there is no build of harmful bacteria.

11.2.1.1 Broilers shelters

Mobile shelters are high pressure cleaned between each batch and water lines are flushed with a 1% solution of chlorine.

11.2.2 Laying hens

Mobile shelters are pressure cleaned on an as needed basis. This ensures clean eggs and reduces mite infestations.

12.1 Stable Fly Management Plan

Objective: To ensure that the potential for pest and fly breeding (stable fly) on site is minimised. The Stable Fly Management Plan shall be read in conjunction with the Pest Management Plan. See appendix 9. It is noted that by virtue of the declaration made under section 22 Biosecurity and Agriculture Management Act 2007 that Stable Fly is a declared pest. The SOP 004 Waste disposal Will be adhered to ensure that there are no suitable breeding grounds for stable fly.

Farm Management Overview

Proposed Measure	Description	Schedule	Responsibility
Brooder shed	The shed infrastructure (i.e. impermeable floor, walls, windows, feeders, waterers etc.) will be maintained in good working order	At all times.	Facility manager
	Sweep and clean out brooder litter from shed, as required.	As required (potentially every 3-4 weeks)	
	Dispose of dead birds appropriately.	When necessary	
Brooder litter to application area	Evenly spread of brooder litter to the land	At all times,	Facility Manager
	Brooder litter material to be applied based on pasture growth and seasonal requirements	As required.	

	Area to be rotationally grazed by cows, and hay to be cut as required. This is to maximise pasture growth.	Ongoing	
Chicken production area	The coops will be maintained in good working order to allow frequent movement	At all times	Facility manager
	Move the coops as required to ensure 50% pasture cover or more is maintained where coops are located.	As required	
	Dispose of dead birds appropriately	When necessary	
	Area to be rotationally grazed by cattle (ahead of chicken coops), and if required, hay to be cut as required. This is to maximise pasture growth.	Ongoing	
Compost management area	Maintain compost storage area infrastructure (i.e. weather-proof roof and hardstand) in good working order.	At all times	Facility manager
	Visually inspect compost areas to ensure composting litter is located on bunded hardstand areas. Where material identified outside the hardstand area, this should be immediately rectified.	Weekly and/or as required	
	Rotate composting litter material, as per the procedure in Appendix 6.	As required	
Paddock areas	Maintain an average of 50% pasture cover across the area of the site, chickens are housed (i.e. chicken production area).	At all times	Facility manager

	Chicken coops to be moved frequently to allow pasture under coop to recover	As required	
	Place straw over bare areas of earth to minimise the generation of dust.	As required	
	Cattle to graze areas where chicken coops are not located and will be rotationally moved.	Daily	
Wetland buffer	Wetland buffer to be maintained	Daily	Facility Manager

13. Environment

An understanding of the existing environment is required to identify and manage potential risks to the natural environment from the proposed extension to the beef operation. The relevant environmental attributes and values of the site are summarised as follows:

- The site is currently used to graze livestock, with only scattered paddock trees remaining, predominantly around the existing dwelling and plantations along tree lines.
- The site is regionally located vicinity of other rural properties engaged in a variety of agricultural enterprises, within a 5km radius includes livestock grazing, orchards, beef feedlots, dairies, horse stables, goat dairy, blueberry farm, olive oil processing facility and other mixed farming activities. A free-range poultry farm located 3.5km from the site is no longer in operation.
- The climate of the south-west of Western Australia is a 'Mediterranean' climate which is described as cool. Wet winters and hot, dry summers.
- The average rainfall recorded at the Boyanup station is recorded by the Bureau of Meteorology as 935mm per annum long term and 800mm for the 10-year average (Bureau of Meteorology, 2024) see appendix 1.
- Topography on the site ranges from 31.5 m Australian Height Datum (AHD) in the highest point in the western portion of the site to 24 m AHD along the south-western boundary. A small creek flows from the Eastern portion of the property at 26m AHD to the Southwest corner exiting at 24m AHD.

- The topography of Lot 148 is gently undulating, with a sandy ridge extending from east to west within the production area.
- The surface geology of the subject site is generally mapped as within the Bassendean B2 Phase, characterised by flat to very gently undulating sandplain with well to moderately drained deep bleached grey sands with a pale-yellow B horizon or a weak iron organic hardpan.
- The site is located within the 5-mile book catchment area. It is considered to have poor water quality due to existing land use and soil type.
- The wetlands on the property are classified as Multiple Use Wetlands with low environmental value.
- Continuation of low value wetlands extends beyond 4km to the outlet of the seasonal drain to the 5-mile Brooke. There are no conservation category wetlands within 4 km downstream to the 5-mile brook from the site.
- Based on site specific monitoring, the depth to groundwater appears to range between 26m to 27.25m.
- Regional groundwater flows on the subject site generally run east to west, flowing towards the ocean.
- Long term DWER groundwater monitoring in proximity to the subject site was reviewed, determining the average annual maximum groundwater level (AAMGL) (1978 to 2022) at 20.52m AHD with the maximum groundwater level (MGL) of 22.43m AHD recorded in late 1980.

14 Australian Eggs Limited Guidelines

14.1. Introduction

This chapter presents a review of the recommendations and information in the “Egg Industry Environmental Guidelines” prepared by Australian Eggs Limited in 2018 (“The Guidelines”). They provide specific recommendations and a risk assessment for free range poultry farms which is applicable to this proposal. The AEL also have a separate Factsheet entitled “Free Range production: Management of Range Areas” which provides further detail on management of free-range farms.

Due to the outdoor nature of a free-range poultry farm, the AEL recommends that site selection for a free-range farm involves greater consideration of climate, topography, soil types and buffer

distances to nutrient sensitive receptors compared to other forms of poultry farming. This is because birds spend more time on the ground.

The below provides a review of the site selection considerations, the risk factors and the design factors as recommended by the Guidelines.

One main aspect to consider is that hens spend only 13.6% of their time outside the sheds. Of the time spent outside, birds spent 52.5% of this time in veranda areas within 2.4m of sheds, and a total of 81.5% within 11.4m of sheds. Nutrient deposition is closely correlated with the amount of time spent in each area, with most deposition expected to occur inside housing, due to the relatively small amount of time spent on the range (AEL, 2018).

14.2. Site considerations

14.2.1. Soils

The type of soil within the poultry farm extension impacts the potential environmental risk of erosion and leachate. A review and discussion of the soils on site is provided in 14.4.2.

14.2.2. Topography

The AEL recommends that gentle slopes are ideal because it means that water will not pool on the surface (causing waterlogged areas and localised flooding) and will not flow too fast downhill (causing erosion). Steep slopes are considered to be those with a gradient $>10\%$. The site topography is described in Chapter 3.2 above and the risk assessment is provided in 14.4.3 below.

14.2.3. Water management and drainage

Drainage of water (whether overland flow or infiltration) can influence the potential environmental risk to surface and groundwater. The AEL recommends that environmental management should consider the infiltration potential of the soil, depth to groundwater, erosion potential of the soil, repellence of the soil and the site slope.

