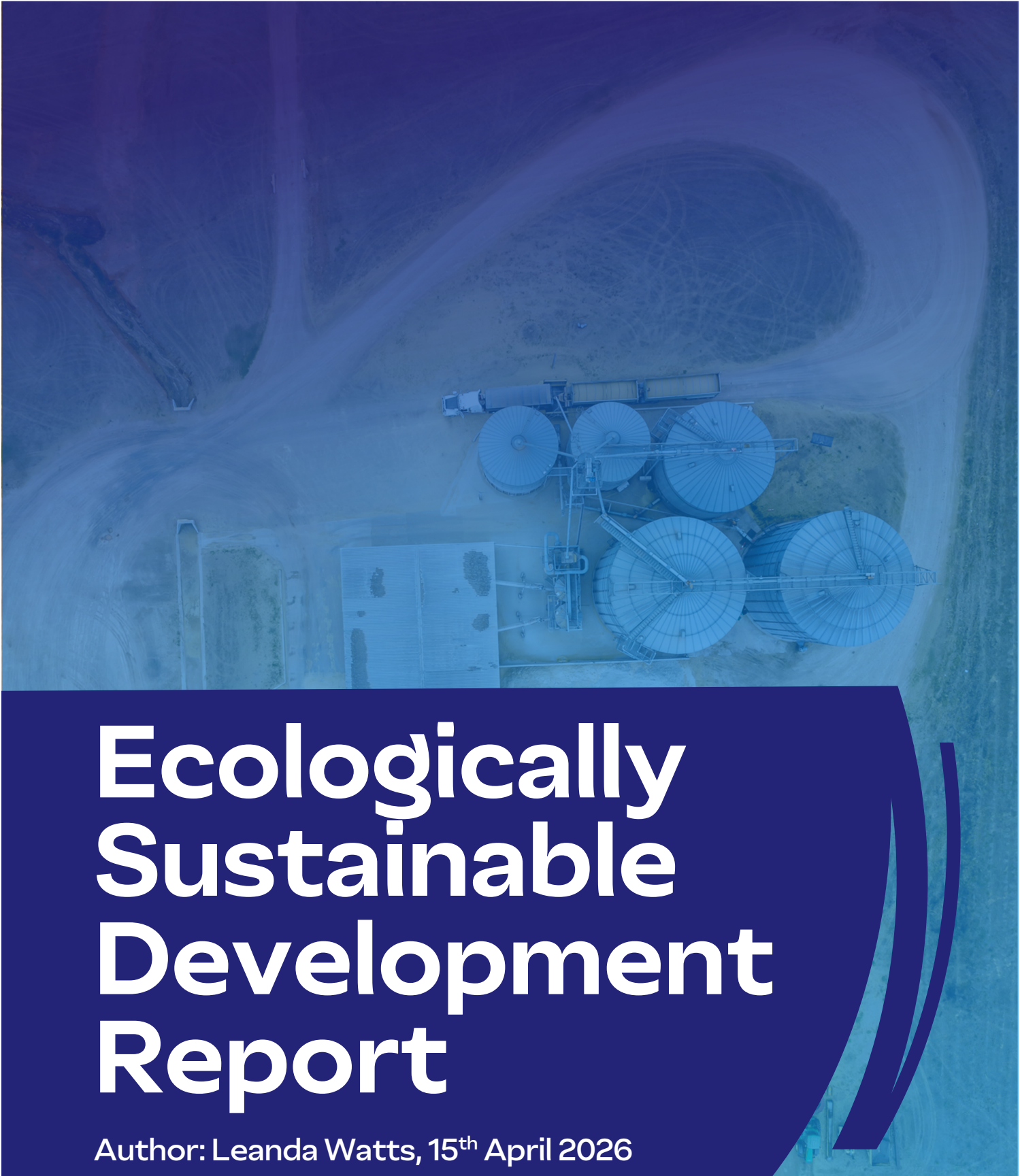




Ecologically Sustainable Development Report

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Executive Summary

This Ecologically Sustainable Development (ESD) Report accompanies the State Significant Development (SSD) Application for the JBS Lowesdale Pig Breeder Farm. It demonstrates how the proposal integrates the principles of ecologically sustainable development across design, construction and operation of the infrastructure to be installed at the site.

This report outlines a streamlined approach to Ecologically Sustainable Development (ESD), emphasising the integration of environmental protection, economic resilience, and social wellbeing into planning and operational decision-making. It identifies current site conditions, key sustainability challenges, and priority actions that enable responsible development while protecting ecological systems for future generations.

