Amendment Report

Department initiated Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L7352/1989/10
Licence Holder	Derby Industries Pty Ltd
ACN	009 033 612
File number	DER2017/000118-1 APP-0026197
Premises	Linley Valley Pork Linley Valley Road WUNDOWIE WA 6560 Legal description - Lot 7 on Diagram 45818, Lot 8 on Diagram 43110, Lot 10 on Plan 12508, Lot 421 on Plan 300357 and Lot 5485 on Plan 114980 and Lot 722 on Plan 421746 As defined by the premises map attached to the issued licence
Date of report	15/07/2025
Decision	Granted

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1. Purpose and scope of assessment

1.1 CEO initiated licence amendment.

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER, the department) determined to undertake an amendment of licence *L7352/1989/10* (the 'existing licence') held by Derby Industries Pty Ltd (the licence holder) under Division 3, Part V of the *Environmental Protection Act 1986* (EP Act). This amendment was initiated in accordance with section 59(1) of the EP Act to ensure the secondary abattoir wastewater treatment and disposal system (irrigation) located on the neighbouring El Caballo Golf Course is operated by and under the control of the generator of the wastewater, being Derby Industries Pty Ltd (Linley Valley Pork Abattoir).

The abattoir wastewater treatment and disposal system located on the El Caballo Golf Course was previously licensed under *L6736/1993/12* as a Category 61 - Liquid waste facility held by Skank Boy Pty Ltd (golf course operator). This licence expired on 14 June 2023.

Whilst the department was processing a new application for this licence, the golf course operator advised that they no longer wished to hold this licence and subsequently withdrew their application. After discussions with both the golf course operator and the abattoir operator (Derby Industries Pty Ltd), it was determined that the waste generator and party in control of the wastewater disposal scheme licence would be the licence holder. A lease is currently being finalised between Derby Industries Pty Ltd and Skank Boy Pty Ltd.

This CEO initiated amendment serves to add El Caballo Golf Course's infrastructure associated with the storage, treatment, and disposal of the abattoir wastewater onto licence *L7352/1989/10*.

1.2 Regulatory framework

In completing the assessment documented in this report, the department has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2. Premises overview

The licence holder operates Linley Valley Pork (LVP), a pork abattoir situated on Linley Valley Road, Wooroloo. The abattoir slaughters approximately 14,000 pigs per week. In the 2023-2024 annual reporting period, LVP reported slaughtering 780,254 pigs or 78,025 liveweight tonnes. Other abattoir operations include lairage facilities, a truck wash (pig delivery) dehairing, boning, chilling, and freezing of the pork products. Animal by-products include blood, tallow, offal, paunch, skins, bone, hair, manure, and unfit carcasses which are collected and transported to off-site licensed premises for processing, rendering and/or disposal.

2.1 Wastewater generation, treatment, and containment

Wastewater generation sources on the premises include abattoir cleaning operations, pig delivery truck washing activities, lairage and potentially contaminated stormwater in contact with outdoor surfaces that may have been exposed to pig related waste materials. A large

portion of water unnecessarily entering the wastewater stream is ‘clean’ stormwater from the extensive yard areas due to a lack of stormwater diversion bunding and drains.

2.1.1 Primary wastewater treatment system – Linley Valley Pork

All wastewater streams are directed via drainage channels and pipework to a primary treatment wastewater collection pit that includes a hydro-sieve and a series of settling tanks and a settling pond to reduce solid wastes in the wastewater. Flow meter FM01 is located at the end of this primary treatment system adjacent to the abattoir to record the amount of wastewater being pumped out of this system. Wastewater is then pumped through a pipeline that crosses over the Wooroloo Brook towards a series of connected wastewater treatment ponds discharging into pond 2. The primary wastewater treatment consists of two anaerobic ponds (ponds 2 and 4) and five aerobic ponds (ponds 4, 5, 6, 7 and 9) depicted in Figure 5 of the amended licence. Ponds 2 and 3 have an approximate combined volume of 64 ML with an average depth of 4.2 m. Ponds 4, 5, 6, 7 and 9 have an approximate volume of 25 ML with an average depth of 1.5 m. The ponds have been constructed by local cut to fill earthworks. It is noted that pond 1 has been decommissioned and pond 8 was previously receiving stormwater during a 1 in 100-year ARI storm. Pond 8 no longer receives wastewater. Due to compromised integrity observed during the department’s previous site visit

A pump house containing 2 x 100,000 litre/hour capacity pumps and flow meter FM02 are located at the final pond in the series (pond 9). FM02 records the amount of semi-treated wastewater pumped out towards another series of wastewater ponds (secondary wastewater treatment system) within the El Caballo Golf Course. The Department understands that the licence holder currently has an agreement in place with the golf course operator, to manage operational control over the secondary wastewater treatment and disposal system infrastructure located on the golf course.

In the 2023-2024 annual period, approximately 343,640kL of wastewater (average of 28,637 kL per month) was pumped from the abattoir to the primary wastewater treatment system. Approximately 300,185kL of wastewater was then pumped from the primary wastewater treatment system to the secondary wastewater treatment system.

2.1.2 Secondary wastewater treatment system – El Caballo Golf Course

Wastewater is received via pipeline into a series of 5 interconnected aerobic ponds (wastewater ponds 1a, 2a, 3a, 4a and 5a). The ponds were constructed in 1995 with compacted clay and in-situ soils, and the permeability of the liners is not known. It is estimated that these ponds have depths of approximately 2m with a total capacity of approximately 70 ML. Wastewater is gravity-fed through these ponds and into a holding dam (big rock dam) before being pumped into a series of lakes on the golf course (Lakes 4, 4a, 4b, 5) (as shown in Figure 8 of the revised licence). The depths of these lakes are unknown however the areas and volumes have been obtained by SLR Consulting (SLR, 2024b) from previous reports (Table 1).

Treated wastewater is pumped through the series of lakes, before being used for irrigation. A pump station (located immediately south of Lake 5) extracts treated wastewater from Lake 5 (SLR, 2024b) and pumps it to 18 sprinklers situated across the golf course. The pump station also contains a flow meter (*FM03*) that tracks the amount of wastewater irrigated.

Table 1: Wastewater storage of dams and lakes (SLR 2024b; adapted

Wastewater storage dam/lakes	Area (m^2)	Volume (m^3)
Big Rock Dam	12306	40000
Lake 4	4210	24000
Lake 4A	5411	9500
Lake 4B	19352	85000
Lake 5	7958	20000
Total	63287	213625

2.2 Nutrient irrigation management plan

The Department of Water and Environmental Regulation received a Nutrient Irrigation Management Plan (NIMP) for the premises on 8 July 2024 (SLR, 2024b).

The NIMP report states that it was prepared to demonstrate that suitable irrigation and nutrient management practices would be implemented at the premises, to ensure the protection of local water resources. The scope included modelling using MEDLI software to assess the impact of the irrigated water on the environment. The extent of irrigation is shown in Figure 2 of the revised licence.

2.2.1 DWER's review

The department's review of the NIMP found a number of uncertainties, information gaps and requirements for further study. DWER's review (below) is also referenced in the risk assessment below (section 4).

Hydrogeological conditions

The NIMP should include information on hydrogeological conditions, especially around surface water features and potential connections to groundwater. Although the surface water features are reported to be ephemeral in the NIMP, national mapping has indicated that there is a high likelihood they are groundwater-dependent ecosystems.

Groundwater flow direction and groundwater contours have not been provided. If this has not already been done, groundwater monitoring bores should be surveyed to allow comparison with a standard datum (i.e. mAHD).

As registering production bores is not mandatory in Western Australia, unregistered groundwater users may also be present.

No groundwater monitoring bores are present on the golf course premises, meaning that depth to groundwater and the potential historical impact of irrigation on groundwater quality are unclear. However, the NIMP could consider the available groundwater data from the LVP premises which indicates that depth to groundwater is present at between 1.2 and 14.6 m bTOC.