A site with gentle slope is ideal as it means that water can drain (and will not pool to create waterlogged areas) but will not flow too fast, causing erosion. A gentle slope also makes it easier to contain water flow. Drainage is considered in the risk assessment provided in 14.4.3 below.

14.2.4. Hydrology

The AEL recommends that there should be adequate buffers/separation distances between the farm and surface water features (such as wetlands and watercourses). The appropriate distances vary depending on the significance of the water feature (i.e. whether it is a major watercourse or a minor tributary, RAMSAR wetland etc.) and the scale of development and other risk factors (such as potential runoff, slopes, erosion, soil type etc). Other considerations are whether the site is within an area subject to flooding, a Proclaimed Surface Water Management Area or within a Public Drinking Water Source Area.

In relation to groundwater, the main considerations are depth to aquifers, whether the site is within a Proclaimed Groundwater Area and what the aquifer type is (perched or confined). The AEL Guidelines state that “risk to groundwater is lower in areas where groundwater is deep and in confined aquifers or were protected by an impermeable layer.” The hydrology of the site has been described above, and the risk assessment is provided below.

14.3. Design considerations

Below is a review of the design of the proposed poultry farm in accordance with the AEL recommendations. The specific management recommendations are provided in the Environmental Management section 16 below.

14.3.1 Range Area Design

The AEL recommends that range areas are designed to minimise erosion and nutrient export off-site via runoff or drainage. Although most nutrient deposition occurs inside bird housing, nutrients deposited on the range are highest close to sheds and shade areas.

The AEL Guidelines refer to three different zones within the range area based on soil nutrient levels as follows:

- Zone 1 – 0-10m
- Zone 2 – 10-25m
- Zone 3- >25m

Most of the nutrient deposition on the range occurs in Zone 1. For Zone 2 areas (10-25m) from the shed, nutrient deposition can be substantially lower, but pasture cover can still be difficult to maintain, and nutrient accumulation can still be elevated. For Zone 3 areas (> 25m from the sheds) <25% of nutrients deposited in the range area are expected to occur in this zone. Management recommendations in this EMP are based on the AEL Guideline recommendations for each of these 3 zones.

14.3.2. Open-Floored Housing

The AEL states that “in open floored or slatted housing (such as some mobile bird housing) manure deposited within the shed is deposited directly onto the ground. If this manure is not collected, the total nutrient deposition on the range may be 7 times higher than an equivalent sized fixed shed (where only around 14% of nutrients may be deposited on the range area).” The AEL recommends regularly move open floored housing to assist with less manure deposition in each location. The movements should aim to provide fresh ranging areas for birds, ensuring that most of the nutrient deposition (associated with the housing and immediate area) does not occur in recently used areas. This regular rotation also allows for the reestablishment of groundcover.

14.3.3. Groundcover

Maintenance of good coverage of groundcover will also assist with the utilisation of nutrients from the bird manure. This in turn will lower the risk of nutrient loss. Groundcover also decreases the risk of erosion, which also reduces the risk of nutrient loss through movement of soil and contributes to healthy soil structure.

One option to assist with manure management and distribution is to collect manure from beneath bird housing which significantly reduces the total amount of nutrients deposited in one location. This manure can be spread in areas located within the poultry farm boundary with lower nutrient deposition to achieve a more even distribution of nutrients. This can be done when the housing is moved.

14.3.4 Vegetative filter strips

Vegetative filter strips (VFS) are small areas of well-maintained groundcover, which are specifically used to reduce the nutrient levels in overland flow/surface runoff. The AEL recommends the use of VFS's to achieve improved nutrient management, especially in areas where water naturally drains towards water features.

They should be designed and located so that runoff must flow across the VFS at a minimum water depth. This reduces runoff volume (though increased infiltration) and allows greater deposition of eroded soil and nutrients, as well as providing opportunity for nutrients to be adsorbed to soils. The AEL recommends that grasses used for a VFS are runner-developing, non-clump forming grasses that can effectively reduce nutrient and sediment concentrations in the runoff. Based off the AEL Guidelines, it is suggested that the VFS is located close to the poultry farm along all boundaries. The VFS can be placed on a small earth bund.

14.3.5 Mortalities

The AEL Guidelines suggest that composting dead birds is an environmentally and biologically safe method of disposal. A major advantage is the production of a nutrient rich humus-like material that can be used as a replacement for inorganic fertiliser and/or a soil amendment. When managed correctly the bird composting process can be completed in approximately six weeks. Compost areas should be designed to ensure that it is placed on an impervious surface (such as compacted clay, concrete or bitumen) and bunded to control water runoff.

Alternatively, on-site burial involves the construction of purpose-built pits into which mortalities are placed and covered with appropriate materials.

14.4 Nutrient Risk Assessment

The AEL Guidelines provide advice on the consideration of risk to surface and groundwater from nutrients. They state that the risk of nutrient losses to surface or ground water is driven by source and transport factors. This forms part of the primary focus of the risk assessment below.

Source factors determine how much nutrient is available to cause potential impacts. Some typical source factors are:

- the amount of nutrients deposited in different parts of the range,
- the distribution of these nutrients,
- background nutrient levels.

Transport factors determine how likely it is that these nutrients will reach the receiving environment. Some transport factors are the:

- erodibility of soil (affects mobilisation of soil bound contaminants),
- erosivity of rain (severity of rain events in the local area),
- slope and shape of the land,
- groundcover,
- permeability of soil,
- phosphorus buffering capacity of the soil,
- runoff modifiers (contour banks, vegetative filter strips),
- distance to waterways,
- depth to groundwater.

The above is taken into consideration in the risk assessment below based on the Guidelines and is supplemented by a further risk assessment below where the overall likelihood, consequence and risk is determined.

14.4.1. Rainfall Factor

The Guideline states “the rainfall factor is the highest weighted factor in runoff risk assessment, as it is a major driver of sediment bound, particulate and dissolved nutrient loss”.

The rainfall erosivity factor displayed on the map in Appendix C of the Guidelines is in the <5000 range. This is a “rainfall factor” of 1.

14.4.2. Soil profile

The Guidelines state that “the soil profile rating describes both the erodibility and infiltration capacity of the soil. The erodibility of soil has direct implications for the quantity of particle bound nutrients in runoff.”

The soil testing undertaken by CSBP within the proposed poultry farm areas states that the soil is “sand”. The sand content in all samples was relatively high at around 90% for all samples, with 4% organic carbon present. The DPIRD soil mapping describes the soil types as “deep sands”.

The soil profile as defined in Appendix C of the Guidelines is a rating of 1 as soils fit the classification of “Well structured/ draining soils (structured earths, structured loam soils, sand).”

14.4.3. Groundwater factor

The Guidelines state that “risk of impacts to groundwater is dependent upon the depth to groundwater and the level of protection afforded by impermeable layers in the soil profile.”

