SEARS (BIODIVERSITY)

NSW GOVERNMENT | Planning & Environment

Industry
Contact: Thomas Piovesan
Phone: (02) 9228 6356
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Mr Daniel Bryant
Chief Executive Officer
ProTen Pty Ltd
PO Box 1746
North Sydney NSW 2060

SSD 6882
15/01330

Dear Mr Bryant

Secretary's Environmental Assessment Requirements, Euroley Poultry Production Complex at Narrandera (SSD 6882)

I have attached the Secretary's environmental assessment requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the proposed Euroley Poultry Production Complex.

The attached SEARs have been prepared in consultation with the relevant government agencies (see attachment 2), and are based on the information you have provided to date. Please note that the Secretary may alter these SEARs at any time, and that you must consult further with the Secretary if you do not lodge a development application (DA) and EIS for the development within two years of the date of issue of these SEARs. The Department of Planning and Environment (the Department) will review the EIS for the development carefully before putting it on public exhibition, and will require you to submit an amended EIS if it does not adequately address the SEARs.

I wish to emphasise the importance of effective and genuine community consultation and the need for proposals to proactively respond to the community's concerns. Accordingly a comprehensive, detailed and genuine community consultation and engagement process must be undertaken during preparation of the EIS. This process must ensure that the community is both informed of the proposal and is actively engaged in issues of concern to it. Sufficient information must be provided to the community so that it has a good understanding of what is being proposed and of the potential impacts.

Your proposal may require a separate approval under Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). If an *EPBC Act* approval is required, I would appreciate it if you would advise the Department accordingly, as the Commonwealth approval process may be integrated into the NSW approval process, and supplementary SEARs may need to be issued.

I would appreciate it if you would contact the Department at least two weeks before you intend to submit the DA and EIS for the development. This will enable the Department to determine the:

- applicable fee (see Division 1AA, Part 15 of the *Environmental Planning and Assessment Regulation 2000)*;
- consultation and public exhibition arrangements; and
- number of copies (hard-copy or CD-ROM) of the DA and EIS that will be required for exhibition purposes.

If you have any enquiries about these requirements, please contact Thomas Piovesan, Planning Services, at the Department on (02) 9228 6356.

Yours sincerely

Chris Ritchie 6/2/15.
Manager
Industry Assessments
as delegate of the Secretary

Secretary's Environmental Assessment Requirements

Section 78A(8A) of the *Environmental Planning and Assessment Act 1979*
Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

State significant development

Application Number	SSD 6882
Development	Euroley Poultry Production Complex
Location	Sturt Highway, Narrandera LGA (Lot 41 DP 750898, Lot 42 DP 750898, Lot 1 DP 750898, Lot 1 DP 7054064, Lot 44 DP 750898, Lot 45 DP 750898, Lot 54 DP 750898).
Applicant	Mr Daniel Bryant, ProTen Limited
Date of Issue	February 2015
General Requirements	The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the *Environmental Planning and Assessment Regulation 2000*. The EIS must include: • detailed description of the development including: – need for the proposed development; – justification for the proposed development; – likely staging of the development; – likely interactions between the development and existing, approved and proposed developments in the vicinity of the site; and – plans of any proposed works. • consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments; • risk assessment of the potential environmental impacts of the development; identifying key issues for further assessment; • detailed assessment, where relevant, of the key issues below, and any other potential significant issues identified in the risk assessment, must include: – a description of the existing environment, using adequate baseline data; – consideration of potential cumulative impacts due to other development in the vicinity; and – measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment. • consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS. The EIS must be accompanied by a report from a qualified quantity surveyor providing: • a detailed calculation of the capital investment value (CIV) of the proposal (as defined in clause 3 of the *Environmental Planning and*

	Assessment Regulation 2000), including details of all assumptions and components from which the CIV calculation is derived; • an estimate of the jobs that will be created by the development during the construction and operational phases; and • certification that the information provided is accurate at the date of preparation.
Key issues	The EIS must include an assessment of the potential impacts of the proposal (including cumulative impacts) and develop appropriate measures to avoid, mitigate, manage and/or offset these impacts. The EIS must address the following specific matters: • **strategic context** – including: – justification for the proposal and suitability of the site; and – demonstration that the proposal is generally consistent with all relevant planning strategies and environmental planning instruments, and justification for any inconsistencies. • **air quality and odour** – including: – a description of all potential air emission and odour sources; – a quantitative odour and air quality impact assessment in accordance with the relevant Environment Protection Authority guidelines; – a description and appraisal of air quality and odour impact monitoring and mitigation measures. • **transport and road traffic** – including: – details of all road transport routes; – access to the site from the road network including intersection location, design and sight distance; – road traffic predictions for the development during construction and operation; – an assessment of predicted impacts on road safety and the capacity of the transport network, including an appraisal of any impact mitigation measures; – a description and plans of any road upgrades required for the development; and – plans for the layout of the internal roads and parking. • **waste and wastewater management** – including: – identification and classification of waste streams that would generated at the site; – description of waste transport, storage, handling, processing and disposal; – a description of wastewater management; and – a description and appraisal of waste impact mitigation and management. • **biodiversity** – including: – accurate predictions of any vegetation clearing on site or for any road upgrades; – a detailed assessment of the potential impacts on any threatened species, populations, endangered ecological communities or their habitats, groundwater dependent ecosystems and any potential for offset requirements; – a detailed description of the measures to avoid, minimise, mitigate and offset biodiversity impacts; and – the assessment of the proposal and all biodiversity values on the site under the Framework for Biodiversity Assessment 2014.

	• **animal welfare, bio-security and disease management** – including: – details of how the proposed development would comply with relevant codes of practice and guidelines; – details of all disease control measures; and – a detailed description of the contingency measures that would be implemented for the mass disposal of livestock in the event of disease outbreak. • **hazards and risk** – including: – a preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* and Applying SEPP 33 (DoP, 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the development; and – should preliminary screening indicate that the project is "potentially hazardous," a Preliminary Hazard Analysis (PHA) must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011). • **noise and vibration** – including: – a description of all potential noise and vibration sources during construction and operational, including traffic noise; – a noise and vibration impact assessment in accordance with the relevant Environment Protection Authority guidelines; and – a description of noise and vibration monitoring and mitigation measures. • **soils and water** – including: – a description of the water demands and a breakdown of water supplies including any water licensing requirements; – a description of the measures to minimise water use; – a description of surface, groundwater and stormwater management, including on site detention, flood impact mitigation and measures to treat or reuse water; – an assessment of any potential existing soil contamination; and – a description and appraisal of impact mitigation, management and monitoring measures. • **visual impacts** – including: – a description of the visual catchment and visual impacts including lighting impacts on surrounding receivers and public areas; and – an appraisal of visual impact mitigation measures. • **socio-economic** – including: – an analysis of the economic and social impacts of the development, particularly of any benefits to the community.
Plans and Documents	The EIS must include all plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. These documents should be included as part of the EIS rather than as separate documents.
Consultation	During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service

	providers, community groups and affected landowners. In particular you must consult with: • Narrandera Shire Council; • Environment Protection Authority; • Office of Environment and Heritage; • Department of Primary Industries; • Essential Energy; • Roads and Maritime Services; and • Local community and other stakeholders. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, an explanation should be provided.
Further consultation after 2 years	If you do not lodge a development application and EIS for the development within 2 years, you must consult further with the Secretary in relation to the preparation of the EIS.
References	The assessment of the key issues listed above must take into account relevant guidelines, policies, strategies and plans. While not exhaustive, Attachment 1 contains a list that may be relevant to the assessment of this proposal.

ATTACHMENT 1
Technical and Policy Guidelines

The following guidelines may assist in the preparation of the Environmental Impact Statement. This list is not exhaustive and not all of these guidelines may be relevant to your proposal.