Surface water/groundwater interactions and proximity to waterways

The potential for surface water-groundwater connections is supported by the shallow depth to groundwater identified in monitoring bores close to Wooroloo Brook, for example MW04 where depth to groundwater is recorded as 1.22 metres below top of casing (m bTOC), and MW09 where depth to groundwater was 2.91 m bTOC in August 2023.

Wooroloo Brook and an area of Coates Gully upstream from the premises are registered as Aboriginal Cultural Heritage sites.

The NIMP identifies that run-off from over-irrigation saturating the soil, or from a large leak, may result in high nutrient wastewater entering Wooroooloo Brook / Coates Gully. Irrigation is being carried as close as 15 metres from Coates Gully, which is potentially within the riparian zone. Fringing vegetation in the riparian zone serves to stabilise soil, provides wildlife habitat, intercepts nutrients, provide shade and improves water quality (Western Australian Planning Commission, 2006). Irrigating within the riparian zone of a waterway reduces the ability of the fringing vegetation to remove nutrients and protect water quality.

The WA *Government Sewerage Policy* (Department of Planning, Lands and Heritage [DPLH], 2019) states that "an on-site sewage system is not to be located within 100 metres of a waterway" and that the separation distance should be measured "outwards from the outer edge of riparian or wetland vegetation". Smaller setbacks may be considered where it will not have a significant impact on the environment or public health, but "*it is likely that secondary treatment systems with nutrient removal will be required*" (DPLH, 2019).

It appears that no surface water sampling is being carried out or is proposed in Coates Gully, to monitor the impact of irrigation on that watercourse.

Irrigation management

The 3 kilometres of sub-soil drains (trenches filled with railway ballast, then topped with geotextile fabric, sand and grass) described in the NIMP which are designed to feedback into the storage lakes for water reuse may also be acting as a preferential pathway for high nutrient water transport, and/or as a localised area of groundwater mounding causing focused infiltration to groundwater. The consultant should include the locations of these drains in the NIMP.

The proponent has also indicated that lawn clippings from course mowing are left on the fairways. Removing the lawn clippings will increase nutrient removal.

The NIMP should clarify the nutrient needs of the golf course lawn and be more specific as to the maintenance of the lawn, for example how often it is mown and weight of clippings exported from the irrigation areas. The NIMP states that this is the responsibility of the golf course operator, however as per the amended licence this is the responsibility of the licence holder (Derby Industries Pty Ltd/Linley Valley Pork).

Swan River Trust (2014) provides a guide for annual nutrient requirements for low use active and premium passive turf as 50-100 kg/ha/year for total nitrogen, but leaf tissue analysis should be carried out to determine site-specific nitrogen and phosphorus requirements.

Calculations of nutrient loading

Maximum nutrient loading rates of 180 kg/ha/year for total nitrogen and 120 kg/ha/year for total phosphorus were proposed in the NIMP, based on the department's *Water Quality*

Protection Note 22 (WQPN 22). However, the department's *Water Quality Protection Note 22* is currently under review and Tables 1 and 2 should not be used. Instead, *Water Quality Protection Note 33: Nutrient and Irrigation Management Plans* can be used for guidance in the interim.

During 2023, the consultant calculated that 46.2 kg/ha/year of total nitrogen and 42.3 kg/ha of total phosphorus were applied on the golf course via wastewater application. No fertilisers are currently used on the golf course.

As irrigation is focused on the fairways and there is extremely limited watering of the rough, the consultant should consider adjusting the site area to include only the fairways for the purposes of calculating nutrient loading.

Nutrient modelling in the NIMP predicted loading rates of 187 kg/ha/year total nitrogen and 75 kg/ha/year total phosphorus applied across the golf course.

It is noted that the modelled total nitrogen loading rate is 87 kg/ha/year higher than generic guidance by Swan River Trust (2014) for low use active and premium passive turf.

The MEDLI modelling also predicted some nitrogen and phosphorus leaching. In the case of nitrogen, DWER's review notes that accounting for the consultant's adjustment for reduced irrigation volume (the model used a higher volume of irrigation than the volume of wastewater available from the abattoir's ponds), there may still be around 56 kg/ha/year total nitrogen available to leach to underlying groundwater. The consultant does not expect that either nitrogen or phosphorus will leach but notes that this is uncertain and recommends a monitoring plan in the near term.

The NIMP also contains some contingency options and suggests two scenarios with the potential to reduce effluent volumes, namely

- Treating and reusing effluent, and
- Investigate off-site irrigation areas or third-party reuse strategies. However, it must be noted that only licensed waste facilities can accept liquid waste for disposal or reuse.

The consultant notes uncertainty with regard to MEDLI modelling and several aspects of the treatment and irrigation regime: for example, the number of treatment ponds is limited to four in the modelling software.

The NIMP recommends that ongoing wastewater quality monitoring be carried out, including for pH, total dissolved solids, 5-day biochemical oxygen demand (BOD-5), total nitrogen and total phosphorus. DWER agrees but notes that wastewater quality monitoring alone will not determine whether nitrogen or phosphorus is leaching to groundwater or impacting surface water in the Wooroloo Brook or Coates Gully.

2.2.2 DPIRD review

The Department of Water and Environmental Regulation referred the NIMP to the Department of Primary Industries and Regional Development (DPIRD) for comment, to determine if the proposed wastewater application rates to the golf course was suitable for the receiving environment. DPIRD provided comment on 22 August 2024, including that:

- The volume of wastewater to be irrigated is equivalent to having an average of 2.43 mm of rain every day of the year in addition to natural rainfall. Where the combined irrigation plus rainfall exceeds the evaporation rate, this will lead to infiltration and/or

run off. Run-off will occur when the water applied exceeds the capacity of the soil to receive the water.

- The electrical conductivity (EC, µS/cm) values presented in the NIMP are mostly suitable for livestock, but many pasture species require fresher water. The approximate boundary between mildly tolerant pasture species like lucerne and the tolerance species kikuyu is around 2300 uS/cm. The large volumes of water being irrigated could cause the accumulation of salt in the soil surface, which could impact pasture growth over time.
- Require a comparison of the volumes of abattoir wastewater and the volumes of irrigation water, to quantify the potential losses at each part of the process.
- The NIMP should quantify the amounts of nitrogen and phosphorus removed, i.e. during harvesting and removal of grass clippings, volatilisation, denitrification, soil absorption and storage.
- The NIMP should identify specific locations for off-site disposal of excess wastewater, ensuring that these locations are appropriate and have advance preparation.
- Waste containment infrastructure should be appropriately lined to achieve a maximum permeability of $1x10^{-9}$ m/s. No evidence is provided for lining of the treatment ponds, lakes or 'Big Rock Dam.'
- DPIRD does not recommend waste irrigation within 100 m of watercourse, which is occurring in this case (Coates Gully). Additional controls may be required.
- Evidence should be provided to confirm a minimum of 2 metres clearance to groundwater for all waste containment infrastructure and irrigation areas. If this cannot be met, additional controls should be in place.

DPIRD's review is also referenced in the risk assessment below (section 4).

Delegated Officer summary: The NIMP contains a number of uncertainties, deficiencies and information gaps that should be addressed. The NIMP should be revised in line with DPIRD's review and with the department's guideline: *Water Quality Protection Note 33: Nutrient and Irrigation Management Plans*. If the revised NIMP finds that nutrient loading in wastewater is likely to cause leaching to underlying groundwater or impacts to surface water, then the consultant should propose actions to address that and improve environmental outcomes. The existing ponds utilised for wastewater management are of unknown permeability and currently unlined, testing and a plan for re-lining of ponds should be developed.