The groundwater factor as defined in EIL Guidelines is a rating of 4 depth to groundwater is >2m to surface groundwater where it is unprotected. Impermeable aquatards exist between the surface groundwater and aquifers of the Leaderville and Yarragadee.

14.4.4. Distance to Waterways

The Guideline states that “as the distance to nearby waterways increases, adsorption of dissolved nutrients in surface runoff increases, as does the likelihood of sediment deposition and an associated reduction in particulate bound nutrients. Sediment deposition is dependent upon decreasing energy of runoff waters through runoff modifying features, groundcover, or decreasing slope. The lower energy of runoff waters is also associated with increased infiltration, and thus less nutrient laden water being available for runoff.”

This factor needs to be considered in conjunction with the amount of groundcover. For example, if a vegetative filter strip is located between the farm and the waterway, this contributes to reducing the risk of this factor.

The distance to waterways factors as defined in the EIL guidelines is a rating of 4 it is between 30 and 100m from the seasonal creek. Wetlands within the site and further downstream are regarded as low environmental multi use wetlands.

14.4.5. Stocking rate

The Guideline states that “stocking rate of range areas is an important consideration as it relates to the capacity of the range area to assimilate and utilise nutrients.”

The combined size of the proposed poultry extension is approximately 22 hectares, broken into 4 zones. There will be a total of 3,500 adult birds at full capacity over the 22 hectares. The Guidelines recommend that for housing where manure in the housing falls directly onto the ground, that the stocking rate should be doubled. This is equivalent to 7,000 birds, which is 318 birds per hectare.

The stocking rate factor as defined in the EIL Guidelines is a rating of 1 as there are less than 750 birds per hectare.

14.4.6. Farm size

The Guidelines state that “farm size can determine the total amount of nutrients available for loss from range areas. The weighting of this factor represents the importance of total nutrient load in determining total nutrient losses.”

The farm size factor as defined in Appendix C of the Guidelines is a rating of 1 as there are less than 10,000 birds across the whole site (there will be a maximum of 3,500 adult birds).

14.4.7. Groundcover

The Guidelines state that “groundcover can protect soil from the erosive power of rainfall or overland flow and also slows runoff thereby reducing the erosive potential and increasing infiltration, resulting in lower runoff.”

The farm size factor as defined in the EIL Guidelines is a rating of 1 as the percentage of groundcover is between 80-100%, particularly the ground between the proposed poultry farm and the watercourses.

14.4.8. Pasture type

The Guidelines state that “pastures of different types have different rooting depths, with deeper rooted plants being better able to utilise soil moisture and nutrients. This ability to utilise moisture and soil nutrients results in a lower risk of nutrients draining to groundwater.”

The pasture type factor as defined in the EIL Guidelines is a rating of 4 as less than 30% of groundcover is deep rooted perennials.

14.4.9. Slope

The Guidelines state that “the weighting of this factor was determined by considering the responsiveness of total runoff to changes in slope.”

The slope factor as defined by the Guidelines is a rating of 1 as the slope is less than 1%.

Land shape

The Guidelines state that “land shape is an important factor which determines the speed of runoff waters and therefore their erosivity and likelihood of infiltration. Where flat land, or uniformly sloping land results in an even distribution of water across the surface, the presence of rills and gullies results in concentration of water and a resulting increase in the speed of runoff. As such, highly concentrated flows such as where a single large gully services the entire area, are considered the highest risk. Land shapes that slow water movement, such as swales and contour banks are considered to have the least risk.”

The land shape factor as defined in the Guidelines is a rating of 1 as the land shape is uniform flat or sloping land.

14.4.10. Soil P

The Guidelines state that “the soil phosphorus level determines the availability of phosphorus for use by plants or loss. Where soil phosphorus is high, additional phosphorus in the system is likely to be lost. Soil phosphorus alone is not sufficient to determine risk and must be interpreted in conjunction with the buffering ability (PBI) of the soil.”

The Colwell P from the soil testing undertaken by CSBP was 3mg/kg for the soil sample. For sandy soils this is a Soil P factor being below 8 has a risk of 1 as defined in the EIL Guidelines.

14.4.11. Topsoil PBI

The Guidelines state that “the Phosphorus Buffering Index (PBI) of the soil describes its ability to moderate changes in the level of available phosphorus in soil. This in turn influences the soil's ability to bind with phosphorus making it unavailable for loss.”

The PBI + Col P from the soil testing undertaken by Summit inSite was 47 and 29. The topsoil PBI as defined by Appendix C of the Guidelines is 8 as the PBI is less than 35 for sand soils.

15 Risk Assessment

15.1. Results

The risk assessment of range areas on surface water and groundwater is shown in the tables below. The content of the tables is based on the Guidelines (AEL, 2018).

Table 8 Risk scores and ratings	
Risk Rating	Risk Score
Low	100 – 400
High	400 – 600
Very High*	>600
* A Very High rating indicates that the site is not suitable for a free range operation.	

Table 1. Risk scores and rating created by the Australian Egg Limited to advise for the planning of free-range egg operations

Table 9 Risk assessment of range area impacts to surface waters						
RUNOFF FACTORS	FACTOR WEIGHT	FACTOR SCORE				RISK FOR FACTOR = WEIGHT X SCORE
		LOW	MODERATE	HIGH	VERY HIGH	
		1	2	4	8	
RAINFALL FACTOR	20	<5000	5,000 – <10,000	10,000 – 20,000	>20,000	20 x 1 = 20
DISTANCE TO WATERWAYS	15	>200m	100 – 200m	30 – 100m	<30m	15 x 4 = 60
FARM SIZE	15	<10,000	10,000 – <60,000	60,000 – <250,000	>250,000	15 x 1 = 15
SOIL PROFILE	10	Refer to explanatory notes				10 x 1 = 20
LAND SHAPE	10	Swales and contour banks	Uniform flat or sloping land	Slightly uneven, minor rills	Highly concentrated gully flow	10 x 2 = 20
GROUND COVER	10	80 – 100%	60 – <80%	45 – <60%	<45%	10 x 1 = 10
STOCKING RATE*	5	<750 birds/ha	750 – <1,500 birds/ha	1,500 – <5000 birds/ha	>5,000 birds/ha	5 x 1 = 5
SLOPE	5	<1	1 – <3.75	3.75 – 15	>15	5 x 1 = 5
SOIL P	5	Refer to explanatory notes				5 x 1 = 5
TOPSOIL PBI	5	>280 (clay)	140 – 280 (clay loam)	35 – <140 (sandy loam)	<35 (sand)	5 x 8 = 40
* Double stocking rate if trees are present on the range						

Table 1.1. Risk assessment for impacts on surface water at Lot 148. Risk factor calculated as 265

The total risk factor score for impacts to surface water is 170 which according to Table 1 is considered in the category “Low” in accordance with the AEL Guidelines.