Key ESD priorities include reducing environmental impact, improving resource efficiency, conserving biodiversity, strengthening climate resilience, and ensuring transparent governance with effective community engagement.

Introduction

Site Background and Strategic Relevance

JBS Pork including previous operators of the properties included as a part of company have operated pig farms since the 1970s. Ageing infrastructure now requires full redevelopment to support long-term activity viability and maintain its role as a local employer. Rebuilding presents an opportunity to replace obsolete systems and implement modern best-practice technologies to improve site performance and amenity. Diversification of sites allows for enhanced risk management reducing reliance on a single site to maintain activities.

This report sets out the project's ESD context, targets and controls, mapping them to NSW SSD guidance, the EP&A Act objects and the EP&A Regulation ESD principles

Project Overview

As a part of this rebuilding process, the Lowesdale site would form an integral part of the breeding side of the business. Strategically, this allows for separation between the breeding site (farrowing, mating/early gestation, gestation, nursery and gilt development unit) and sites used for growing pigs to market size. This diversification is for disease/biosecurity management and reduce the operational risk between farm locations.

Additionally, the site will operate a covered anaerobic lagoon (CAL) with downstream treatment/sludge ponds and storage, treated effluent irrigation areas, a stormwater basin, composting shed for mortalities, and a truck sanitising wash. The 17 ha operational footprint sits within a ~955 ha holding that provides buffers and reuse areas. The layout prioritises clean-dirty water separation, stormwater management, odour source control, and biosecurity protocols.

Key ESD Principles

In reference to Section 193 of the EP&A regulation, the key principles of Ecologically Sustainable Development for the site are as follows:

- (a) the precautionary principle,
- (b) inter-generational equity,
- (c) conservation of biological diversity and ecological integrity,
- (d) improved valuation, pricing and incentive mechanisms.

Precautionary Principle

Environmental risks are proactively assessed and managed. The site operates under an Environmental Licence requiring ongoing monitoring and risk management processes. All construction and operational activities undergo risk assessments to determine controls needed to minimise environmental, construction, and operational impacts.

Vegetation potentially affected by works is assessed by an external suitably qualified person to ensure impartial review and informed decision-making. Infrastructure placement is guided by these assessments to minimise disturbance to natural and previously planted vegetation.

Intergenerational Equity

Site redevelopment prioritises the long-term health and safety of employees, animals, and the broader community.

Resource management—particularly water and electricity—is optimised to minimise waste, improve efficiency, and ensure responsible use of essential utilities for future generations.

Conservation of Biological Diversity and Ecological Integrity

Although the area has long been used for agriculture, water security remains a critical factor. Activity at the site relies on local groundwater sources for the livestock drinking supply. To reduce pressure on groundwater, treated effluent is reused where practical within the activity area.

Improved Valuation, Pricing and Incentive Mechanisms.

Environmental controls—including bunding, metering, and containment systems—are embedded into project design to prevent pollutant release. Some waste streams can also be utilised for energy generation.

JBS's Net Zero by 2040 commitment shapes energy-efficiency planning, which exceeds the Australian Government's 2050 target. Infrastructure is strategically located to maximise gravity-fed systems and minimise pumping energy demand.

Existing cover-capture systems generate renewable electricity and have produced Australian Carbon Credit Units (ACCUs) for over a decade. These systems, registered under Clean Energy Regulator requirements, enable the creation and trade of Large-Scale Generation Certificates (LGCs).

All new developments include biogas ponds to reduce greenhouse gas emissions by capturing and combusting methane, with potential for electricity generation depending on methane yield.

Existing sites can also generate ACCUs through approved carbon credit methods, creating financial returns over project life cycles. Material recovery and recycling are incorporated where feasible during rebuild projects.

NSW EPA Guide for Large Emitters

JBS Pork Australia currently reports Scope 1 and 2 emissions via the National Greenhouse Energy Reporting (NGER) framework (National Greenhouse and Energy Reporting Regulations 2008) via the Clean Energy Regulator. Scope 3 emissions have been identified with a focus on calculating livestock emissions. Cover capture pond systems contribute to reductions in Greenhouse Gas Emissions from livestock activities. This site will be below 25,000 CO₂-e based on current NGER requirements for scope 1 and 2 reporting.