2.3 Historical monitoring

In view of advice from DPIRD regarding the NIMP, the Department of Water and Environmental Regulation has reviewed the historical monitoring results for this premises as reported in previous Annual Environmental Reports (AERs). The department's review had regard to DPIRD's comments on depth to groundwater and proximity of wastewater ponds and irrigation to surface water. Wooroloo Brook has a high potential to be a groundwater dependent ecosystem, as identified in national mapping.

2.3.1 Depth to groundwater and flow directions

Surface water flow in Wooroloo Brook is reported to be from SS03 (upstream, south of the abattoir) to SS02 (downstream, north of the primary wastewater ponds).

Groundwater flow direction does not appear to be available in the recent documentation and groundwater contours/flow direction have not been provided in the AERs. Similarly, there is limited information on the site-specific hydrogeology and monitoring bore construction. Depth to groundwater data has also not been adjusted for a consistent datum (i.e. m AHD). Based on the available information, it appears that depth to groundwater near Wooroloo Brook is shallow (i.e. MW09, MW05, MW04, MW08), and groundwater further uphill is deeper (i.e. MW01, MW06, MW02, MW07)(Fig 1). At all locations, groundwater is close enough to the surface to allow for potential contamination to migrate from unlined wastewater ponds. No groundwater monitoring bores are located on the golf course.

Figure 1: Depth to groundwater in m bTOC (from the 2014 AER).

2.3.2 Wastewater monitoring results

Primary wastewater ponds contain very high concentrations of total nitrogen (up to 120 mg/L as N) and very high total phosphorus (up to 19 mg/L as P), consistent with observations that the water appeared green. Water in the ponds was slightly alkaline (pH 8.01-8.36). Water samples were not analysed for E.coli.

Observations of secondary wastewater pond water were reported to be green, colourless, and pale green respectively in three monitoring events between 2023 and 2024 as reported in the 2024 AER. Total nitrogen was also relatively high in the secondary wastewater ponds, up to 45.4 mg/L as N and total phosphorus 12.3 mg/L as P.

The quality of wastewater from the main irrigation pump from Lake 5 and discharging to the El Caballo golf course (part of the secondary wastewater ponds) was monitored as part of the former El Caballo golf course licence (L6736/1993/12). Historical monitoring results dating from January 2009 to January 2022 show total nitrogen up to approximately 16 mg/L, with one historical result in 2010 at approximately 30 mg/L. Total reactive phosphorus varied from less than 1 mg/L up to more than 9 mg/L. Those concentrations consistently exceed screening values for total nitrogen (*1.2 mg/L*) and total phosphorus (*0.065 mg/L*) for *slightly disturbed ecosystems in the south-west of Western Australia*, as published in the *Australian and New*

Zealand guidelines for fresh and marine water quality (ANZECC & ARMCANZ, 2000). Those criteria are relevant because the irrigation water is being applied less than 100 metres from a surface water body (Coates Gully) (see section 2.2.2).

Total dissolved solids (TDS) concentrations in the wastewater ponds on the El Caballo Golf Course varied from <1000 mg/L to 2,500 mg/L between July 2013 and January 2023 and prior to 2013, were as high as 4,700 mg/L based on time series charts provided by the applicant.

2.3.3 Groundwater monitoring results

Groundwater monitoring bores MW04 and MW08 appear likely to be directly down-hydraulic gradient of the primary wastewater ponds, based on their position between the primary wastewater ponds and Wooroloo Brook. Total nitrogen (up to 24 mg/L as N) and total phosphorus (up to 0.79 mg/L) appear elevated in those bores, with concentrations an order of magnitude higher than screening values for total nitrogen (*1.2 mg/L*) and total phosphorus (*0.065 mg/L*) for *slightly disturbed ecosystems in the south-west of Western Australia* (ANZECC & ARMCANZ, 2000). Those criteria are relevant due to the surface water bodies running through the premises boundary (Wooroloo Brook and Coates Gully). Groundwater may be hydraulically linked to Wooroloo Brook or Coates Gully.

In groundwater monitoring bore MW04, there is also potential evidence of mounding in local groundwater. Depth to groundwater in this bore is at least 90 cm higher than in nearby bores that are also close to Wooroloo Brook (Figure 1). In evaluating these results, nutrients from the primary wastewater ponds may have already impacted groundwater quality down-gradient of the ponds, close to Wooroloo Brook.

No groundwater monitoring bores are present on the El Caballo golf course (see Figure 1 of the revised licence).

2.3.4 Surface water monitoring results

Surface water monitoring in the most recent AER for the abattoir (SLR, 2024a) reports on three sampling events carried out in June 2023, August 2023, and December 2023. Total nitrogen (as N) is reported to vary from <0.2 to 1.8 mg/L upstream of the primary wastewater ponds and abattoir and to vary from 0.4 to 6.9 mg/L downstream of the primary wastewater ponds and abattoir. Total phosphorus (as P) varies from <0.01 to 0.04 mg/L upstream, and from <0.01 to 1.2 mg/L downstream. Overall, nutrient concentration is lower upstream and higher downstream of the primary wastewater ponds and abattoir. Nutrient concentrations downstream exceed screening values for total nitrogen (*1.2 mg/L*) and total phosphorus (*0.065 mg/L*) for *slightly disturbed ecosystems in the south-west of Western Australia* (*ANZECC & ARMCANZ, 2000*).

Delegated Officer summary: The potential for shallow groundwater impacted by high nutrient wastewater discharging into Wooroloo Brook should be investigated further. The LVP site may be reported as a suspected contaminated site as per reporting obligations for owners, occupiers, and polluters under section 11 of the *Contaminated Sites Act 2003*. The department's review of recent wastewater, groundwater and surface water monitoring results will also inform the risk assessment in section 4.

2.4 Department of Health (DoH)

Recycled Water Scheme Approval

On 10 January 2023, the Department of Health (DoH) granted a revised Recycled Water Scheme Approval (*A88/00000*) to El Caballo Golf Club at *Lot 88 on Plan 39712* (now referred to as *Lot 722 on Plan 421746*), to use wastewater from the LVP wastewater ponds. The original approval was granted on 14 July 1994. The current approval:

- requires monthly sampling of the wastewater intended for irrigation on the golf course at Lake 5's pump house and sets an E. coli limit of <1000 cfu or MPN/100ml.
- requires water samples to be analysed in a laboratory that is NATA-registered for the analysis of wastewater, using specific analysis methods approved by the DoH.
- requires the scheme manager to notify the DoH of any algal blooms, sewage spills or delivery pipeline leaks, incidents within the recycling supply scheme, or exceedances of the E.coli water quality objective within 24 hours.
- sets out specific infrastructure requirements, including
    - clearly designated signage at specific locations
    - requirements on water fittings (for example, pipes should be coloured purple)
    - fencing and lockable access gates
    - regular maintenance of ponds and dams
- requires irrigation to be carried out only during dry weather conditions, with regular inspections to ensure ponding or run-off does not occur
- requires spray drift to be minimised, and no spraying of buildings, drinking fountains, playgrounds, or outdoor public eating areas
- contains reporting requirements to the DoH, including:
    - a Recycled Water Quality Management Plan prepared prior to December 2023 (which remains outstanding)
    - annual reporting to the DoH by 30 September each year and
    - an internal audit every two years from the date of approval, and an external audit every five years from the date of approval.

Joint DoH and DWER site inspection

A joint site visit was conducted by the Department of Water and Environmental Regulation and the DoH on 26 October 2022, to understand wastewater infrastructure and operations on the LVP and El Caballo Golf Course. On 25 January 2023, DWER sent correspondence to both the licence holder and golf course operator about the following outcomes from the site visit.

- LVP abattoir wastewater treatment ponds:
    - all ponds are required to be constructed according to the Health (*Treatment of Sewage and Disposal of Effluent and Liquid Wastes) Regulations, 1974* part 7.