Table 10 Risk assessment of range area impacts to groundwater						
LEACHING FACTOR	FACTOR WEIGHT	FACTOR SCORE				RISK FOR FACTOR = WEIGHT X SCORE
		LOW	MODERATE	HIGH	VERY HIGH	
		1	2	4	8	
SOIL PROFILE	25	Refer to explanatory notes				25x1 = 25
GROUNDWATER	20	>10m to groundwater where protected by clay or impermeable strata (otherwise >20m)	>2m to groundwater where protected by clay or impermeable strata (otherwise >10m)	>2m to unprotected groundwater	<2m to groundwater	20 x 4 = 80
RAINFALL FACTOR	20	<5000	5,000 – <10,000	10,000 – 20,000	>20,000	20 x 1 = 20
PASTURE TYPE	15	>30% Lucerne	>30% deep rooted perennials	>30% shallow rooted perennials	<30% perennials	15 x 8 = 120
FARM SIZE	15	<10,000	10,000 – <60,000	60,000 – <250,000	>250,000	15 x 1 = 15
STOCKING RATE*	5	<750 birds/ha	750 – <1,500 birds/ha	1,500 – <5000 birds/ha	>5,000 birds/ha	5 x 1 = 5
* Double stocking rate if trees are present on the range						

Table 1.2. Risk assessment of impacts on groundwater at Lot 148. Risk factor calculated as 200

The total risk factor score for impacts to surface water is 200 which according to Table 1 is considered in the category “Low” in accordance with the AEL Guidelines.

15.2. Introduction

The risk assessment undertaken in accordance with the DWER’s “Guideline: Risk Assessments” (2017). The purpose of the risk assessment presented is to determine the consequence, likelihood and risk of emissions to the environment from the proposed poultry extension to the beef farm. It also includes comment and consideration of the risk assessment from the Australian Eggs Limited Guidelines. This is so that the relation between the two guidelines (DWER Guidelines and the Australian Eggs Limited Guidelines) can be understood.

The potential emissions considered are as follows:

- Wastewater and leachate
- Noise
- Odour

- Dust.

15.3. Risk Assessment

The criteria used to determine the likelihood and consequence are shown in Tables 2.1 and 2.2 respectively. The risk matrix is defined in Table 2.3 below. The tables are based on the criteria in “Guidance Statement: Risk Assessments” (DWER, 2017). The results of the risk assessment are presented in Table 2.4 below.

As can be seen from the table, all risks of emissions are considered to be low. Management recommendations are provided in section 16.

Likelihood Criteria				
Almost certain	Likely	Possible	Unlikely	Rare
The risk event is expected to occur in most circumstances.	The risk event will probably occur in most circumstances.	The risk event could occur at some time.	The risk event will probably not occur in most circumstances.	The risk event may only occur in exceptional circumstances.
Table 2.1 Likelihood criteria. Source DWER (2017)				

Consequence criteria					
	Slight	Minor	Moderate	Major	Severe
Environment	On-site impact: minimal (No discernible adverse impact)	- On-site impacts: low level (discernible effect on the environment but no adverse impact) - Off-site impacts local scale: minimal - Off-site impacts wider scale: not detectable - Minor number of individuals of species may be affected locally.	- On-site impacts: mid level (Minor adverse affect to the environment) - Off-site impacts local scale: low level - Off-site impacts wider scale: minimal - Moderate loss of individuals of species locally.	- On-site impacts: high level (moderate impact to the environment) - Off-site impacts local scale: mid level - Off-site impacts wider scale: low level - Short term impact to an area of high conservation value or special significance[^] - Moderate damage to ecosystem function and major loss of individuals of species locally.	- On-site impacts: catastrophic (significant impact to the environment) - Off-site impacts local scale: high level or above - Off-site impacts wider scale: mid level or above - Mid to long term or permanent impact to an area of high conservation value or special significance[^] - Significant long-term damage/loss of ecosystem function and loss of individuals of species locally
Public Health and Amenity	Local scale: minimal to amenity.	Local scale impacts: low level impact to amenity.	Adverse health effects: low level or occasional	Adverse health effects: mid level or frequent	- Loss of life - Adverse health effects: high level

			medical treatment • Local scale impacts: mid level impact to amenity.	medical treatment • Local scale impacts: high level impact to amenity.	or ongoing medical treatment • Local scale impacts: permanent loss of amenity.
*Determination of areas of high conservation value or special significance should be informed by the Guidance Statement: Environmental Siting. 'onsite' means within the Lot boundary. Source: DWER (2017)					
Table 2.2 Consequence criteria. Source DWER (2017)					

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Table 2.2 Risk Matrix criteria. Source DWER (2017)

Element	Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Reference to Australian Eggs Limited Guidelines	Consequence	Likelihood	Risk
Poultry housing and outdoor free-range areas – Manure	Nutrient runoff	Watercourses	Overland flow.	Introduction of nutrients to the water course	The AEL risk assessment for potential impacts of free-range areas on surface water is "High".	It is determined that nutrient runoff from the poultry extension could cause low-level on-site impacts and minimal off-site impacts to nearby surface water features. The consequence is considered to be Minor.	Based on the on-site management of the poultry extension the likelihood of nutrient runoff impacts to surface water features is considered to be Possible as the risk event will only occur in some circumstances.	Risk of nutrient runoff is Medium.
		Wetlands	Overland flow	Introduction of nutrients to the wetlands	The AEL risk assessment for potential impacts of free-range areas on surface water is "moderate".			Risk of nutrient runoff is Medium.

Poultry housing and outdoor free-range areas – Manure	Nutrient leachate	Groundwater	Seepage of wastewater and leachate through soil. Transport through groundwater.	Filtration of nutrients to the groundwater.	The AEL risk assessment for potential impacts of free-range areas on groundwater is "High".	It is determined that leachate from the poultry extension could cause low-level on-site impacts and minimal off-site impacts to groundwater. The consequence is considered to be Minor	Based on the on-site management of the poultry extension the likelihood of leachate impacts on groundwater is considered to be possible at some time.	Risk of nutrient runoff is Medium
Poultry housing and outdoor free-range areas	Noise	Rural dwellings (nearest is 100 metres from the proposed farm).	Air (windborne).	Amenity impacts.	There is no specific separation distances recommended in the Guidelines.	It is determined that noise impacts could cause low-level on-site impacts and low-level off-site impacts. Therefore, the consequence is considered to be moderate	Based on the on-site management of the poultry extension the likelihood of noise impacts on sensitive receptors is considered to be Possible as the risk event will only occur sometimes.	Risk of noise input is Medium
Poultry housing and outdoor free-range areas	Odour	Rural dwellings (nearest is 100 metres from the proposed farm).	Air (windborne).	Amenity impacts.	There is no specific separation distances recommended in the Guidelines.	It is determined that odour impacts could cause low-level on-site impacts and low-level off-site impacts. Therefore, the consequence is considered to be moderate	Based on the on-site management of the poultry extension the likelihood of odour impacts on sensitive receptors is considered to be Possible as the risk event will only occur sometimes.	Risk of noise input is Medium
Poultry housing and outdoor free-range areas	Dust	Rural dwellings (nearest is 100 metres from the proposed	Air (windborne).	Amenity impacts.	There are no specific separation distances recommended in the	It is determined that dust impacts could cause low-	Based on the on-site management of the poultry extension	Risk of Dust input is Low

		farm).			Guidelines.	level on-site impacts and low-level off-site impacts. Therefore, the consequence is considered to be minor	the likelihood of dust impacts on sensitive receptors is considered to be slight as the risk event will only occur unlikely.	
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16. Environmental Management

16.1 Introduction

The following presents the management recommendations for the proposed poultry extension. These recommendations are based on those suggested in the “Egg Industry Environmental Guidelines” prepared by Australian Eggs Limited in 2018 and the “Free Range Production: Management of Range Areas”.