Many of these documents can be found on the following websites:
http://www.planning.nsw.gov.au
http://www.bookshop.nsw.gov.au
http://www.publications.gov.au

Policies, Guidelines & Plans	
Plans and Documents	
	The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: 1. An existing site survey plan drawn at an appropriate scale illustrating: • the location of the land, boundary measurements, area (sq.m) and north point; • the existing levels of the land in relation to buildings and roads; • location and height of existing structures on the site; • location and height of adjacent buildings and private open space; and • all levels to be to Australian Height Datum (AHD). 2. A locality/context plan drawn at an appropriate scale should be submitted indicating: • significant local features such as heritage items; • the location and uses of existing buildings, shopping and employment areas; and • traffic and road patterns, pedestrian routes and public transport nodes. 3. Drawings at an appropriate scale illustrating: • detailed plans, sections and elevations of the existing building, which clearly show all proposed internal and external alterations and additions.
Documents to be Submitted	
	Documents to submit include: • 1 hard copy and 1 electronic copy of all the documents and plans for review prior to exhibition; and • Other copies as determined by the Department once the development application is lodged

Soil and Water	
Soil	Managing Urban Stormwater: Soils & Construction (Landcom)
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC & NHMRC)
	National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Managing Land Contamination - Planning Guidelines SEPP 55 – Remediation of Land (DUAP and EPA)
Surface Water	National Water Quality Management Strategy: Water quality management - an outline of the policies (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Policies and principles - a reference document (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Implementation guidelines (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ, 2000)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA, 2006)
	State Water Management Outcomes Plan
	NSW Government Water Quality and River Flow Environmental Objectives (DECC)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	Sorting and Handling Liquids: Environmental Protection – Participants Manual (DECC)
	Managing Urban Stormwater: Council Handbook. Draft (EPA)
	Managing Urban Stormwater: Treatment Techniques (EPA, 1997)
	Managing Urban Stormwater: Source Control. Draft (EPA)
	Managing Urban Stormwater: Soils & Construction (Landcom, 2004)
	Technical Guidelines: Bunding & Spill Management (DECC)
Groundwater	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC, 1995)
	NSW State Groundwater Policy Framework Document (DLWC, 1997)
	NSW State Groundwater Quality Protection Policy (DLWC, 1998)
	NSW State Groundwater Dependent Ecosystems Policy (DLWC, 2002)
Waste	
	NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA, 2014)
	Waste Classification Guidelines (EPA)
	Environmental Guidelines: Assessment Classification and Management of Non-Liquid and Liquid Waste (NSE EPA)
	Environmental Guidelines: Use and Disposal of Biosolids Products (EPA, 1997)
Air Quality	
	Protection of the Environment Operations (Clean Air) Regulation 2010
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA, 2005)
	Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA, 2005)
	Action for Air (DECC)

	Assessment and Management of Odour from Stationary Sources in NSW (EPA, 2006)
Odour	
	Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
	Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
Hazards and Risk	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines (DUAP)
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Animal Welfare and Biosecurity	
	National Farm Biosecurity Manual – Poultry Production (2009)
	National Farm Biosecurity Manual for Chicken Growers (Australian Chicken Meat Federation 2009)
	Best Practice Management for Meat Chicken Production in New South Wales Manual 1 Site Selection & Development (DPI 2012)
	Best Practice Management for Meat Chicken Production in New South Wales Manual 2 – Meat Chicken Growing Management (DPI 2012)
Traffic	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
Noise and Vibration	
	NSW Industrial Noise Policy (EPA, 2000) and Industrial Noise Policy Application Notes
	NSW Road Noise Policy (EPA, 2011)
	Environmental Noise Control Manual (DECC)
	Assessing Vibration: a Technical Guide (EPA, 2006)
	Interim Construction Noise Guidelines (EPA, 2009)
Biodiversity	
	Principles for the use of Biodiversity Offsets in NSW (DECC 2008);
	OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State Significant Development (SSD) and State Significant Infrastructure (SSI) projects
	State Environmental Planning Policy No 44 – Koala Habitat Protection (SEPP 44)
	The NSW State Groundwater Dependent Ecosystem Policy (DLWC)
Greenhouse Gas	
	AGO Factors and Methods Workbook (AGO)
	Guidelines for Energy Savings Action Plans (DEUS, 2005)

ATTACHMENT 2

Agency submission to be addressed in the EIS

NSW EPA

PCU057995

Your reference: SSD ID No 14_6882
Our reference: EF13/5564; DOC15/10470-01
Contact: Jason Price 02 6969 0700

The Planning Officer
Industry and Key Sites
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2000

Dear Mr Piovesan

Re Proposed intensive poultry production complex – SSD ID No 14_6882

Thank you for your electronic mail dated 12 January 2015 to the Environment Protection Authority (EPA) requesting our information requirements for the Environmental Impact Statement (EIS) to be prepared for the proposed poultry production complex located within Lots 1, 41, 42, 44, 45 and 54 DP 750898 and Lot 1 DP 1054069 at Euroley.

We have considered the details of the proposal as described in the briefing paper prepared by the proponent and have identified the information required for the EIS as outlined in Attachment 'A'. The key information requirements for the project are as follows.

- Identify the potential cumulative air quality impacts (odour and dust) from this proposal and detail management and mitigation measures for the potential impacts on surrounding receptors;
- Detail the proposed storm water collection, storage and disposal systems including demonstration that surface and ground waters will be protected through adequate design, construction and management;
- Prepare a comprehensive mass mortality management strategy for mass bird deaths and their disposal that ensures protection of the local groundwater resource; and
- Provide a comprehensive flood management strategy based on a flood risk assessment for a 1 in 100 year flood event.

In carrying out the assessment the proponent should refer to the relevant guidelines identified at Attachment 'B'.

If you have any further enquiries about this matter please contact Jason Price by telephoning 02 6969 0700.

Yours sincerely

C. Bretherton 21.1.2015

CRAIG BRETHERTON
Manager South West
Environment Protection Authority

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ATTACHMENT 'A'

Potential environmental impacts of the project

The following potential environmental impacts of the project need to be assessed, quantified and reported on.

(a) Air;
(b) Noise;
(c) Water;
(d) Land; and
(e) Waste and chemicals.

The Environmental Impact Statement (EIS) should address how the required environmental goals outlined below will be met for each potential impact.

The EIS should describe mitigation and management options that will be used to prevent, control, abate or mitigate identified potential environmental impacts associated with the project and to reduce risks to human health and prevent the degradation of the environment.

This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

Potential impacts on air quality

The goal of the project in relation to air quality should be to ensure sensitive receptors are protected from any adverse impacts from odour and airborne particulate matter.

Odour is the primary concern for the proposed development and the potential emissions from (but not necessarily limited to) aged birds and bedding material. Details must be provided on the proposed measures to manage odour and dust from all sources subject to an air quality impact assessment.

The Environment Protection Authority (EPA) expects that a cumulative assessment for dust and odour that includes all the proposed Proten Holdings Pty Ltd farms at the location and any other locally proposed broiler farms is undertaken in accordance with our guideline the "*Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*" (EPA, 2005), in conjunction with analyses of local meteorologic and terrain data in order to make informed decisions about design and management options for the proposed development.

This assessment should also identify all existing and potential sensitive receptors in proximity to the proposed development. Their location can be relevant to the level of assessment.