- the inner banks of the ponds are required to be cleared of weeds and vegetation. These ponds should be kept clear of weed growth at all times.
- ensure runoff/stormwater is directed away from treatment ponds.
- no desludging records were found at the time of inspection. Sludge levels should be assessed, and desludging should be undertaken where necessary.
- all overflow channels and drainage areas shall be kept free of weed growth.
- all ponds should be surrounded with a security wire mesh fence, with a locked access gate and adequate warning signage.
- ponds may require engineering evaluation to ensure the ponds are structurally sound and lined with a suitable impermeable membrane.

– El Caballo Golf Course Wastewater and recycled water infrastructure as follows:
  - vegetation observed around some of the ponds that require removing and maintenance.
  - algae was observed in high concentrations in the water for a few of the lower ponds. Any algal bloom events should be notified to this department as per the section 9.4 of the Guidelines for the non-portable uses of recycled water in WA (2011) and Approval *A88/00000*.
  - sludge levels should be assessed, and desludging should be undertaken where necessary.
  - monthly and total flow recycled volumes should be monitored through flow meters.
  - additional signage is required at the irrigation area advertising to members that recycled water is used. (Approval *A88/00000* condition 11).
– The following items required by DoH were outstanding since the previous recycled water scheme approval (2012):
  - a Recycled Water Quality Management Plan.
  - operational maintenance manual.
  - annual reports to date including recycled water sampling results using the correct site name and code (as per updated DoH approval).
  - audit reports - An internal audit of the recycled water supply system and Recycled Water Quality Management Plan must be conducted every two years from the date of approval.

The Department subsequently sought comment and received correspondence from the DoH on 1 September 2023 in relation to the golf course operator's previous licence application. The following items were noted:

– the proposal is required to comply with the requirements of the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974* and policies associated with the recycling of wastewater.
– all drinking water provided on site must meet the health-related requirements and risk

management framework set out in version 3.7 of the *Australian Drinking Water Quality Guidelines 2011*. These are highlighted in principle in the following link: *https://www.health.wa.gov.au/Articles/J_M/Mine-sites-and-exploration-camps*.

- any non-drinking water (i.e., water that is not intended or suitable for drinking) must be managed to ensure it cannot be confused with or contaminate the drinking water supply. This requires satisfactory labelling of non-drinking water taps and, depending on system configuration, suitable backflow prevention arrangements.

Delegated Officer summary: Based on the results of the joint site inspection by the Department of Water and Environmental Regulation and the Department of Health, the Delegated Officer has added a number of requirements to the amended licence. Amended licence *L7352/1989/10* now includes relevant conditions relating to wastewater storage infrastructure (Condition 3), monitoring the quality of surface water (Condition 12), monitoring the quality of irrigated wastewater (condition 13), groundwater monitoring (Condition 14), soil monitoring (condition 15) and associated reporting (condition 20, 21 and 22) for the El Caballo Golf Course (wastewater irrigation area) in amended licence *L7352/1989/10*. Daily inspections of critical containment infrastructure have also been added to the licence (condition 16). Additional requirements also apply under the Recycled Water Scheme Approval issued by DoH.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway, and impact to receptors in accordance with the *Guideline: Risk Assessments* (*DWER 2020*).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and pathways

The key emissions and associated actual or likely pathway during premises operation which have been considered in this decision report are detailed in Table 2 below. The table details the emission control measures the licence holder currently implements, where necessary.

Table 2: Licence holder's controls (previous DWER licence; 360 Environmental 2023; SLR 2024b)

Emission	Sources	Potential pathways	Existing controls
Operation			
Odour	Wastewater treatment ponds and pond maintenance activities	Air/windborne pathway causing impacts to health and	If pond-desludging is required in the future, DWER will be consulted, and a program of works will be scheduled.

Emission	Sources	Potential pathways	Existing controls
		amenity	

Leachate/wastewater	Containment loss and leakage of wastewater treatment system infrastructure	Loss of containment leading to seepage/ infiltration into the environment, causing soil/ groundwater contamination and ecosystem disturbance	- The following freeboards maintained on all wastewater treatment ponds:
			  - Aerobic pond 1a -0.3;
			  - Aerobic ponds 2a to 5a -0.3m;
			  - Big rock dam -0.3m.
			- Jasco Rise Dam decommissioned and no longer in use.
			- Adjacent wastewater ponds to the aerobic ponds associated with the previous El Caballo Resort sewage treatment system are no longer in use.
			- Fencing installed surrounding the wastewater treatment ponds to prevent livestock and unauthorised person access.
			- Daily inspections of wastewater treatment pond infrastructure and freeboard.

Nutrient rich irrigated wastewater	Irrigation of treated wastewater onto the El Caballo Golf Course	Seepage/ infiltration into the environment, causing soil/ groundwater contamination and ecosystem disturbance	- Flow meter maintained operational in the pump house to track the amount of wastewater discharged (irrigated). - Adjustment of irrigation frequency and rate according to rainfall and ground conditions. No irrigation during winter months (typically April to August. - Wastewater quality sampling for pH, Total Dissolved Solids, 5-Day Biochemical Oxygen Demand, total N, and total P conducted every 3 months from the pump house sampling point. *E. coli* analysis conducted monthly. - Surface water quality sampling of Wooroloo Brook and Coates Gully conducted every 3 months. - Use of a dissolved air floatation unit to clarify wastewater through removal of suspended solids and BOD. - Uptake of nutrients through grass cutting and removal from site.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment (DWER 2020),* the licence holder's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation. Table 3 and Figure 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting (DWER 2020)).*

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Receptor ID	Human receptors	Distance from prescribed activity
H1	El Caballo Lifestyle Village, 51 Jocoso Rise, Wundowie WA	Immediately surrounded by the prescribed premises boundary.
H2	Rural residence on Werribee Road, WOOROLOO WA	Approximately 550m north of the premises primary wastewater treatment ponds.
H3	Rural residences on Linley Valley Road, WOOROLOO WA	Approximately 650m west of the premises abattoir.
H4	El Caballo Resort, 3349 Great Eastern Hwy, WOOROLOO WA	Immediately adjacent to the golf course wastewater irrigation disposal area on the southern side.
H5	El Caballo Golf Course Pro Shop, 88 Great Eastern Hwy, WOOROLOO WA	Located within the prescribed premises boundary for the golf course wastewater irrigation disposal area.
H6	Rural residence on Harper Road, WOOROLOO WA	Approximately 950m west of the premises primary wastewater treatment ponds
H7	Wooroloo Swimming Pool off Linley Valley Road (restricted usage road), WOOROLOO WA	Approximately 990m south-west of the premises abattoir
H8	Rural residences on Jocoso Rise and Bodeguero Way, WUNDOWIE WA	Immediately adjacent to the golf course wastewater irrigation disposal area on the eastern side.
H9	Wooroloo Prison Farm off Great Eastern Highway, WOOROLOO	Approximately 1km south-west of the premises abattoir
H10	Loosefoot Saloon restaurant and bar, 3381 Great Eastern Highway, WUNDOWIE WA	Immediately adjacent to the golf course wastewater irrigation disposal area on the south-eastern side.
H11	Wooroloo townsite	Approximately 2.7kms west of the premises primary wastewater treatment ponds.