16.2 Management Plan

Number	Action	Time Frame
Poultry housing		
1	Fence the chicken caravan to keep the poultry within the property and predators out	Ongoing
2	Maintain separation from waterways with 50m buffer	Ongoing
3	Ensure ongoing function of filtration system for clean drinking water to poultry	Ongoing
4	Ensure chickens are not on location prone to waterlogging	Ongoing
5	Undertake regular movements and monitoring of conditions to maintain adequate ground cover	Ongoing
Nutrient Management		
6	Monitor soil nutrients to ensure nutrient application and removal rates are sustainable. Monitor every 12 months for the first two years of operation, and then as required.	Annually for the first two years and then as required

7	Soil analysis parameters should follow the recommendations in “Table 3 Typical soil analysis parameters” contained within the AEL Guidelines (2018). If results exceed AEL recommendations retest after 3 months and if results are maintained or lowered, no action taken. If results exceed AEL guidelines by 10% for consecutive tests, inform the Capel Shire and advise of required changes to management plan.	Annually for the first two years and then as required
8	Implement a revegetation program at 100m spacings to improve nutrient absorption. Consultation has already occurred with Boyanup Botanicals	Ongoing
9	Implement a wetland rehabilitation program with Geo Catch. Fence off areas from livestock and revegetate.	Current -2027
10	Continue to seed perennials into the pasture. Bell seeds Regen mix with 30% lucerne will continue to be sown on an as needed basis.	Ongoing
11	Spread straw in denuded areas to increase groundcover.	If required
Compost Management		
12	Ensure compost is monitored regular for temperature and pest as per SOP004	Weekly
13	Follow procedures and maintain records laid out in SOP004 for compost management	Weekly
14	Maintain cover and hardstand for compost management	Ongoing
15	Regular rotate compost to ensure oxygenation	Weekly
Odour, dust and noise management		
16	Maintain ground cover at all times	Ongoing
17	Regularly clean structure to maintain dry, low odour conditions	Ongoing
18	Reduce vehicle movements during non daylight hours	Ongoing
Complaints management		
19	Implement a Complaints Management Procedure which involves complaints recording, investigation and corrective action, along with appropriate consultation with complainants.	Ongoing

20	Maintain the existing separation distance of 50 metres to wetlands and Over 100m to dwellings.	Ongoing
21	Maintain a Complaints Record which will take note of the type of complaint, date and time and the contact details of the complainant.	Ongoing
Safety and Procedures		
22	Maintain an Environmental Incidence Record for the farm and ensure that any incident (such as non-compliance with the actions in this EMP and other approvals) is recorded accurately, legibly and immediately.	Ongoing
23	Training of staff is to be undertaken in accordance with the required legislation.	Ongoing
24	Ensure all staff are trained in the correct handling, use and storage of chemicals used on site	Ongoing
25	Ensure chemicals are always stored and used in accordance with manufacturers' instructions, and legal requirements, and only in accordance with the registered use.	Ongoing
26	*Important note: The proponent and farm manager have a Masters Degree in Agriculture and wrote a thesis on solute movement through soils. He has experience in managing all aspects of grass (pasture equivalent) as a Golf Course Superintendent and Turf Consultant. See appendix 9 for qualification details. These qualifications ensure that the farm is managed to improve the pasture composition and coverage. This is the core of a sustainable regenerative system.	

17 References

Australian Eggs Limited, 2018, Egg Industry Environmental Guidelines, Australian Eggs Limited, NSW.

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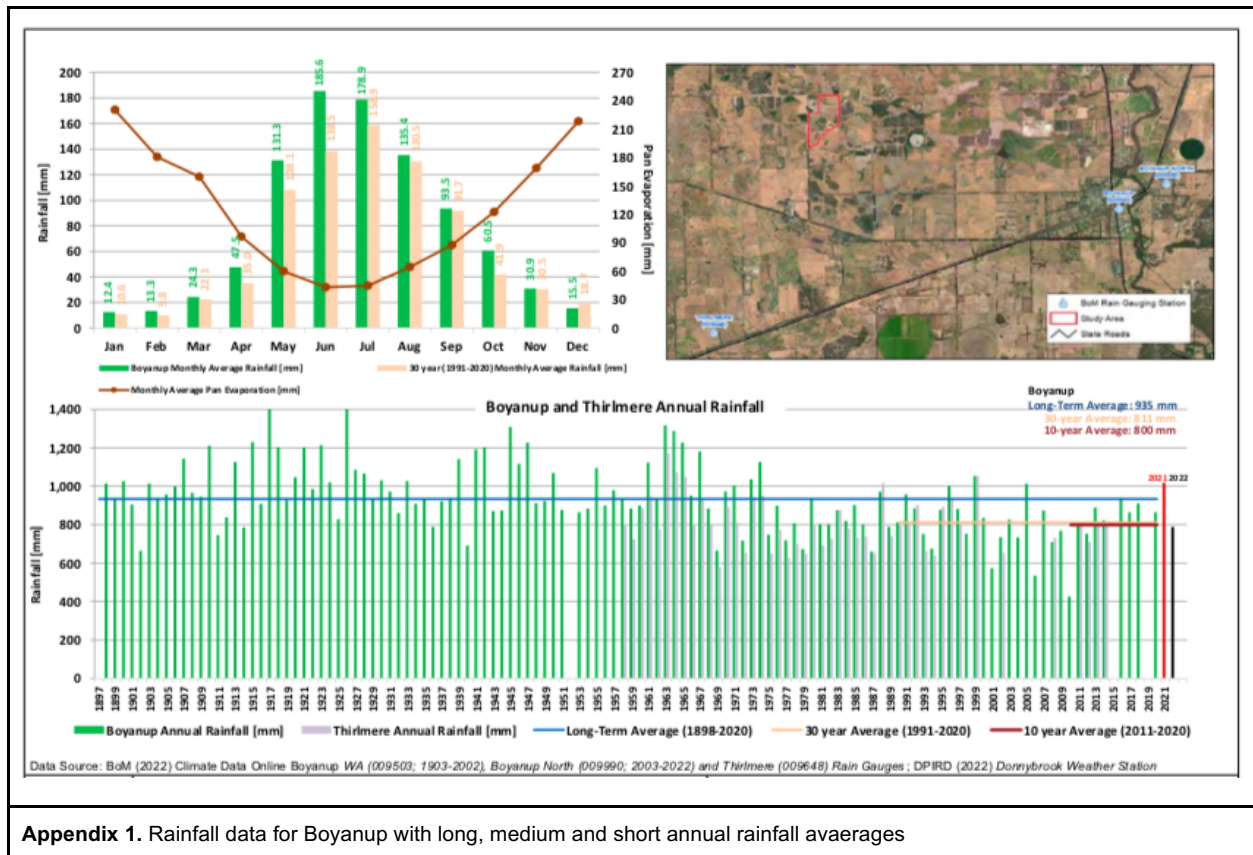
Department of Water and Environmental Regulation, (2017), Guideline – Risk Assessments, Department of Water and Environmental Regulation, WA.