The EPA has recently developed a Level 1 odour assessment calculator (in Excel format) to assist poultry growers and their consultants to plan for meat chicken (broiler) farm developments. The calculator uses the formulae defined in section 5 of the Technical Notes in the *"Assessment and management of odour from stationary sources in NSW"* to calculate required setback distances for a particular site. If a site cannot accommodate the calculated setback distance, Level 2 or 3 assessments may be required. The calculator can found on the EPA website at;
http://www.environment.nsw.gov.au/resources/air/PoultryOdourCalcualtor.xls

Emissions from any plant must meet the design criteria detailed in the *Protection of the Environment Operations (Clean Air) Regulation 2010*. Details need to be provided on the proposed air pollution control techniques from any air emission points, including proposed measures to manage and monitor efficiency and performance.

Potential impacts of noise

The goals of the project should be to design, construct, operate and maintain of the facility in accordance with relevant EPA policy, guidelines and criteria in order to minimise potential impacts from noise.

We expect that potential noise sources are assessed in accordance with the *"NSW Industrial Noise Policy"* (EPA, 2000), and where required mitigation measures are proposed (e.g. appropriate equipment chosen to minimise noise levels). All residential or noise sensitive premises likely to be impacted by the development must be identified and included in the assessment.

The proposed development will result in increased traffic movements. The potential noise impacts associated with any traffic increases need to be assessed in accordance with the *"NSW Road Noise Policy"* (EPA, 2011).

Potential impacts on water quantity and quality

The goals of the project should be to protect the sensitive surface and ground waters in the Euroley area and the EIS should address the following.

- No pollution of waters (including surface and groundwater), except to the extent authorised by the EPA (i.e. in accordance with an Environment Protection Licence).
- Identify the proposed storm water collection, storage and disposal systems including demonstration that surface and ground waters will be protected through adequate design, construction and management.
- Based on the proximity of the Murrumbidgee River a flood risk assessment must be undertaken based on a 1 in 100 year flood event. A flood management strategy must be provided that includes but is not limited to, identification of access and departure routes for all vehicular traffic that is required to operate the complex or robust contingency measures to avoid adverse impacts associated with the predicted flood isolation.
- Polluted water (including process waters, wash down waters, polluted stormwater or sewage) is captured on the site and collected, treated and beneficially reused, where this is safe and practicable to do so; and
- It is acceptable in terms of the achievement or protection of the NSW Water Quality and River Flow Objectives.

The EIS should document the measures that will achieve the above goals.

Details of the site drainage and any natural or artificial waters within or adjacent to the development must be identified and where applicable measures proposed to mitigate potential impacts of the development on these waters. The EIS should provide details of the proposed design and construction of all water management systems for the site to ensure surface and ground waters are protected from contaminants.

Potential impacts on land

The goals of the project should be to ensure the following requirements are met.

- No pollution of land, except to the extent authorised by the EPA (ie in accordance with an Environment Protection Licence); and
- The potential impact of land erosion from the development is mitigated.

The EIS should document the measures that will achieve the above goals.

Waste and chemicals

The goal of the project should ensure that environmental risks from mortalities, hazardous chemicals and chemical waste are minimised. The EIS should address the following.

- A comprehensive mass mortality management strategy for mass bird deaths and their disposal. Protection of the local groundwater resource must be a primary consideration in the strategy.
- It is in accordance with the principles of the waste hierarchy and cleaner production;
- Where potential impacts associated with the handling, processing and storage of all materials used at the premises are identified, these be mitigated by the development;
- The beneficial reuse of all wastes generated at the premises are maximised where it is safe and practical to do so; and
- No waste disposal occurs on site except in accordance with an Environment Protection Licence.
- The proposed type, quantity and location of chemicals to be stored on site. Spill management measures, including items such as bunding, and emergency procedures should be clearly outlined.

ATTACHMENT 'B'

Guidance Material

Air quality

- Protection of the Environment Operations (Clean Air) Regulation 2010
- Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (EPA, 2005)
- Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA, 2005)
- Assessment and Management of Odour from Stationery Sources in NSW (EPA, 2006)
- Meat chicken farm calculator (EPA, 2011);
  http://www.environment.nsw.gov.au/resources/air/PoultryOdourCalcualtor.xls

Noise and vibration

- NSW Industrial Noise Policy (EPA, 2000)
- NSW Road Noise Policy (EPA, 2011)
- Assessing Vibration: a technical guideline (EPA, 2006)
- Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration (ANZECC, 1990)
- Interim Construction Noise Guidelines (EPA, 2009)

Water quality

- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000)
- National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ, 2000)
- Using the ANZECC Guidelines and Water Quality Objectives in NSW (EPA, 2006)

Groundwater

- The NSW State Groundwater Policy Framework Document (DLWC, 1997)
- The NSW State Groundwater Quality Protection Policy (DLWC, 1998)
- The NSW State Groundwater Dependent Ecosystems Policy (DLWC, 2002)
- National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC, 1995)

Stormwater

- Managing Urban Stormwater: Soils and Construction (Landcom, 2004)
- Managing Urban Stormwater: Treatment Techniques (Draft) (EPA, 1997)

Wastewater

- Environmental Guidelines: Use of Effluent by Irrigation (EPA, 2004)
- Environmental Guidelines: Storage and Handling of liquids (EPA, 2007)

Waste

- Waste Classification Guidelines (EPA, 2008)
- Environmental Guidelines: Use and Disposal of Biosolids Products (EPA, 1997)
- Environmental Guidelines: Composting and Related Organics Processing Facilities (EPA, 2004)
- Environmental Guidelines: Solid Waste Landfills (EPA, 1996)
- Storing and Handling Liquids: Environmental Protection (EPA, 2007)

NSW GOVERNMENT | Office of Environment & Heritage

Your reference SSD 6882
Our reference: DOC15/9555
Contact: Miranda Kerr
Ph. 02 6022 0607

PCU058073

Mr Thomas Piovesan
Industry and Key Sites
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Piovesan

RE: SEARs for proposed Euroley Poultry Production Complex (SSD 6882)

I refer to your email dated 12 January 2015 seeking input into the Department of Planning and Environment Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the proposed Euroley Poultry Production Complex (SSD 6882).

OEH has reviewed the available supporting documentation and provides SEARs for the proposed development in Attachments A and B and guidance material in Attachment C (please note that both Attachments A and B include biodiversity matters that will need to be addressed). The assessment must include all ancillary infrastructure and new vehicle tracks, access from the Sturt Highway and the proposed new road easement.

OEH recommends the EIS needs to appropriately address the following:

1. Biodiversity and offsetting
2. Aboriginal cultural heritage
3. Water and soils
4. Cumulative impact

Please note that the NSW Biodiversity Offsets Policy for Major Projects www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf is now being implemented. The policy provides a standard method for assessing impacts of major projects on biodiversity and determining offsetting arrangements. The policy is underpinned by the Framework for Biodiversity Assessment (FBA) www.environment.nsw.gov.au/resources/biodiversity/140675fba.pdf which contains the assessment methodology that is adopted by the policy to quantify and describe the impact assessment requirements and offset guidance that applies to Major Projects. The FBA must be used by a proponent to assess all biodiversity values on the development site.

OEH notes that Figure 2 in the briefing paper omits to show that Lot 41 DP 750898 abuts the 'Banandra' portions of South West Woodland Nature Reserve and Murrumbidgee Valley National Park. These reserves are managed by the National Parks and Wildlife Service (NPWS) Mid West Area based in Griffith (see Attachment B Point 15).

Relevant regional vegetation mapping includes the 'Central-Southern NSW' dataset[1]. Vegetation mapping and NPWS estate boundaries suitable for use in geographic information systems can be downloaded from OEH Spatial Data Online http://mapdata.environment.nsw.gov.au/geonetwork/srv/en/main.home.

[1] OEH (2011) *Vegetation mapping by 3-D digital aerial photo interpretation: vegetation of central-southern New South Wales.* Technical Report. NSW Office of Environment and Heritage, Queanbeyan (VIS ID 3884).