Receptor ID	Human receptors	Distance from prescribed activity
H12	Registered Aboriginal Cultural Heritage Site – Wooroloo Brook (creation / dreaming narrative)	Wooroloo Brook is included in a broadly mapped Aboriginal Cultural Heritage Site registered because it is part of a creation / dreaming narrative.
H13	Registered Aboriginal Cultural Heritage Site - Chinganning and Coates Gully Wetlands (creation / dreaming narrative)	Located 700 metres east of the El Caballo golf course premises boundary.
E1	Surface watercourse - Wooroloo Brook and Coates Gully Groundwater dependent ecosystem (national mapping) – Wooroloo Brook and Coates Gully	This major non-perennial watercourse runs directly through the prescribed premises boundary and is down-gradient of the primary and secondary wastewater treatment ponds and golf course irrigation area. The connected watercourse flows from south-east to north-west.
	Swan-Canning River System	The Wooroloo Brook flows into the Swan-Canning River System approximately 2km downstream, as described by the MRS parks and recreation reserve (planning policy 2.10).
E2	Native fauna	Within the prescribed premises boundary
E3	Keaginine Nature Reserve	This nature reserve is located immediately adjacent to the golf course wastewater irrigation disposal area on the southern side.
-	Swan River – RIWI Act 1914	Located within this proclaimed surface water area
-	Groundwater	Historical monitoring bores MW1–MW5 surrounding the primary wastewater treatment ponds indicate a groundwater flow from north-east to south-west towards the Wooroloo Brook Catchment. MW1 and MW2 show seasonal groundwater depths of between 6.95 to 10.25 m bgl indicating groundwater flow toward MW4 and MW5, which show groundwater depths of between 0.39 to 2.19 mbgl. Newly installed groundwater monitoring bores MB06 and MB07 indicate groundwater depths of 7.2 to 14.65 mbgl. This groundwater flow towards MB08 and MB09 indicates groundwater depths of between 2.1 – 2.91 m bgl. Salinity for this area is mapped at 1000 – 3000 TDS.

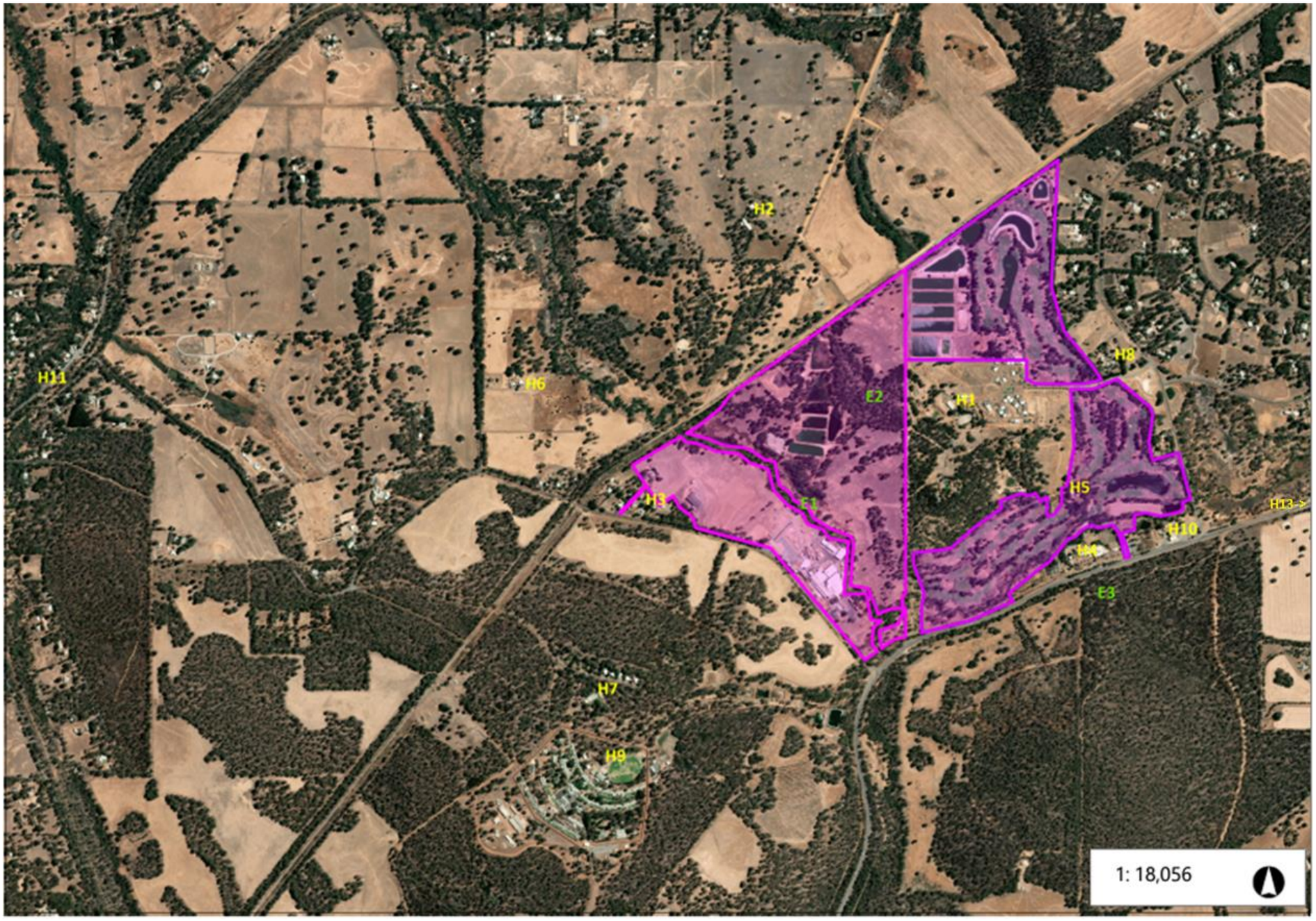

Figure 2: Distance to sensitive receptors (prescribed premises boundary shaded in pink)

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments (DWER 2020)* for each identified emission source and considers potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the licence holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the licence holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the licence holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

Licence *L7352/1989/10* that accompanies this decision report authorises emissions associated with the operation of the premises

The conditions of the issued licence, as outlined in Table 4 below have been determined in accordance with *Guidance Statement: Setting Conditions (DER 2015).*

Table 4: Risk assessment of potential emissions and discharges from the premises during operation

Risk events					Risk rating [1] C = consequence L = likelihood	Reasoning	Conditions [2] of licence
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence holder controls**			
Golf course wastewater treatment ponds and pond maintenance activities	Direct discharge to land of nutrient-laden wastewater via loss of containment (e.g., pond overtopping event, spills, or leak from pipework)	Loss of containment leading to seepage/ infiltration, causing soil, groundwater contamination and ecosystem disturbance	Refer to Section 4.1.2	Refer to Section 4.1.1	C = Moderate L = Possible **Medium Risk**	The delegated officer considers the loss of containment poses a medium risk rating. During a site visit, DWER officers observed that the placement of the infrastructure posed a risk to environmental receptors in the event of a pond integrity problem or pipeline leak (section 0). The delegated officer therefore considers additional regulatory controls necessary.	– Diversion of all uncontaminated wastewater from wastewater ponds. (Condition 3) – Maintenance of all pipework, ponds, and pond outlets to prevent wastewater seepage, leakage, and blockages. (Condition 3) – Minimum freeboards maintained on each wastewater pond -aerobic pond 1a, -0.3m, aerobic ponds 2a to 5a, -0.3m, Big rock dam, -0.3m (Condition 3) – Wastewater ponds to be kept clear of algal mats and vegetation not to interfere with pond wall integrity or mask overtopping or leakage. (Condition 3) – Flow meter(s) to be operational and maintained on the primary wastewater treatment systems wastewater pond 9. (Condition 3) – Additional monthly surface water sampling point whenever Coates Gully contains water, or in the event of a wastewater containment failure (SS01, shown on Figure 1 of the revised licence). (Condition 12, Table 7) – Daily inspections of wastewater drainage, pipelines, and wastewater treatment ponds/dams to ensure that freeboard or pond integrity problems, pipeline leaks and blockages are identified promptly and appropriately maintained. (Condition 16, Table 11)
	Seepage or leakage of wastewater through wastewater pond lining				C = Moderate L = Likely **High Risk** May be acceptable subject to multiple regulatory controls including both outcome-based and management conditions.	The delegated officer considers the seepage of wastewater through the wastewater pond systems liners pose an elevated risk, due to: - wastewater treatment pond liner permeabilities are unknown. - DWER's review of existing groundwater monitoring bore data found that nutrients from the primary wastewater ponds may have already impacted groundwater quality (section 2.3.3). - concentrations of wastewater stored on the golf course are in the same order of magnitude as the concentrations in the primary wastewater ponds (section 2.3.2). - currently no groundwater monitoring bore network installed around the golf course wastewater ponds to monitor any potential wastewater seepage and impacts on groundwater. Depth to groundwater is currently unknown. - the lakes on the golf course used for wastewater storage are unlikely to have been constructed with a suitable liner to prevent wastewater seepage. The delegated officer therefore considers it necessary to apply additional regulatory controls to the licence.	– Maintenance of all pipework, ponds, and pond outlets to prevent wastewater seepage, leakage, and blockages. (Condition 3) – Wastewater ponds previously used to store sewage wastewater from the El Caballo Resort are not permitted to be used for wastewater storage. (Condition 3) – The installation of a new groundwater monitoring bore network with quarterly monitoring to monitor the potential impact of wastewater seepage from the wastewater treatment ponds. (Condition 1) – Groundwater monitoring on the El Caballo Golf Course (Condition 14, Table 9) – Condition 18 requiring a plan for lining all wastewater ponds and dams on the premises by 2030, where required to meet a maximum permeability of 1 x 10^{-9} m/s.
	Odour from ponds	Air/windborne pathway causing impacts to health and amenity			C = Minor L = Possible **Medium Risk**	The delegated officer considers odour from the wastewater treatment system ponds poses a medium risk, particularly during any future de-sludging works. The licence holder has advised that pond de-sludging has not occurred to date and is considered unlikely in the near future. If de-sludging were required in the future, the requirement to de-sludge would be discussed with DWER and a program of works would be put in place. The delegated officer considers pond de-sludging licence notification requirements and	– Maintenance of all pipework, ponds, and pond outlets to prevent wastewater seepage, leakage, and blockages (Condition 3). - Notification to DWER of any scheduled de-sludging works, the scheduled contractor's details and the intended facility the pond sludge will be taken to. (Condition 23) - Requirements for handling of pond sludge. (Condition 3, Table 2)