Department of Water and Environmental Regulation, (2019), Guideline – Odour Emissions, Department of Water and Environmental Regulation, WA.

State Government of WA, (2024), SLIP Portal accessed from <https://maps.slip.wa.gov.au/landgate/locate/>

Appendices

Appendix 1: Rainfall Data



Appendix 1. Rainfall data for Boyanup with long, medium and short annual rainfall averages

Appendix 2: Bore detail.

GWV60185.

* AT: AQUA BASE.

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File No: SW3595
 Doc No: SWD42704
TRIMMED
 Scanned: ☒ Officer: AB

Our Ref: NETTLETON-K

Name: KEVIN NETTLETON
 Address: RMB 109 BOYANUP WA 6237
 Post Code: 6237
 Phone: 0417 315 188
 Bore Location: SKIPPINGS RD
 Location/Plan: BOYANUP
 Postal Address: RMB 109 BOYANUP WA 6237

Date: 24/3/05
 Lot No:
 Mobile: 0417 315 188

Bore Licence Number: TBA
 Latitude: 33° 27' 50.8"
 Altitude (Mtrs): 35.0

Driller's Licence No: 73
 Longitude: 115° 39' 48.4"
 Estimated Positioning (Mtrs): 6.0

BORE LOG

Hole Diameter (Mm):	200	
Bore Diameter (Mm):	100	
Total Depth (Mtrs):	27.0	
Static (Mtrs):	8.5	
Draw Down (Mtrs):	11.8	
Pump Setting (Mtrs):	15.0	
Tested Volume (Ltrs/P/Hr):	9,000	(Gph): 1,978
Draw Down Volume (Ltrs/P/Hr/P/Mtr):	2,727	(Gphp/Mtr): 600
Slotted Casing (Mtrs):	6.0	
Salt Content (Pp/Mill):	730	PH: 6.5
Formation Pressure (Kpa)	125	To 21.0
Bentonite Seal: From	20.5	
Recommended Pump Setting (Mtrs From Surface):	18.0	
Maximum Safe Volume: Ltrs/P/Hrs	18,000@18.0 MTRS	(Gph): 4,000@18.0 MTRS

Strata

Mtrs	
0.0~2.0	FINE WHITE SAND
2.0~3.0	BROWN SAND
3.0~5.0	GREY CLAY
5.0~6.0	RED CLAY
6.0~8.0	SANDY GREY CLAY
8.0~9.0	IRONSTONE
9.0~11.0	LIGHT GREY CLAY
11.0~12.0	DARK GREY CLAY
12.0~13.0	FINE YELLOW SAND

YARRAGADEE
 PTO.

→ 28m PTO

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FM-004 Bore Log
 Form Created 31/01/03

Appendix 3: Soil Test Results

Analysis Results

CSBP Soil and Plant Laboratory

311340
Nettleton KG & SE

Lab No	4WS20040	
Name	Millet	
Code	16/11/20	
Customer	Nettleton KG & SE	
Depth	0-10	
Colour		BK
Gravel	%	0
Texture		1.0
Ammonium Nitrogen	mg/kg	29
Nitrate Nitrogen	mg/kg	28
Phosphorus Colwell	mg/kg	3
Potassium Colwell	mg/kg	88
Sulfur	mg/kg	3.0
Organic Carbon	%	4.75
Conductivity	dS/m	0.090
pH Level (CaCl ₂)		3.8
pH Level (H ₂ O)		5.1
DTPA Copper	mg/kg	0.40
DTPA Iron	mg/kg	29.20
DTPA Manganese	mg/kg	1.83
DTPA Zinc	mg/kg	1.91
Exc. Aluminium	meq/100g	0.070
Exc. Calcium	meq/100g	7.05
Exc. Magnesium	meq/100g	1.01
Exc. Potassium	meq/100g	0.18

CSBP Lab. Extract Value.

Appendix 3. Soil test results for area within the chicken production zone

Appendix 4: Water Test Results

Analysis Results

CSBP Soil and Plant Laboratory

311340
Nettleton KG & SE

Lab No		200791	200792	200793
Name		Peacock's Bore	Home Farm Pond	Home Farm Bore
Code		16/11/20	16/11/20	16/11/20
Customer		Nettleton KG & SE	Nettleton KG & SE	Nettleton KG & SE
Ammonium Nitrogen	mg/L	0.15	0.75	0.29
Nitrate Nitrogen	mg/L	0.13	0.16	< 0.10
Boron	mg/L	< 0.05	< 0.05	< 0.05
Sodium	mg/L	219.40	29.82	213.00
Magnesium	mg/L	31.87	5.02	31.83
Phosphorous	mg/L	< 0.05	1.21	< 0.05
Sulfur	mg/L	1.26	4.63	7.97
Potassium	mg/L	8.57	9.83	5.72
Calcium	mg/L	10.54	8.98	6.59
Manganese	mg/L	< 0.05	< 0.05	0.14
Iron	mg/L	2.01	1.90	8.98
Copper	mg/L	< 0.05	< 0.05	< 0.05
Zinc	mg/L	< 0.05	< 0.05	< 0.05
Conductivity	dS/m	1.311	0.253	1.306
pH		6.6	6.0	6.1

CSBP Lab. Extract Value.

Appendix 5: Stable Fly Management Plan

1. Brooder Management

Sawdust is used as bedding in the brooder, and is maintained at optimal depth to ensure absorbency, minimizing the moisture that can attract stable flies. The bedding stays dry by regularly inspecting it and adding fresh sawdust as needed.

Wet or compacted sawdust is immediately removed when detected to minimize breeding grounds for flies. Regularly replacing the bedding helps to reduce buildup, particularly in warmer months when stable fly populations are likely to increase. The brooder is deep cleaned each batch of chicks which stay in the brooder for approx. 3 weeks.

2. Waste Management and Disposal

There are two methods which will be used in waste management by the site to ensure stable fly breeding sites are not generated. These methods will be deployed depending on the weather but currently Method 1 is the preferred method.

Method 1

Spreading chicken waste over pasture is an effective strategy to reduce stable fly populations because it disrupts the flies' breeding environment and minimizes the moist conditions they require.