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If you have any questions regarding this matter please contact Miranda Kerr on (02) 6022 0607 or at miranda.kerr@environment.nsw.gov.au.

Yours sincerely

29/1/15

GRAEME ENDERS
Senior Manager South West
Regional Operations
Office of Environment and Heritage

ATTACHMENT A - Environmental Assessment Requirements
ATTACHMENT B - Project specific Environmental Assessment Requirements
ATTACHMENT C - Guidance Material

cc: Robin Mares, Area Manager, Mid West Area, NPWS

Attachment A – Standard Environmental Assessment Requirements

Biodiversity
1. Biodiversity impacts related to the proposed Euroley Poultry Production Complex are to be assessed and documented in accordance with the Framework for Biodiversity Assessment, unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995.*
Aboriginal cultural heritage
2. The EIS must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the proposed Euroley Poultry Production Complex and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and consultation with OEH regional officers.
3. Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS.
4. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
Water and soils
5. The EIS must map the following features relevant to water and soils including: a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map). b. Rivers, streams, wetlands, estuaries (as described in Appendix 2 of the Framework for Biodiversity Assessment). c. Groundwater. d. Groundwater dependent ecosystems. e. Proposed intake and discharge locations.
6. The EIS must describe background conditions for any water resource likely to be affected by the proposed Euroley Poultry Production Complex, including: a. Existing surface and groundwater. b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations. c. Water Quality Objectives (as endorsed by the NSW Government www.environment.nsw.gov.au/ieo/index.htm) including groundwater as appropriate that represent the community's uses and values for the receiving waters. d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or

local objectives, criteria or targets endorsed by the NSW Government.
7. The EIS must assess the impacts of the proposed Euroley Poultry Production Complex on water quality, including: a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the proposed Euroley Poultry Production Complex protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction. b. Identification of proposed monitoring of water quality.
8. The EIS must assess the impact of the proposed Euroley Poultry Production Complex on hydrology, including: a. Water balance including quantity, quality and source. b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas. c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems. d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (eg river benches). e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water. f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options. g. Identification of proposed monitoring of hydrological attributes.
Flooding
9. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including: a. Flood prone land b. Flood planning area, the area below the flood planning level. c. Hydraulic categorisation (floodways and flood storage areas).
10. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 1 in 10 year, 1 in 100 year flood levels and the probable maximum flood, or an equivalent extreme event.
11. The EIS must model the effect of the proposed Euroley Poultry Production Complex (including fill) on the flood behaviour under the following scenarios: a. Current flood behaviour for a range of design events as identified in 8) above. The 1 in 200 and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.

12. Modelling in the EIS must consider and document:
    a. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood.
    b. Impacts of the proposed Euroley Poultry Production Complex on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories.
    c. Relevant provisions of the NSW Floodplain Development Manual 2005.

13. The EIS must assess the impacts on the proposed Euroley Poultry Production Complex on flood behaviour, including:
    a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets and infrastructure.
    b. Consistency with Council floodplain risk management plans.
    c. Compatibility with the flood hazard of the land.
    d. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land.
    e. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.
    f. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
    g. Any impacts the proposed Euroley Poultry Production Complex may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the SES and Council.
    h. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the SES and Council.
    i. Emergency management, evacuation and access, and contingency measures for the proposed Euroley Poultry Production Complex considering the full range or flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the SES.
    j. Any impacts the proposed Euroley Poultry Production Complex may have on the social and economic costs to the community as consequence of flooding.

Attachment B – Project specific Environmental Assessment Requirements

Biodiversity

14. Impacts on the following species, populations and ecological communities will require further consideration and provision of the information specified in s9.2 of the Framework for Biodiversity Assessment:
    - Sand-Hill Spider Orchid (*Caladenia arenaria*)
    - Bindweed (*Convolvulus tedmoorei*)
    - Small Scurf-pea (*Cullen parvum*)
    - Oaklands Diuris (*Diuris* sp. (Oaklands, D.L. Jones 5380))
    - Austral Pillwort (*Pilularia novae-hollandiae*)
    - Lanky Buttons (*Leptorhynchos orientalis*)
    - Regent Honeyeater (*Anthochaera phrygia*)
    - Glossy Black-Cockatoo (*Calyptorhynchus lathami*), Riverina population
    - *Allocasuarina luehmannii* Woodland Endangered Ecological Community
    - Sandhill Pine Woodland Endangered Ecological Community
    - Inland Grey Box Woodland Endangered Ecological Community
    - Myall Woodland Endangered Ecological Community

15. The EIS must identify:
    a. Matters to be considered outlined in the *Guidelines for developments adjoining land and water managed by DECCW* (DECCW 2010) and include:
        i. The nature of the impacts, including direct and indirect impacts.
        ii. The extent of the direct and indirect impacts.
        iii. The duration of the direct and indirect impacts.
        iv. The objectives of the reservation of the land.
    b. Measures proposed to prevent, control, abate, minimise and manage the direct and indirect impacts including an evaluation of the effectiveness and reliability of the proposed measures.
    c. Residual impacts.

Attachment C – Guidance material

Title	Web address
Relevant Legislation	
Commonwealth Environment Protection and Biodiversity Conservation Act 1999	www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Environmental Planning and Assessment Act 1979	www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Fisheries Management Act 1994	www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
Marine Parks Act 1997	www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
National Parks and Wildlife Act 1974	www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
Protection of the Environment Operations Act 1997	www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Threatened Species Conservation Act 1995	www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
Water Management Act 2000	www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Wilderness Act 1987	www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N
Biodiversity	
NSW Biodiversity Offsets Policy for Major Projects (OEH, 2013)	www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf
Framework for Biodiversity Assessment (OEH, 2013)	www.environment.nsw.gov.au/resources/biodiversity/140675fba.pdf
OEH Threatened Species Website	www.environment.nsw.gov.au/threatenedspecies/
NSW BioNet (Atlas of NSW Wildlife)	www.bionet.nsw.gov.au/
Fisheries NSW policies and guidelines	www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation
List of national parks	www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	www.environment.nsw.gov.au/resources/protectedareas/080290devadjoindecc.pdf
OEH Spatial Data Online Access	http://mapdata.environment.nsw.gov.au/geonetwork/srv/en/main.home
Heritage	
The Burra Charter (The Australia ICOMOS charter for places of cultural significance)	http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf

Title	Web address
Statements of Heritage Impact 2002 (HO & DUAP)	www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf
NSW Heritage Manual (DUAP) (scroll through alphabetical list to 'N')	www.environment.nsw.gov.au/Heritage/publications/index.htm#M-O
Aboriginal Cultural Heritage	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf
Aboriginal Site Recording Form	www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf
Aboriginal Site Impact Recording Form	www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf
Aboriginal Heritage Information Management System (AHIMS) Registrar	www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
Care Agreement Application form	www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf
Water and Soils	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via 'The NSW Natural Resource Atlas'	www.nratlas.nsw.gov.au/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	www.advancedenvironmentalmanagement.com/Reports/Savannah/Appendix%2015.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Flooding	
Floodplain development manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
NSW Climate Impact Profile	NSW Climate Impact Profile
Climate Change Impacts and Risk Management	Climate Change Impacts and Risk Management: A Guide for Business and Government, AGIC Guidelines for Climate Change Adaptation

Title	Web address
Water	
Water Quality Objectives	www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

NSW GOVERNMENT | Department of Primary Industries

OUT15/1505

Mr Thomas Piovesan
Industry and Key Sites
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

thomas.piovesan@planning.nsw.gov.au

Dear Mr Piovesan,

ProTen Limited Poultry Production Complex, Euroley, Narrandera
Request for input into Secretary's Environmental Assessment Requirements (SSD 14-6882)

I refer to your email dated 12 January 2015 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter.