Risk events					Risk rating [1] C = consequence L = likelihood	Reasoning	Conditions [2] of licence
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence holder controls**			
						waste containment necessary so that the risk of odour to neighbouring properties can be minimised during any future scheduled works.	- Monitoring and reporting of sludge handling (Condition 9, Table 6)
Irrigation of treated wastewater	Pathogens	Spray drift and direct contact causing impacts to human health			C = Moderate L = Unlikely **Medium Risk**	The delegated officer has consulted with the DoH and notes that a separate *Recycled Water Scheme Approval A88/00000* with associated requirements relating to human health are in place and administered by the DoH.	- Monthly sampling of E.coli for irrigated wastewater, consistent with the DoH's approval (Condition 12, Table 7) - Irrigated wastewater to be contained within the designated wastewater irrigation area. (Condition 3)
	Treated wastewater containing excessive nutrients	Surface runoff causing impacts to aquatic ecosystems			C = Moderate L = Likely **High Risk** May be acceptable subject to multiple regulatory controls including both outcome-based and management conditions.	The delegated officer considers the irrigation of treated wastewater to pose an elevated risk for surface run-off causing impacts to aquatic ecosystems as follows: - concentrations of treated wastewater exceed criteria for the protection of aquatic ecosystems (section 2.3.2). - review of the NIMP has indicated a number of deficiencies that are required to be addressed (section 2.2), including uncertainty with regard to the ability of soil and vegetation to take up the nutrient loading being applied (section 2.2.2). The modelling indicates that nutrient loading may exceed the ability of turf to take up nitrogen by around 56-87 kg/ha/year, based on leaching calculations and a comparison with Swan River Trust (2014). - wastewater irrigation is currently being applied within 15 metres proximity to Coates Gully, potentially reducing the ability of the fringing vegetation in the riparian zone to remove nutrients (sections 2.2 and 2.3). The delegated officer therefore considers it necessary to apply additional regulatory controls to the licence.	– Surface water sampling and reporting to monitor any impact of golf course wastewater irrigation on the nearby Coates Gully watercourse (SS01, shown on Figure 1 of the revised licence). (Condition 12, Table 7) – Conditions on wastewater irrigation to the land application area (LAA) (Condition 3) as follows: - no irrigation discharge beyond the boundary of the LAA; - conditions on healthy grass cover, mowing and harvesting; and - no irrigation when land is waterlogged or after heavy rains. – Wastewater irrigation monitoring (Condition 6, 7, 8, 13, Table 4, 5,8) and limits on: - nitrogen and phosphorus, based on those proposed by the proponent in the NIMP, and consistent with conditions on former El Caballo licence *L6736/1993/12*. - electrical conductivity, based on DPIRD advice (section 2.2.2; *DPIRD, 2019*); - sodium adsorption ratio (SAR), which when >9 has a severe risk of increasing soil sodicity on most soils (*NSW Department of Primary Industries, 2016*), - *E.coli*, consistent with DoH approval (section 0), and - BOD and pH, consistent with similar recent approvals for wastewater irrigation close to waterways. – Specified Actions regarding revision and resubmission of the NIMP to DWER (Condition 16, 17) – Condition 17 regarding revision and resubmission of the NIMP to DWER – Soil sampling and reporting to monitor any impact of golf course wastewater irrigation on surface soil. (Condition 14, 15)

Risk events					Risk rating [1] C = consequence L = likelihood	Reasoning	Conditions [2] of licence
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence holder controls**			
		Seepage through soil to groundwater causing impacts to groundwater quality and downgradient receptors			C = Moderate L = Possible **Medium Risk**	The delegated officer considers the irrigation of treated wastewater to pose a medium risk as follows: - wastewater irrigation is currently being applied within close proximity to Coates Gully. - concentrations of treated wastewater exceed criteria for aquatic ecosystem protection (section 2.3.2). Pathogens, nutrients, and non-nutrient contaminants in wastewater can cause significant issues such as increased mosquito breeding, algal blooms, and fish deaths (DPLH, 2019). - there is currently no groundwater monitoring bore network installed around the irrigation area. Depth to groundwater is currently unknown. - review of the NIMP has indicated a number of deficiencies that are required to be addressed (section 2.2), including soil and vegetation nutrient loading uncertainty (section 2.2.2). The delegated officer therefore considers it necessary to apply additional regulatory controls to the licence.	– The installation of a new groundwater monitoring bore network with quarterly monitoring to monitor the potential impact of wastewater irrigation. (Conditions 1 and 2) – Conditions on wastewater irrigation to the LAA (Condition 3), including: - conditions on healthy grass cover, mowing and harvesting; and - no irrigation when land is waterlogged or after heavy rains. – Condition 17 and 18 regarding revision and resubmission of the NIMP to DWER – Wastewater irrigation monitoring (Condition 13, Table 8). – Groundwater monitoring (Condition 14, Table 9) – Soil sampling and reporting to monitor any impact of golf course wastewater irrigation on surface soil. (Condition 15, Table 10)

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Licence holder controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Decision

Based on the assessment in this decision report, the delegated officer has determined that the amended licence is granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Multiple additional regulatory controls have been imposed as a result of this assessment. The delegated officer has considered the following factors in this decision:

- the unknown specifications and permeabilities of the golf courses wastewater treatment pond liners
- the close proximity of the golf course wastewater irrigation area to the Coates Gully watercourse
- review of the NIMP by the Department and by DPIRD
- review of the historical water monitoring results at the premises
- the DoH's approval conditions, and
- a site inspection carried out by DoH and DWER.

5. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
DoH was invited to inspect the premises with DWER on 26 October 2022. DoH was provided with the original licence application from *Skank Boy Pty Ltd* on 15 August 2023.	The outcome of the joint DWER and DoH site inspection is described in section 2.3. DoH granted a revised *Recycled Water Scheme Approval (A88/000000)* to El Caballo Golf Club, including a number of conditions. DoH provided comments in writing to DWER on 1 September 2023, which are also summarised in section 2.3.	DWER considered DoH's comments in the risk assessment in section 4 above and has included additional controls on the revised licence.
DPIRD was provided with the original licence application from *Skank Boy Pty Ltd* on 15 August 2023. DPIRD was provided with a copy of the NIMP by email on 22 July 2024.	DPIRD responded on 18 August 2023 advising that it required a NIMP to assess the impacts of the proposal. DPIRD provided a detailed response to the NIMP on 23 August 2024, which is summarised in section 2.2.2.	DWER considered DPIRD's comments in the risk assessment and has included additional controls on the revised licence.
The Shire of Northam was provided with the	None received.	N/A

Consultation method	Comments received	Department response
original licence application from Skank Boy Pty Ltd on 15 August 2023.		
Licence holder was provided with draft licence on 7 January 2025 and 10 June 2025	Licence holder response in Appendix 1 : Summary of applicant's comments on draft conditions	Department response in Appendix 1 : Summary of applicant's comments on draft conditions

6. Summary of amendments

Table 6 provides a summary of the amendments and will act as a record of implemented changes.

Table 6: Summary of licence amendments

Condition no.	Amendments
Condition 1, Table 1 (works)	Removal of groundwater monitoring bore and surveyed freeboard marker installation requirements. The licence holder has completed this installation and submitted the *Environmental Compliance Report*. (*DWER Reference: A2282538*) Addition of groundwater monitoring bore installation conditions, to be installed on the El Caballo Golf Course.
Condition 2 (works)	Addition of a works condition requiring evidence of installing groundwater monitoring bores.
Formerly Conditions 2 and 3 (Environmental Compliance Report)	Removal of *Environmental Compliance Report* submission and requirements conditions relating to groundwater monitoring bore and surveyed freeboard marker installations.
Condition 3, Table 2 (infrastructure and equipment requirements)	Wastewater treatment system on the Linley Valley Pork site is referenced as the primary system and the wastewater treatment system on the El Caballo Golf Course site is referenced as the secondary wastewater treatment system. All wastewater treatment, storage and irrigation infrastructure related to Linley Valley Pork's wastewater on the El Caballo Golf Course site added into the licence with applicable conditions. Adding reference to new groundwater monitoring bores (once installed). Addition of quantifying nutrient export through harvesting Addition of irrigation requirements. Addition of flow meter detail.
Table 3 (waste processing)	Relocating reporting requirements into Table 5 (process monitoring).
Table 4 (wastewater discharge limits)	Removal of existing Table 4 detail, relocated to Table 5 (Emissions and discharge limits)
Table 5	Addition of detail to emissions and discharges thresholds and limits

Condition no.	Amendments
Condition 6, Table 4. Condition 13, Table 7 (emissions and discharges; monitoring waste water irrigation	Addition of emission limits for wastewater irrigation on the golf course. Addition of flow meter detail.
Condition 8 (emission limit exceedance reporting)	Addition of a limit exceedance written notification requirement.
Table 3 and Table 8 (waste management; process monitoring)	Addition of wastewater treatment pond sludge reporting. Relocating reporting requirements from Table 3 (waste processing).
Table 6 (monitoring of surface water)	Addition of surface water monitoring points Upstream Coates Gully SS01 and Big Rock Dam (SS06). Primary wastewater system pond 9 outlet (SS04) has been added from Table 7. Reference to GPS coordinates added and specification added to differentiate sampling frequency for wastewater ponds and watercourses.
Table 7 (monitoring of wastewater)	Addition of flow meter references and wastewater irrigation flow monitoring. Table altered to include El Caballo irrigation monitoring point and additional testing parameters as per parameters listed in Table 4. Reference to GPS coordinates added.
Table 9 (groundwater monitoring of ambient conditions)	Removal of reference to installation text. Reference to GPS coordinates added. Addition of reference to new groundwater monitoring bores (once installed).
Table 10 (monitoring of ambient soil concentrations) with	Addition of soil monitoring requirements.
Table 11 (inspections of critical containment infrastructure)	Addition of secondary wastewater treatment system ponds inspections.
Condition 17	Requirement to engage a suitably qualified consultant to revise the Nutrient Irrigation Management Plan and submit it to DWER no later than 31st August 2025.
Condition 18	Prepare a plan for lining wastewater ponds and dams where required to achieve a maximum permeability of 1×10^{-9} m/s by 2030 Provide the plan to DWER by no later than three months from the granting of the licence.
Table 12	Addition of details for revision of Nutrient Irrigation management Plan
Table 13 (annual environmental report)	Addition of photographic evidence of flow meter readings. Specification added to use the nutrient loading spreadsheet attached in Schedule 2.

Condition no.	Amendments
Table 13 (Notifications)	Removal of the notification that El Caballo Golf Course will be unable to receive wastewater from the Linley Valley Pork premises.
Table 14 (Definitions)	Removal of obsolete terms and addition of new terms.
Schedule 1, Figure 1 (prescribed premises boundary)	Update to prescribed premises boundary to include El Caballo Golf Course wastewater infrastructure and irrigation area. Update to prescribed premises boundary to include the existing wastewater, surface water and monitoring bore sampling locations.
Schedule 1, Figure 2	Addition of soil sampling locations map.
Schedule 1, Figure 3	Addition of map showing zones where additional groundwater monitoring bores are to be installed.
Schedule 1, Figure 4	Addition of flow meter identification label 'FM01'
Schedule 1, Figure 5	Addition of flow meter identification label 'FM02'
Schedule 1, Figure 7 (irrigation area)	Figure added showing the secondary wastewater treatment system and wastewater irrigation area on the El Caballo Golf Course.
Schedule 1, Figure 8 (El Caballo Golf Course infrastructure)	Addition of flow meter identification label 'FM03'. Figure showing the wastewater infrastructure and wastewater flow on the El Caballo Golf Course site.
Schedule 2 (Irrigation loading rates calculator)	A calculator added for the licence holder to use for presenting irrigated wastewater sampling data.
Schedule 3 (GPS coordinates for monitoring locations)	GPS coordinates added for surface water sampling locations (SS01 and SS06), newly install monitoring bore locations and golf course irrigation monitoring location. Addition of bracketed note of flow meter locations.

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18. Swan River Trust, 2014, *Western Australian environmental guidelines for the establishment and maintenance of turf grass areas,* Perth, Western Australia. Accessed at www.dbca.wa.gov.au with
19. Western Australian Planning Commission (WAPC), 2006, *State Planning Policy 2.10 Swan-Canning River System*. Accessed at www.wa.gov.au

Appendix 1: Summary of licence holder's comments on draft conditions

Condition	Summary of licence holder's comment received : 28 February 2025	Department's response
Condition 1, Table 1 (works)	The licence holder notes, the specified target date for bore installation on the El Caballo Golf Course may require revision, subject to availability of contractors to undertake the work. The licence holder has proposed an alternate date of 3 months after a licence is issued, to allow the scope of works to be confirmed with an appropriate contractor and a consultant engaged to undertake the works.	The Department agrees on the specified due date for bore installation to be 3 months after the licence is issued.
Condition 3, Table 2 (infrastructure and equipment requirements)	**Freeboard detail** - The licence holder queries the proposed freeboard values, noting these are a significant variance from the existing 0.3m on all ponds as detailed in the most recently amended licence for L6736/1993/12. The licence holder has advised that maintaining the proposed freeboard would reduce the storage capacity of the wastewater treatment ponds. The licence holder has requested from DWER a rationale for the proposed minimum freeboard levels. **Grasses management** - The licence holder notes, the golf course fairways and greens mowing frequency is weekly, to maintain a short grass profile as a standard playing surface. The mowed grass then returns to the ground as current equipment is not set up to collect (catch) the clippings, nor does the golf course possess equipment to weigh 'clippings." Whilst the licence holder acknowledges the intent of the control measure, the applicant considers harvesting the mowed grass clippings is not achievable due to lack of available equipment. The licence holder proposes "that nutrient management options be developed as part of an approved NIMP, rather than	**Pond freeboard** The Department agrees to the 0.3 m freeboard for the wastewater ponds at the golf course. The Department recommends pond specific freeboard is developed in line with the Department of Primary Industries and Regional Development, ABD - Pond freeboard guideline. **Grasses management** The department notes grass harvesting is required to quantify nutrient export. The licence holder is required to install a grass catcher to be able export and quantify nutrient export through grass harvesting. Until such time as grass catchers are installed, volumes of exported nutrients are to be estimated and presented in the AER. **Exclusion buffer to waterway** The department agrees with the licence holder's proposal. The NIMP condition will be amended to develop technical elements required for monitoring and measurement. Management actions are to be implemented to reduce and mitigate the associated risk of nutrient proximity to the Wooroloo Brook and Coates Gully. The Department notes