Stable flies prefer moist, organic matter to lay their eggs—especially wet manure, which provides an ideal environment for egg-laying and larval development. By spreading chicken waste thinly over a wide pasture area, the manure dries out faster, making it far less suitable for stable fly reproduction. Dry manure and organic matter do not provide the moisture that stable fly larvae need to thrive. Without sufficient moisture, larvae struggle to develop, significantly reducing stable fly breeding success.

Sunlight is a natural deterrent for stable flies. The UV rays and warmth from the sun help dry out manure more quickly and can even kill stable fly eggs and larvae that may be present. When chicken waste is spread across an open pasture rather than piled, it is fully exposed to sunlight, which accelerates drying and eliminates shaded, damp areas where flies could reproduce.

Thinly spread waste breaks down more quickly and is integrated into the soil by natural processes like microbial activity, earthworms, and other decomposers. This fast breakdown leaves less organic material for stable flies to utilize. Additionally, microorganisms that break down manure can compete with stable fly larvae for resources, creating a less hospitable environment for flies as the waste decomposes faster.

Stable flies are attracted to areas with strong odours, particularly those coming from wet, concentrated manure. When waste is spread thinly and allowed to dry, it emits fewer odours, making it less likely to attract flies to pasture areas. As the waste dries and breaks down, the reduction in odour and moisture discourages stable flies from congregating, which ultimately lowers the population over time.

When combined with pasture rotation, spreading chicken waste thinly further controls fly populations by moving chickens to fresh ground and spreading waste in different areas. This prevents any single area from becoming a breeding hotspot for flies.

With rotating pastures, each area has ample time to dry out and naturally decompose before chicken's return, ensuring that no stable fly-friendly habitat remains for long.

Method 2

Straw bale banded compost sites are a practical, low-cost method for containing compost piles, particularly on farms or larger composting operations. The compost is contained in the bunding, and a tarp or other cover can be used to minimise stable fly ingress and breeding

Straw bales are stacked around the composting site to form a "bund," or containment wall, creating an enclosure that prevents compost material from spilling out. Typically, the bales are arranged in a rectangular or circular shape, depending on the size and volume of compost. The bales can be stacked one or two layers high to create a more substantial barrier. The straw acts as a natural, biodegradable material that will eventually decompose along with the compost, making it environmentally friendly.

The straw bales absorb excess moisture from the compost pile, preventing runoff and containing any potential leachate within the bund. This is especially important in compost piles with high moisture content, as it reduces the risk of groundwater contamination. In rainy conditions, the straw bales act as a sponge, absorbing rainwater that might otherwise flood the compost and disrupt the decomposition process.

Straw is an excellent insulator, helping to retain heat within the compost pile. This retained heat accelerates microbial activity, which aids in breaking down organic material more quickly and thoroughly. The insulating effect of the straw also helps the compost maintain higher temperatures, which is beneficial for killing pathogens and weed seeds. The straw bales act as a natural filter, helping to trap odours within the compost site and minimize unpleasant smells. As air circulates through the straw, it disperses odours while also promoting aerobic composting.

The bund acts as a physical barrier against pests and animals, such as rodents, that may try to access the compost pile.

As the compost breaks down, nutrients may leach out. The straw bales absorb some of these nutrients, which can be returned to the soil once the bales are broken down. Over time, the straw itself composts and can be incorporated into the compost pile, further recycling nutrients back into the soil.

Straw bale bunds are easy to set up, rearrange, and add to as the compost pile grows. The bales can be replaced periodically if they break down too quickly or get damaged.

Since the bales themselves compost over time, they are low-maintenance and require minimal cleanup once they decompose.

3. Composting of Mortalities and Waste

Although there are very few mortalities, any deaths are recorded and mortalities and extra bedding is placed in compost tumblers, mixing them with dry sawdust (if needed) to maintain a balanced carbon-to-nitrogen ratio, this helps with odor control and accelerates decomposition.

Mortalities are recorded on Form 001 Batch Record Sheet

Compost is maintained with approx. moisture levels of around 50–60%—moist but not soggy. Adding dry sawdust helps absorb excess moisture, creating less favorable conditions for stable fly breeding.

The compost tumblers are regularly turned to introduce oxygen, facilitate even breakdown of materials, and generate heat. Properly heated compost piles (55–77°C) will help kill any fly larvae and prevent stable fly attraction.

4. Pasture Rotation and Forage Management

A rotational grazing plan for the adult chickens prevents manure buildup in any one area. By frequently moving chickens to fresh pasture, manure is naturally distributed, which reduces areas with high moisture and organic matter that attract flies. Adult birds are moved every day and do not return to that land area for 12 months.

Maintain grass at a height that allows sunlight to reach the soil, which can help dry out areas and reduce fly habitat. This is managed via the land being part of the cattle grazing plan and they are rotated through the areas.

5. Fly Trapping and Physical Control

If required, sticky fly traps can be used around brooders, composting areas, and pasture to capture adult flies to monitor stable fly activity and if used, will be monitored weekly.

6. Biological Control

Chickens can help control flies on the pasture by consuming fly larvae, reducing the stable fly population naturally. Encourage their foraging behavior by periodically rotating them over different sections of the pasture will help manage stable fly populations.

7. Monitoring and Documentation

Weekly inspections for stable fly activity around brooders, compost tumblers, and pastures are conducted and recorded on Form 003 Pest Control Records.

Documenting any fly population changes and note weather patterns or changes in waste management that could impact fly populations. This data will be used to adapt waste spreading schedules, composting methods, or fly trapping locations to optimize fly control.

8. Seasonal Adjustments

Frequency of cleaning and waste spreading during warm months when stable flies are more active can be increased, if monitoring shows stable fly activity. Additional preventative measures, such as adding extra fly traps or increasing compost turning frequency can also be deployed.

Stable fly activity decreases in cooler months, so waste spreading and composting may be scheduled less frequently. Monitor for overwintering sites, such as sheltered areas, to ensure fly populations don't establish.

Summary

This management plan integrates environmental, biological, and physical controls to maintain a low stable fly population and promote healthy pasture and poultry management. Regular monitoring and adaptive adjustments will help optimize stable fly control throughout the seasons.

Related documents**Standard Operating procedures**

- 003 Inputs
- 004 Waste disposal
- 004.1 Use and Management of Compost Tumblers

Forms

- Form 001 Batch Record Sheet
- Form 002 Compost Record Sheet
- Form 003 Pest Control Records

Appendix 6: Compost Management Plan

WASTE DISPOSAL AND COMPOSTING**BROODER WASTE:**

- Mortalities or chicks that have been humanely euthanised are removed from the brooder immediately and added to the compost tumblers.
- All culls are recorded on the batch record sheet.
- After each batch of chicks, the bedding is removed (approximately 50kg) and is on a 3 weekly bases.
- The total volume of spent bedding is recorded on the compost record sheet.
- Most of the bedding can be spread straight over pastures in a thin layer to allow to dry out, which reduces the risk of flies laying in manure piles.
- For mortalities see 004.1 Compost Tumblers for instructions on using a tumbler to manage mortalities.