Comment by Crown Lands
Crown Lands has advised that a review of Crown records by NSW Trade & Investment, Crown Lands has indicated that Crown Land is located adjacent to the proposed development site and various sections of discrete Crown road exist within the project boundary. Crown Land Lot 57 DP 750898 is a Reserve for Future Public Requirements and has the potential to be impacted by the proposal. The Crown roads pertaining to the development site will also need to be investigated and options considered. It will be required that consultation is undertaken with Crown Lands during the preparation of the *Environmental Impact Statement,* to address the above issues.

For further information please contact Rebecca Johnson, Coordinator Client Services, Crown Lands, on (02) 4920 5040 or at Rebecca.johnson@crownland.nsw.gov.au.

Comment by NSW Office of Water
The NSW Office of Water (Office of Water) has reviewed the supporting documentation accompanying the request for Secretary's Environmental Assessment Requirements (SEARs) and provides the following comments below, and further detail in **Attachment A**.

It is recommended that the EIS be required to include:

- Details of water proposed to be taken (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan.
- Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).
- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
- Full technical details and data of all surface and groundwater modelling.
- Proposed surface and groundwater monitoring activities and methodologies.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- Consideration of relevant policies and guidelines.
- A statement of where each element of the SEARs is addressed in the EIS (i.e. in the form of a table).

For further information please contact Vanessa Hornsby, Water Regulation Officer on (02) 8838 7816 or at vanessa.hornsby@dpi.nsw.gov.au.

Yours sincerely

Kristian Holz
Policy, Legislation and Innovation

Attachment A

ProTen Limited Poultry Production Complex, Euroley, Narrandera (SSD14_6820)
Request for input into Secretary's Environmental Assessment Requirements
Additional comment by NSW Office of Water

The following detailed assessment requirements are provided to assist in adequately addressing the assessment requirements for this proposal.

For further information visit the NSW Office of Water website, www.water.nsw.gov.au

Key Relevant Legislative Instruments

This section provides a basic summary to aid proponents in the development of an Environmental Impact Statement (EIS), and should not be considered a complete list or comprehensive summary of relevant legislative instruments that may apply to the regulation of water resources for a project.

The EIS should take into account the objects and regulatory requirements of the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (*WMA 2000*), and associated regulations and instruments, as applicable.

Water Management Act 2000 (WMA 2000)
Key points:

- Volumetric licensing in areas covered by water sharing plans
- Works within 40m of waterfront land
- SSD & SSI projects are exempt from requiring water supply work approvals and controlled activity approvals as a result of the *Environmental Planning & Assessment Act 1979 (EP&A Act).*
- No exemptions for volumetric licensing apply as a result of the *EP&A Act.*
- Basic landholder rights, including harvestable rights dams
- Aquifer interference activity approval and flood management work approval provisions have not yet commenced and are regulated by the *Water Act 1912*
- Maximum penalties of $2.2 million plus $264,000 for each day an offence continues apply under the *WMA 2000*

Water Act 1912 (WA 1912)
Key points:

- Volumetric licensing in areas where no water sharing plan applies
- Monitoring bores
- Aquifer interference activities that are not regulated as a water supply work under the *WMA 2000.*
- Flood management works
- No exemptions apply to licences or permits under the *WA 1912* as a result of the *EP&A Act.*
- Regulation of water bore driller licensing.

Water Management (General) Regulation 2011
Key points:

- Provides various exemptions for volumetric licensing and activity approvals
- Provides further detail on requirements for dealings and applications.

Water Sharing Plans – these are considered regulations under the *WMA 2000*

Access Licence Dealing Principles Order 2004

Harvestable Rights Orders

Water Sharing Plans

The proposal is located within the area covered by the Water Sharing Plan for the Murrumbidgee Unregulated and Alluvial Water Sources, the Water Sharing Plan for the Murrumbidgee Regulated

River Water Source and the Water Sharing Plan for the Lower Murrumbidgee Groundwater Sources. The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plans including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection (including groundwater dependent ecosystems), water quality and surface-groundwater connectivity.
- Provide a description of any site water use (amount of water to be taken from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP, including:
    - Sufficient market depth to acquire the necessary entitlements for each water source.
    - Ability to carry out a "dealing" to transfer the water to relevant location under the rules of the WSP.
    - Daily and long-term access rules.
    - Account management and carryover provisions.
- Provide a detailed and consolidated site water balance.
- Further detail on licensing requirements is provided below.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- NSW Guidelines for Controlled Activities on Waterfront Land (NOW, 2012)
- NSW Aquifer Interference Policy (NOW, 2012)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012)
- Australian Groundwater Modelling Guidelines (NWC, 2012)
- NSW State Rivers and Estuary Policy (1993)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Water Extraction Monitoring Policy (2007)

Office of Water policies can be accessed at the following links:
http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx
http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/default.aspx

An assessment framework for the NSW Aquifer Interference Policy can be found online at: http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the project in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site – such as evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc.).

- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages
- Details on the location, purpose, size and capacity of any new proposed dams/storages.
- Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10% of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

For more information on Harvestable Right dams, including a calculator, visit:
http://www.water.nsw.gov.au/Water-licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff

Dam Safety

Where new or modified dams are proposed, or where new development will occur below an existing dam, the NSW Dams Safety Committee should be consulted in relation to any safety issues that may arise. Conditions of approval may be recommended to ensure safety in relation to any new or existing dams.

See www.damsafety.nsw.gov.au for further information.

Surface Water Assessment

The predictive assessment of the impact of the proposed project on surface water sources should include the following:

- Identification of all surface water features including watercourses, wetlands and floodplains transected by or adjacent to the proposed project.
- Identification of all surface water sources as described by the relevant water sharing plan.
- Detailed description of dependent ecosystems and existing surface water users within the area, including basic landholder rights to water and adjacent/downstream licensed water users.
- Description of all works and surface infrastructure that will intercept, store, convey, or otherwise interact with surface water resources.
- Assessment of predicted impacts on the following:
    - flow of surface water, sediment movement, channel stability, and hydraulic regime,
    - water quality,
    - flood regime,
    - dependent ecosystems,
    - existing surface water users, and
    - planned environmental water and water sharing arrangements prescribed in the relevant water sharing plans.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources.

Where it is considered unlikely that groundwater will be intercepted or impacted (for example by infiltration), a brief site assessment and justification for the minimal impacts may be sufficient, accompanied by suitable contingency measures in place in the event that groundwater is intercepted, and appropriate measures to ensure that groundwater is not contaminated.

Where groundwater is expected to be intercepted or impacted, the following requirements should be used to assist the groundwater assessment for the proposal.

- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Bore construction information is to be supplied to the Office of Water by submitting a "Form A" template. The Office of Water will supply "GW" registration numbers (and licence/approval numbers if required) which must be used as consistent and unique bore identifiers for all future reporting.
- A description of the watertable and groundwater pressure configuration, flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Sufficient baseline monitoring for groundwater quantity and quality for all aquifers and GDEs to establish a baseline incorporating typical temporal and spatial variations.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.
- An assessment of groundwater quality, its beneficial use classification and prediction of any impacts on groundwater quality.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.
- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).
- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identity any potential impacts on GDEs as a result of the proposal including:
  - the effect of the proposal on the recharge to groundwater systems;
  - the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
  - the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Watercourses, Wetlands and Riparian Land

The EIS should address the potential impacts of the project on all watercourses likely to be affected by the project, existing riparian vegetation and the rehabilitation of riparian land. It is recommended the EIS provides details on all watercourses potentially affected by the proposal, including:

- Scaled plans showing the location of:
  - wetlands/swamps, watercourses and top of bank;
  - riparian corridor widths to be established along the creeks;
  - existing riparian vegetation surrounding the watercourses (identify any areas to be protected and any riparian vegetation proposed to be removed);
  - the site boundary, the footprint of the proposal in relation to the watercourses and riparian areas; and
  - proposed location of any asset protection zones.
- Photographs of the watercourses/wetlands and a map showing the point from which the photos were taken.
- A detailed description of all potential impacts on the watercourses/riparian land.
- A detailed description of all potential impacts on the wetlands, including potential impacts to the wetlands hydrologic regime; groundwater recharge; habitat and any species that depend on the wetlands.
- A description of the design features and measures to be incorporated to mitigate potential impacts.
- Geomorphic and hydrological assessment of water courses including details of stream order (Strahler System), river style and energy regimes both in channel and on adjacent floodplains.