<https://www.epa.nsw.gov.au/Your-environment/Climate-change/nsw-guide-large-emitters>

Sustainable Design Initiative

Odour and Air Quality

Odour risk is managed via conservative separation distances using the NSW EPA Technical Notes Level 1 method for piggeries; design maintains a margin beyond the minimum computed distance. The CAL is covered and gas-managed; mortalities are composted in an enclosed shed; sheds are oriented and ventilated to minimise emissions. Enclosed sheds are considered to be best practice for control of emissions to air and allow for management of effluent generated, which is a primary source of odour. All odorous activities will be contained within enclosed sheds with ventilation to control the direction of any potential odour source. If any change reduces separation margins or increases risk, further assessment will be undertaken under the NSW Approved Methods (2022) and cumulative effects considered.

Greenhouse Gas and Energy

The covered anaerobic lagoon captures methane for flaring as a baseline to reduce emissions and it will include staged beneficial use of the generated methane (electricity/thermal) subject to the feasibility of electricity generation at the site. Installing high-efficiency ventilation and heating, variable speed drives, insulation and automation reduces the energy intensity of activities by controlling energy requirements at the point of use. Annual GHG accounting under the National Greenhouse energy Reporting (NGER) scheme will report emitted and avoided CO₂-e including offsets from biogas containment and utilisation.

Water, Effluent and Nutrient Circularity

Effluent storages are sized using Australian Pork Limited (APL) industry tools (PigBal/WatBal) to limit spills to ≤1-in-10-year frequency with 600mm freeboard. Effluent is reused on the property through irrigation and volumes are based on soil moisture deficit to avoid runoff and nutrient load to ensure activities are sustainable. Irrigation buffers, salinity/sodicity thresholds and regular effluent/soil testing will be implemented consistent with the NSW EPA "Use of Effluent by Irrigation" guideline. Clean stormwater is fully segregated from effluent and directed to a stormwater basin with preferred reuse.

Stormwater & Water Sensitive Design

Perimeter bunding, graded slabs and swales keep clean water out of activity areas. The stormwater basin is sized for critical events and managed to maintain capacity and prevent contamination with effluent for water quality. Permeable surfaces and appropriate landscaping will reduce and control peak flows to improve water quality. Controlling the stormwater flow helps to manage capacity and operational efficiency in the effluent pond system.

Materials, Waste and Circular Economy

Preference is given to recycled-content aggregates for internal roads constructed and responsibly sourced steel/timber used at the site. Where possible, material is reused, reclaimed or sorted to prevent disposal to landfill. Construction waste recovery targets ≥80% by mass where practicable. Activity generated wastes (e.g., sludge) are directed to beneficial use under Resource Recovery Orders/Exemptions where applicable.

Biodiversity and Land

The breeder farm footprint is on cleared land that has been used for long term agricultural activities ; no native vegetation clearing is proposed. Based on this, there will be minimal/no impact on native vegetation or wildlife. If future micro-siting intersects biodiversity values or triggers BOS thresholds, the avoid–minimise–offset hierarchy applies and a BDAR will be prepared for the site.

Bushfire and Climate Resilience

Bushfire planning provides Asset Protection Zones, water points with firefighting fittings, and an emergency plan consistent with Planning for Bush Fire Protection 2019. Climate-resilient design includes ventilation redundancy for heatwaves, water security/contingencies for drought, stormwater management for intense rainfall, and robust structures for gustier winds. Building this into the initial construction allows for material selection

Metering, Controls and Commissioning

Install energy and water sub-metering so that water and electricity use can be tracked and monitored, establishing a data dashboard will assist with performance tracking and . Commissioning and first-year tuning verify controls and performance; recurrent tuning is included in the OEMP along with a complaints protocol and corrective action process.

Community Transparency

Maintain a public-facing summary (e.g., within the EPL Annual Return or CSR reporting) of odour complaints, GHG performance, effluent/soil monitoring outcomes and corrective actions. The website for community is maintained for transparency of activities and updated as required.

Demonstration of Compliance with Accredited Guidance

- National Environmental Guidelines for Indoor Piggeries (NEGIP, 2025): siting, buffers, effluent collection, storage design, irrigation and monitoring.
- NSW EPA Technical Notes and Technical Framework (2006): Level 1 separation assessment; escalation to Level 2/3 where required.
- Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2022): modelling methodology and criteria if dispersion modelling is required.
- NSW EPA 'Use of Effluent by Irrigation' (2004): buffers, monitoring, salinity/sodicity management, and runoff prevention.
- Planning for Bush Fire Protection 2019 (NSW RFS): APZ and design provisions.
- BOS screening and avoid–minimise–offset hierarchy under the Biodiversity Conservation Act framework.