Condition	Summary of licence holder's comment received : 28 February 2025	Department's response
	prescribed in conditions," to consider "a broader range of options beyond just the golf course." The licence holder proposes "approval of the revised NIMP by DWER could be a condition of the licence" where "management strategies are informed via a built-in review process." The licence holder proposes the NIMP be revised (developed) based on results from the first round of monitoring including the additional locations set out in revised conditions 12, 13, 14 and 15. With subsequent review after 12 months. The licence holder proposes a due date for a revised NIMP to be five months a licence is issued to allow for collection and analysis of additional from the additional locations above. **Exclusion buffer to waterway** – The licence holder disputes the irrigation exclusion zone buffering the Coates Gully. The licence holder notes the Coates Gully 50m buffer and the Woorooloo Brook 100m buffer, would exclude irrigation from golf course playing areas consisting of two fairways and a driving range. The licence holder proposes that irrigation buffers to Coates Gully be developed in a revised NIMP. **Irrigation after rainfall** – The licence holder acknowledges El Caballo Golf Course operators do not wish to over-irrigate the irrigation area. Currently the course is irrigated overnight with the use of timers to minimise evaporative loss and the occurrence of spray drift. The licence holder proposes it is unlikely irrigation following a 2mm rainfall event will result in increased risk of surface runoff in summer. The licence holder proposes for the remainder of the irrigation year course operators "will avoid irrigating during or immediately after a rain event." The licence holder requests that the condition excluding irrigation during, or 24	irrigation buffers are to be developed based on implemented monitoring results with consideration to *Water Quality Protection Note 06 - Vegetation Buffers to Sensitive Water Resources and Water Quality Protection Note 22 - Irrigation With Nutrient Rich Wastewater* **Irrigation after rainfall** The Department disagrees, the applicant is to ensure Irrigation is not undertaken during, or 24 hours immediately after a rainfall event over 2 mm. The Department notes management practices are required to be measurable, as such if details presented in the NIMP demonstrate irrigation can be managed adequately this item may be reconsidered.

Condition	Summary of licence holder's comment received : 28 February 2025	Department's response
	hours immediately after a rainfall event over 2 mm be removed. The licence holder notes that conditions 7.b – h to be adequate to minimise potential environmental harm to the Woorooloo Brook and Coates Gully waterways. The licence holder proposes irrigation management be further refined in the revised NIMP. The licence holder advises Jacoso Rise Dam site has been developed for accommodation, as such all references to the dam can be removed.	
Table 11 (inspections of critical containment infrastructure)	The licence holder comments the plant typically operates Monday to Friday and is not staffed over the weekend, other than for maintenance activities. Limited wastewater is produced during the weekend. The licence holder proposes to change monitoring frequency from 'daily' to 'days when the plant is processing.'	The Department agrees and will amend the conditions accordingly.
Condition 17	The licence holder acknowledges the requirement to engage a suitably qualified consultant to revise the Nutrient Irrigation Management Plan and submit it to DWER.	
Condition 18	Propose adding the term 'where required' to clarify that re-lining will only be undertaken when permeability is greater than $1x10^{-9}$ m/s. The licence holder proposes condition wording "prepare a plan for lining all wastewater ponds and dams by 2030", be changed with the addition of the terms "where required". To be read as "The plan must also include a scope of work to re-line all wastewater ponds or dams *where required* to achieve a maximum permeability $1x10^{-9}$ m/s". The licence holder requests a change of the submission date for the pond and dam lining plan. The condition date is to provide the plan to DWER by 28 April 2025. The applicant proposed date is 3 months after	

Condition	Summary of licence holder's comment received : 28 February 2025	Department's response
	the issuance of a licence, to facilitate the engagement of a suitably qualified consultant to advise on the works required.	
Table 12 Revision of the Nutrient Management Plan	The licence holder comments that given the age of the El Caballo Golf Course, the exact location of all drainage infrastructure may not have been recorded. The licence holder proposes the additional text 'where known' for Item 2, to be read 'Locations of the sub-soil drains, and potential connections to groundwater and surface water 'where known''. The licence holder requests the specified condition date for submission of the NIMP to be revised. The applicant proposes for submission of the NIMP to be 5 months after the licence is issued, to allow for collection and analysis of the first round of monitoring data.	The Department partially agrees, as the sub-soil drains represent an indirect containment measure, where known, drainage infrastructure and water feature connections are to be detailed. The Department proposes the alternate submission date of 31 August 2025. (in 5 months' time as requested)
Condition 3, Table 2, Item 5	The licence holder comments that given the age of the ponds, detailed design specifications are not available. The licence holder proposes that sludge surveys of the primary and secondary wastewater ponds are undertaken to confirm pond dimensions and holding capacity. The licence holder requests these surveys be implemented as part of the NIMP revision.	The Department agree and will amend the conditions accordingly.
Condition 3, Table 2, Item 7	The licence holder advises the request to clearly label the designated irrigated wastewater land application areas on an aerial map showing area measurements in ha and all sprinkler locations, has been given to ECB. The licence holder advises that should the information not be made available within an appropriate timeframe; this will be included in the NIMP.	The Department partially agrees, the licence holder is required to include the specified irrigation area detail in the AER.
Condition	**Summary of licence holder's comment received : 10 July 2025**	**Department's response**
Administrative	Endorsed by the licence holder with minor	The Department agrees and amends

Condition	Summary of licence holder's comment received : 28 February 2025	Department's response
change - multiple	changes	conditions accordingly.
Condition 3, Table 2 (infrastructure and equipment requirements); Nutrient Irrigation Management Plan.	The applicant requests, items 7 i – j be removed. The applicant comments there is not any way to practically achieve the grass handling objective of nutrient export via growing of grass in the current Wastewater LAA (El Caballo Golf Course). The licence holder notes future compliance concerns may arise, with a nutrient export condition based on the current LAA irrigation field. The licence holder comments Linley Valley Pork is not aware of any commercially available fairway mowers that have catchers to collect the clippings. The licence holder proposes to update the NIMP utilising the first round of new monitoring (soils, ground and surface water as per proposed conditions) to confirm the condition of the receiving environment and to quantify risks. The NIMP will target upstream treatment options that could be introduced within the plants or ponds to reduce nutrient or salt loads. In addition, the licence holder proposed updating the NIMP to include on-site and/or off-site development of additional LAA(s), for wastewater irrigation, with harvestable crop options to achieve nutrient off-take requirements.	The Department partially agrees and notes the current conditions of the site. If grass catching objectives for the current LAA cannot be achieved, insufficient nutrient up-take may occur, possibly increasing unacceptable risk of on-site and off-site impacts to surface and groundwater. The licence holder is required to provide a nutrient off-take (grass harvesting) and identify a new additional wastewater irrigation area where a nutrient off-take strategy (harvesting) can be implemented. The new irrigation area proposal is to be incorporated into the prescribed premises, including species options for crop yield and nutrient up-take.