Landform rehabilitation

The Environmental Impact Statement report should include:

- Justification of the proposed final landform with regard to its impact on local and regional surface and groundwater systems;
- A detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape;
- Outline of proposed construction and restoration of topography and surface drainage features if affected by the project; and
- An outline of the measures to be put in place to ensure that sufficient resources are available to implement the proposed rehabilitation.

End Attachment A

METHODS STATEMENT

1 GENERAL

The Project Site was surveyed on two occasions by staff of the ecology discipline at SLR Consulting, including:

- a three-day two-night site survey conducted by a Principle and Senior Ecologists on the 7, 8 and 9 January 2015; and
- a two-day two-night survey conducted by two Principle Ecologists on the 11 and 12 February 2015.

The aim of the surveys was to gather site data and observations to inform this *Biodiversity Assessment Report* and involved:

- inspections of the footprints of all proposed facilities, involving driving to each location and undertaking walked inspections and collecting photographs at each site;
- inspection of the proposed access road, focusing on areas where native vegetation is proposed for removal;
- inspecting areas of native vegetation to refine vegetation community mapping and conditions in accordance with the Biobanking Assessment Methodology (OEH 2014);
- collection of detailed floristic and habitat data at 13 locations within the plant community types in accordance with the requirements of the biobanking methodology;
- dusk and dawn bird surveys, in particular to target threatened species of birds known to the locality;
- the collection of an opportunistic fauna species list;
- opportunistic searches for threatened species of flora; and
- nocturnal surveys targeting threatened fauna, including AnaBat recording (for microchiropteran bats), infrared camera recording (for ground mammals and birds) and spotlighting traverses (for arboreal mammals, owls and other fauna).

Weather conditions during days of the detailed survey were hot and sunny with gentle north winds (gusty at times) and intermittent occasional rainfall events (Table 1).

Table 1 Weather conditions during the survey period[1]

Date (2015)	24-hr Rainfall (mm)	Max Wind (km/hr)	Temp Range (ºC)
January 7	0	22 - 48 NE easing in the afternoon	23.2 - 37.5
January 8	0	24 – 41 NW easing in the afternoon	23.6 - 38.8
January 9	4.8	17 – 44 NE easing in the afternoon	21 - 34.9
February 11	0	20 - 26 NE easing in the afternoon	24.8 - 36.4
February 12	16.8	59 - 13 E easing in the afternoon	19.1 - 31.9

1 Recorded at the nearest BOM weather station (Yanco, approximately 10 kilometres from Euroley

Table 2 Survey effort during the 2015 SLR site survey period

Dates (2015)	Timing	Technique	Effort
January 7	07:00-09:00	Dawn birds;	4 person-hours
	15:00-19:00	Opportunistic	8 person-hours
	19:00-00:00	Infra-red camera (x2 devices)	8-hours
	19:00-00:00	Anabat recording (x2 devices)	8-hours
January 8	18:00-21:00	Dawn birds; opportunistic searches for birds, reptiles, and mammals	6 person-hours
	00:01-00:00	Infra-red camera (x2 devices)	48-trap hours
	00:01-00:00	Anabat recording (x2 devices)	48-hours
	19:00-21:00	Spotlighting	4 person-hours
January 9	07:00-13:00	Dawn birds; opportunistic	12 person-hours
	00:00-13:00	Infra-red camera (x2 devices)	26-hours
	00:00-13:00	Anabat recording (x2 devices)	26-hours
February 11	07:00-9:00	Dawn birds	12 person-hours
	10:00-01:00	Opportunistic	
	16:00-20:00	Opportunistic ; stag watching	26-hours
	19:00-21:00	Owl call playback, spotlighting	4 person-hours
	00:01-00:00	Anabat recording (x2 devices)	48-hours
February 12	07:00-9:00	Dawn birds	4 person-hours
	10:00-01:00	Opportunistic	6 person hours
	16:00-20:00	Opportunistic ; stag watching	26-hours
	19:00-21:00	Owl call playback, spotlighting	4 person-hours
	20:00-22:00	Anabat recording (x2 devices)	4-hours

2 ASSESSING SITE VALUE

2.1 Mapping native vegetation extent

Patches of native vegetation were identified on the site prior to field work using available regional vegetation data for the Murrumbidgee catchment (Eco Logical 2011) and aerial imagery. Broad vegetation formations and vegetation classes were mapped across the site and their areas calculated. This mapping allowed a field survey design to be completed, and formed the starting point for identifying native vegetation types.

These patches were assessed during field surveys to ascertain the extent, type and distribution of native vegetation types within these patches.

2.2 Stratifying native vegetation

Based on field survey results, vegetation types (or plant community types, PCTs) were identified by matching floristic results from plot surveys (see next section) to floristic descriptions for relevant vegetation types listed for the Murrumbidgee CMA in the *NSW Vegetation Types Database* (OEH, 2012). Patches of native vegetation types were further stratified into broad condition states of 'low' condition and 'moderate to good condition' (definitions as per DECC 2009a and thereby identified as distinct vegetation zones, according to Section 5.2.2 of the FBA. Vegetation zones are mapped and described in the accompanying report.

2.3 Plot and transect surveys

A plot-based full floristic survey of the development site was undertaken according to the methods outlined in Chapter 5 of the FBA. Plot and transect surveys were conducted to gather data on 'site value' for each vegetation zone and sample the environmental variation encountered within each zone. The number of plots sampled per vegetation zone was done according to the minimum requirements of the FBA, as listed in Table 3.

Table 3 Plots/transects required and collected per vegetation zone

Vegetation Zone	Area (ha)	Min. Plots Required	Plots completed
MR517 Black Box Lignum Woodland_mod good	49	5	5
MR518 Black Box Grassy Open Woodland_low	110	4	4
MR644 White Cypress Pine Open Woodland_mod good	31	4	4
MR644 White Cypress Pine Open Woodland_low	8	2	2
Total	**198**	**15**	**15**

As listed in Table 3, the minimum number of plots/transects was completed for each vegetation zone.

The surveys were standard biobanking plot surveys (see DECC 2009 and OEH 2014) and involved

- Establishing a plot location randomly within a given vegetation zone, based on marking points randomly within each zone on a map of vegetation types. The locations of all plot/transects are shown in ;
- A full floristic survey based on a 'nested' 20 m X 20 m quadrat, with all species recorded within the plot, including species name, growth form, and cover-abundance score according to the Braun-Blanquet scoring system (see Poore 1955)
- Establishing a 50 m transect through the centre of the plot and collecting data on six variables at various intervals along the transect (as listed in Table 2 of the FBA). The start point of the 50 m transect was recorded using a hand held GPS unit to allow mapping of the locations of all plot/transects;
- Establishing a 20 m X 50 m plot using the boundaries of the 20 m X 20 m plot and the 50 m transect, and recording (i) total length of fallen logs (>10 cm diameter and over 50 cm in length) and (ii) number of trees with hollows;
- Estimating the proportion of canopy trees that are regenerating within the zone.