Mitigation and Monitoring

Matrix

Aspect	Measure	KPI / Trigger	Monitoring & Reporting
Odour	Maintain $\geq$ Level 1 separation plus a design margin; CAL covered; enclosed composting	Every complaint is investigated and a report is logged into the database.	Complaints log; investigation report. All reports supplied to the EPA on request.
GHG/Energy	Biogas capture and flaring; staged beneficial use	Annual GHG reported under NGER (Financial year) and Annual Company Reporting (Calendar year)	Meter biogas and energy; report CO ₂ -e abatement Assessment for potential energy generation to take place after 24months
Effluent/Water	Storage $\leq$ 1-in-10 spill; 600mm freeboard; irrigation on soil moisture deficit; EPA buffers	Freeboard 600mm or forecast spill; runoff observed	Weekly storage checks; annual effluent & soil testing
Stormwater	Full segregation of clean water; maintain basin capacity	Capacity shortfall or bypass	Routine inspections after rain events, reuse of material to maintain volumes
Biodiversity	Avoid native vegetation; BOS screening on changes	BOS threshold or BV map overlap	Design change review
Bushfire	Maintain APZ; emergency plan and fittings	Audit non-conformity, incident requiring repair or replacement	Annual audit and drill

ESD Commitments Register

• Maintain odour separation distances in line with the NSW EPA Technical Notes: Assessment and Management of Odour from Stationary Sources, and ensure that any proposal to reduce the approved separation margin is supported by an updated odour assessment prepared under the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2022) before any change is made. Use the APL National Environmental Guidelines for Indoor Piggeries (NEGIP) (2025) to determine industry-standard separation distances and to validate that siting and buffer requirements remain consistent with best-practice odour management.

• Operate the Covered Anaerobic Lagoon with a gas-tight cover and flare, meter biogas and report avoided CO₂-e annually, and assess options for beneficial energy use within 24 months of commissioning. Ensure all gas infrastructure is installed and operated in accordance with State requirements for gas appliances, including certification by appropriately licensed contractors (such as for Type B appliances). Undertake weekly inspections to confirm system integrity and complete any required maintenance in a timely manner.

- Maintain effluent storage so that spill frequency does not exceed a 1-in-10-year event while keeping a minimum 600 mm freeboard, apply effluent only in accordance with EPA-approved irrigation controls, ensure annual effluent and soil sampling is carried out by a suitably qualified person with soil results assessed by an agronomist, and operate irrigation in a manner that prevents any runoff.
- Segregate stormwater from effluent streams at all times, and maintain sufficient stormwater basin capacity to capture and manage runoff, reusing collected stormwater wherever practicable.
- Avoid removing native vegetation wherever possible, and where a BOS requirement is triggered, prepare a BDAR and implement biodiversity offsets in line with the avoid–minimise–offset hierarchy.
- Maintain Asset Protection Zones and firefighting water fittings so they remain fit for purpose through regular testing, and implement a Bushfire Emergency Plan supported by annual training.
- Publish an annual summary of ESD performance—covering odour, greenhouse emissions, effluent and soil monitoring, and any corrective actions—or another report if required.

Conclusion

The JBS Pork Lowesdale Breeder farm has embedded ESD principles across every stage of the project, beginning with the initial concept and continuing through detailed design, with this commitment carrying forward into construction and ongoing operations. The integrated design framework incorporates conservative odour modelling to minimise off-site impacts, methane capture to reduce greenhouse emissions, effluent reuse supported by multiple safeguards, clear separation of stormwater and effluent systems, biodiversity-avoidance measures to protect ecological values, and comprehensive bushfire preparedness. Together, these elements establish a best-practice foundation for intensive livestock operations. By embedding monitoring, reporting, and verification requirements directly into the design, the site will be able to continually assess system efficiency, environmental performance, and preventative maintenance needs, strengthening operational reliability over time. Ongoing adherence to the ESD framework will enhance transparency, support independent verification, and drive continuous improvement throughout the life of the project, ensuring that environmental performance remains central to all site activities.

References

- NSW Department of Planning – State Significant Development Guidelines and Preparing an EIS (Appendix B).
- NSW EPA (2006) Technical Notes/Framework: Assessment and management of odour from stationary sources in NSW.
- NSW EPA (2022) Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.
- NSW EPA (2004) Environmental Guidelines: Use of Effluent by Irrigation.
- Australian Pork Limited (2025) National Environmental Guidelines for Indoor Piggeries (NEGIP) – Siting and Design.
- NSW Rural Fire Service (2019) Planning for Bush Fire Protection.
- NSW Environment and Heritage – Biodiversity Offsets Scheme (BOS) thresholds and guidance.
- JBS Pork Australia – Sustainability / Environment statements and initiatives.