Humane destruction is carried out using the appropriate equipment and/or method for the class and condition of the bird.

The most practical method for humane destruction on-farm is cervical dislocation if required to euthanize any birds on site. Birds are monitored following humane destruction to ensure that they are dead, that is, there should be no vocalisation, corneal reflex, rhythmic breathing or deliberate movement.

COMPOST MANAGEMENT PLAN

Composting is the aerobic microbial breakdown of organic matter, usually incorporating a thermophilic phase. Composting systems for poultry waste can reduce litter volume, dispose of carcasses, stabilise nutrients and trace elements and reduce pathogen loads.

There are two phases to the thermophilic composting process:

1. Pasteurisation which generates heat up to 60C for a minimum period of five days, within the compost pile to significantly reduce the number of viable pathogens and plant propagules.
2. Maturation which sees the decline in microbial activity and an increase in biological stability of the organic material.

Mortalities and litter composting is carried out outside the production area and as far away as possible and will be kept in bins (compost tumblers) or straw banded piles, to ensure no contents escape before the composting process is completed.

- Temperature and additions are recorded on the Compost record sheet.
- Once compost process has been completed (Fully composted organic matter) it will be used for private use only.

Compost completion is determined by doing the following steps.

1. Smell: nice earthy smell, with no bad (sour or rotten) odours
2. Feel: moist and earthy, not wet and sloppy or dry and powdery
3. Appearance: the pile contains dark soil-sized particles, the original organic materials are not distinguishable
4. Temperature: the pile stops getting hot

Should we have any issues during our compost process we will arrange removal of the compost by an approved waste management company.

Rodents, cats, dogs, feral animals, scavenging birds and flies are kept away from composting carcasses/area and there is a pest management plan.

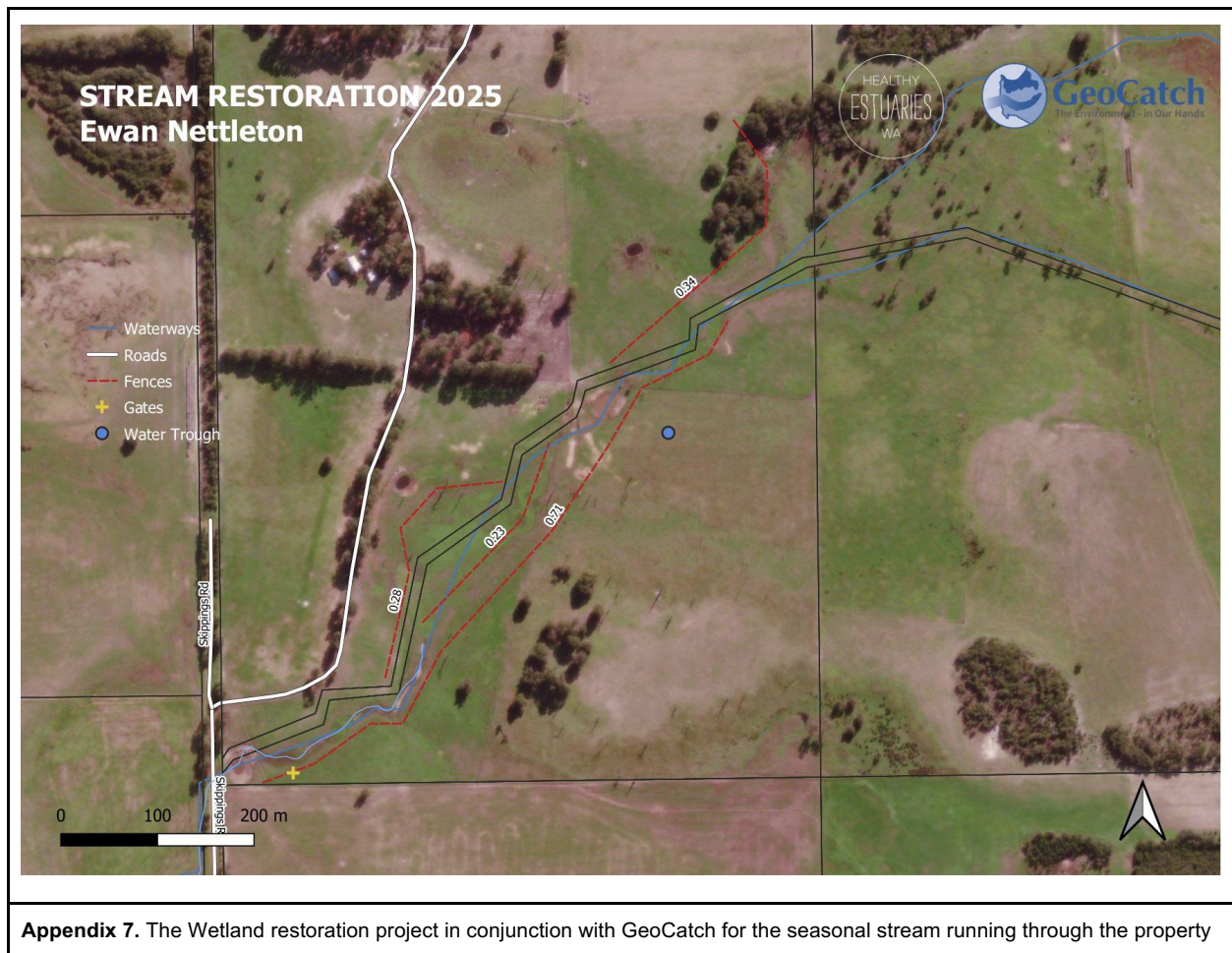
Composting areas are kept as far away as possible from boundary fences and water ways and the area is kept neat and clean at all times.

Cleaning and disinfection of equipment such as bins, buckets and wheelbarrows is conducted before returning them to the Biosecure production area and when moving between sheds.

Quality Records:

From 002 Compost Record Sheet

Appendix 7: Wetland Restoration with GeoCatch



Appendix 8: Chicken production areas



Appendix 9: Proponents' qualifications



THE UNIVERSITY OF SYDNEY

In the name of the Senate and by the authority of the same be it known that

Ewen James Nettleton

having fulfilled all the requirements and having passed all the examinations prescribed by the By-laws has been this day admitted to the degree of

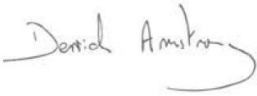
Master of Agriculture
(Turf Management)

and to all the privileges attached to the same by Royal Charter in token whereof the Senate has authorised the Corporate Seal of the University to be hereunto affixed


Vice-Chancellor and Principal


Dean of the Faculty of Agriculture and Environment

Dated this Fourteenth day of December, Two thousand and twelve


Registrar

I certify that this is a true copy of a document presented to me as an original
by: 
Name
Signature
Certified by Robert Charles Price JP WA 29283
Date: 16.10.2014 



Appendix 9: Qualifications for the proponent highlighting the ability of the proponent to adequately manage the environmental conditions outlined in this proposal.