The above data were collected using biobanking field sheets (DECC 2009b). The completed field data sheets are attached to the accompanying report.

3 THREATENED SPECIES SURVEYS

The methods by which candidate 'species credit' threatened species of potential relevance to the site were identified are described in Section 4 of the accompanying report. Targeted surveys for species credit species were conducted, where possible for relevant species, during the January and February field surveys described above in Section 1.

Species credit species and the survey technique and survey timing applied to each species are listed in Table 4. Descriptions of survey methods are provided above in Section 1.

Of the six threatened species predicted to occur in the Credit Calculator, five were surveyed during the appropriate time of year. The Mossgiel Daisy *Brachyscome papillosa*, flowers in spring and so surveys were not conducted at the ideal time of year for this species.

Table 4 Threatened species surveys – summary of methods applied

Species	TSC Act[2]	Recommended Survey time[3]	Survey timing (Y/N)[4]	Survey method
Austral Pillwort *Pilularia novae-hollandiae*	E	All months – dependent on periodically waterlogged sites	Y	Random meanders[5] in suitable habitat
Mossgiel Daisy *Brachyscome papillosa*	V	September, October, November during flowering	N	Random meanders in suitable habitat
Winged Peppercress *Lepidium monoplocoides*	V	November, December, January, February during flowering	Y	Random meanders in suitable habitat
Grey Falcon *Falco hypoleucos*	E	All months	Y	Dawn bird surveys; opportunistic bird surveys; inspections of trees for stick nests
Squirrel Glider *Petaurus norfolcensis*	E	All months	Y	Spotlighting; stag watching tree hollows at dusk
Superb Parrot *Polytelis swainsonii*	V	All months	Y	Dawn bird surveys; opportunistic bird surveys; inspections of tree hollows for nests

OEH have also identified additional threatened species requiring consideration in the SEARs. Of these, the species credit species that were targeted during the current survey period are listed Table 5.

In summary, of the additional threatened species listed for consideration in Table 5:

- four of the plant species are spring flowering - *Caladenia arenaria*, *Diuris* sp. Oaklands, *Convolvulus tedmoorei* and *Leptorhynchos orientalis* – surveys were not done at the ideal time to detect these species, which are mainly detectable during flowering. However, random meanders were conducted in area of suitable habitat (*sensu* Cropper 1993) to opportunistically detect any vegetative plant material of these species;

2 CE = critically endangered – listed under Schedule 1A of the TSC Act; E = endangered – listed under Schedule 1 (Part 1) of the TSC Act; V = vulnerable - listed under Schedule 2 of the TSC Act

3 As per the Biobanking Credit Calculator

4 Indicates whether survey conducted during recommended time of year in BioBanking Credit Calculator and Threatened Species Profile Database

5 According to method described in Cropper (1993)

- two of the flora species *Swainsona sericea* and *Cullen parvum*, are summer flowering and were targeted;
- there were no wetlands, soaks, rice paddies or other suitable surface water features within the site of potential relevance to the Southern Bell Frog, so no surveys were conducted for this species (or other frog species).

Table 5 Additional threatened species requiring consideration

Species	TSC Act	Recommended Survey time*	Survey timing (Y/N)	Survey method
Silky Swainson-pea *Swainsona sericea*	V	Spring to autumn (foliage); spring to summer (flowers).	Y	Random meanders[6] in suitable habitat
Small Scurf-pea *Cullen parvum*	E	In summer months when flowering	Y	Random meanders in suitable habitat
Sand-hill Spider Orchid *Caladenia arenaria*	E	August and October when flowering	N	Random meanders in suitable habitat
Oaklands Diuris *Diuris* sp. Oaklands	E	November when flowering	N	Random meanders in suitable habitat
Bindweed *Convolvulus tedmoorei*	E	August and September (recorded flowering times); could be broader given prostrate form.	N	Random meanders in suitable habitat
Lanky Buttons *Leptorhynchos orientalis*	E	Spring months when flowering	N	Random meanders in suitable habitat
Southern Bell Frog *Litoria raniformis*	E	All months, November to March breeding	Y	None – no suitable habitat
Glossy Black-Cockatoo Riverina population *Calyptorhynchus lathami*	EP[7]	All months, Autumn and Winter preferred	Y	Dawn bird surveys; opportunistic bird surveys; inspections of tree hollows for nests
Regent Honeyeater *Anthochaera phrygia*	CE	All months, Spring and Summer more active	Y	Dawn bird surveys; opportunistic bird surveys

6 According to method described in Cropper (1993)

7 Endangered populations do not generate species credits under the BioBanking Scheme

4 REFERENCES

Cropper, SC. 1993. *Management of endangered plants*. CSIRO Publishing, East Melbourne.

DECC. 2009a. *BioBanking Assessment Methodology and Credit Calculator Operational Manual*. Department of Environment and Climate Change NSW, Sydney.

DECC. 2009b. *Field data sheets for BioBanking: biobank / development site proposal package February 2009*. Department of Environment and Climate Change NSW, Sydney.

Eco Logical Australia. 2011. *Composite Vegetation Map for the Murrumbidgee Catchment: NSW Keith Vegetation Class Allocation*. Prepared for Department of Environment, Climate Change and Water.' Project 10COFGIS-0007. January 2011.

OEH. 2014. *Framework for Biodiversity Assessment*. State of NSW and Office of Environment and Heritage, Sydney.

OEH. 2012. *NSW BioMetric Vegetation Types CMA*. State of NSW and Office of Environment and Heritage, Sydney. www.environment.nsw.gov.au/vegetation/eoam/index.htm

PLOT AND TRANSECT DATA

Site value:
Transect plot data sheet

(Start a new sheet for each vegetation zone)

BioBanking
Biodiversity Banking and Offsets Scheme

CMA area	CMA subregion	Recorder	Date
Murrumbidgee		JP & AL	11/12th FEB 2015

Proposal ID	Proposal name	Zone ID
882	EUROLEY FARM EIS	

Vegetation formation

Vegetation class

Vegetation type

Condition (low or mod/good) | **Zone descriptor** (optional) | **Geographic/habitat features** (tick after printing step 2 of Credit Calculator) ☐

Coordinates (GPS datum GDA94:

Transect / plot number	1A	2B	3C	4D	5E	6F	7G	8	9	10
Easting										
Northing										
Zone AMG	55									

Transect 10 points along 50-m transect (see transect tally table for % foliage cover variables)

Native over-storey cover (%)	4	0	2	10	2	4	2			
Native mid-storey cover (%)	12	46	28	0	6	0	4			
Native ground cover (grasses) (%)	60	42	8	0	8	4	20			
Native ground cover (shrubs) (%)	0	2	22	30	12	0	0			
Native ground cover (other) (%)	2	2	12	0	6	12	14			
Exotic plant cover	0	0	2	0	2	2	8			

Larger sampling area

Native plant species richness [1]	11	12	16	5	9	8	9			
Number of trees with hollows [2]	0	1	1	1	2	1	2			
Over-storey regeneration [3]	0.33	033	0.33	0.5	1.0	0.33	0			
Total length of fallen logs (m) [2]	6	8	5	22	26	44.5	13			

Comments/additional conservation values (riparian areas, special features, geology, etc.):

[1] 20 x 20 m plot [2] 20 x 50 m plot [3] whole zone

Site value:
Transect tally table

BioBanking
Biodiversity Banking and Offsets Scheme

CMA area	CMA subregion	Recorder	Date
Murrumbidgee		J Pepper	11-12 Feb

Proposal ID	Proposal name	Zone ID
	EURELEY FARM ERS	

Vegetation formation

Vegetation class

Vegetation type

Condition (low or mod/good) | **Zone descriptor** (optional) | **Geographic/habitat features** (tick after printing step 2 of Credit Calculator) ☐

Transect number 2A	Number of hits (tally)	%
Native over-storey cover (%)	2	4
Native mid-storey cover (%)	6	12
Native ground cover (grasses) (%)	30	60
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	1	2
Exotic plant cover (%)	0	0

Transect number 2B	Number of hits (tally)	%
Native over-storey cover (%)	0	0
Native mid-storey cover (%)	23	46
Native ground cover (grasses) (%)	21	42
Native ground cover (shrubs) (%)	1	2
Native ground cover (other) (%)	1	2
Exotic plant cover (%)	0	0

Transect number 2C	Number of hits (tally)	%
Native over-storey cover (%)	1	2
Native mid-storey cover (%)	14	28
Native ground cover (grasses) (%)	4	8
Native ground cover (shrub) (%)	11	22
Native ground cover (other) (%)	6	12
Exotic plant cover (%)	1	2

Transect number 2D	Number of hits (tally)	%
Native over-storey cover (%)	5	10
Native mid-storey cover (%)	0	0
Native ground cover grasses (%)	0	0
Native ground cover shrubs (%)	15	30
Native ground cover other (%)	0	0
Exotic plant cover (%)	0	0

Transect number 2E	Number of hits (tally)	%
Native over-storey cover (%)	1	2
Native mid-storey cover (%)	3	6
Native ground cover (grasses) (%)	4	8
Native ground cover (shrubs) (%)	6	12
Native ground cover (other) (%)	3	6
Exotic plant cover (%)	1	2

Transect number 2F	Number of hits (tally)	%
Native over-storey cover (%)	2	4
Native mid-storey cover (%)	0	0
Native ground cover (grasses) (%)	2	4
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	6	12
Exotic plant cover (%)	1	2

Transect number 2G	Number of hits (tally)	%
Native over-storey cover (%)	1	2
Native mid-storey cover (%)	2	4
Native ground cover (grasses) (%)	10	20
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	7	14
Exotic plant cover (%)	4	8

Transect number______________	Number of hits (tally)	%
Native over-storey cover (%)		
Native mid-storey cover (%)		
Native ground cover (grasses) (%)		
Native ground cover (shrubs) (%)		
Native ground cover (other) (%)		
Exotic plant cover (%)		

Transect number______________	Number of hits (tally)	%
Native over-storey cover (%)		
Native mid-storey cover (%)		
Native ground cover (grasses) (%)		
Native ground cover (shrubs) (%)		
Native ground cover (other) (%)		
Exotic plant cover (%)		

Transect number______________	Number of hits (tally)	%
Native over-storey cover (%)		
Native mid-storey cover (%)		
Native ground cover (grasses) (%)		
Native ground cover (shrubs) (%)		
Native ground cover (other) (%)		
Exotic plant cover (%)		

2A

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	6101.14072
Project Name:	Eurobby Farm ~~EA~~ EIS
Waypoint (plot_ID):	2A
Observer:	GL JP
Date:	12/02/15
Veg Zone:	Callit. WL MR644 mod.-good
Easting:	34 68372 433413mE
Northing:	146 27406 6161903mS
Elevation:	147m
Bearing:	185°
Photo Number:	1-4
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

2A

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Callitris glaucophylla	4
2	Kytidosperma caespitosum	2
3	Eragrostis parviflora	2
4	Lichen	3
5	Hypericum gramineum	2
6	Oxalis perennans	2
7	Glycine clandestina	1
8	Einadia nutans subsp nut.	2
9	Calotis hispidula	1
10	Chloris truncata	1
11	Sida corrugata	1
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	11
Total native species	11
Total exotic species	
% perennial native understorey cover*	20% (excluding lichens)

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

(2A)

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** _____ **Date:** 12.02.15 **Recorder(s):** JP

Vegetation type: White Cypress Woodland **AMG Zone** 55 **Easting/Northing:** _____ **Photos:** _____

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5 1	1 sp = 0.33	1	1111				
10			1111				1
15			1111				
20 1			1111		1		
25							
30		1					
35		1					
40		1	111				
45		1	1111				
50		1	1				

Total number of species = 2 both
Foliage cover (%) =
Benchmark value (%FC) =
Average crown diameter =
Average foliage cover (%) =
Number of trees =
Sample area = 20 x 50

Whole zone
Number of trees with hollows = 0
Sample area = 20 x 50
Benchmark value =

Total no of species = 6	Total no of species = 30	Total no of species = 0	Total no of species = 1	Total no of species = 0	Total (m) = 5
Foliage cover (%) = 12%	Foliage cover (%) = 60%	Foliage cover (%) = 0%	Foliage cover (%) = 2%	Foliage cover (%) = 0	Benchmark (m) = 0

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

2B

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	60. 14072
Project Name:	ELLIOTT FARM EIS
Waypoint (plot_ID):	2B
Observer:	CL
Date:	12/02/15
Veg Zone:	E. White Cypress
Easting:	34 683942 433236 m E
Northing:	56 2722 07 6161817 m S
Elevation:	141
Bearing:	230
Photo Number:	5-8 – see thumbnails c/p
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

(2B)

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Callitris glaucophylla	4
2	Glycine clandestina	1
3	Enchylaena tomentosa	2
4	Rhodanthe corymbiflora	1
5	Sida corrugata	2
6	Rytidosperma caespitosum	2
7	Eragrostis parviflora	2
8	Kunzea (?) ericoides	1
9	Moss	2
10	Lichen	2
11	Actinobole uliginosum	2
12	Eragrostis brownii	2
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	12
Total native species	12
Total exotic species	
% perennial native understorey cover*	15% (including lichen & moss

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610-14072
Project Name:	EUROLEY FARM EIS
Waypoint (plot_ID):	
Observer:	GL
Date:	12.02.15
Veg Zone:	Black Box Lignum Woodland
Easting:	34° 73737° ~~146.24238°~~
Northing:	146.24238°
Elevation:	141 m
Bearing:	295°
Photo Number:	9-12 Theodolite
Notes	

430850 m E
6155581 m S

Marsilea growing at foot of trees

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

2C

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Eucalyptus largiflorens	5
2	Duma florulenta	4
3	Sida trichopoda	2
4	Chamaesyce drummondii	2
5	Sida corrugata	2
6	Solanum esuriale	1
7	Marsilea drummondii	2
8	Juncus subsecundus	2
9	~~Mimulus~~ Teucrium racemosum	2
10	Callitris glaucophylla	3
11	Alternanthera denticulata	2
12	Enteropogon acicularis	2
13	Rhodanthe corymbiflora	2
14	Panicum effusum	2
15	Rytidosperma setaceum	2
16	Rhagodia spinescens	1
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	16
Total native species	16
Total exotic species	
% perennial native understorey cover*	15%

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

BS 2C

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** _____ **Date:** 12.02.15 **Recorder(s):** JP

Vegetation type: Black Box Ligrum Woodland **AMG Zone** 55 **Easting/Northing:** _____ **Photos:** _____

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5	0-33	1					
10		111	1	1	1		
15		11	1	111	1		
20		111	1		11		
25		11				1	
30		111					
35	1						
40				111	1		
45			1	111	1		
50							
Total number of species = 1 Foliage cover (%) = Benchmark value (%FC) = Average crown diameter = Average foliage cover (%) = Number of trees = Sample area = **Whole zone** Number of trees with hollows = 1 Sample area = 20x50m Benchmark value =		Total no of species = 10 Foliage cover (%) = 23%	Total no of species = 6 Foliage cover (%) = 8%	Total no of species = 11 Foliage cover (%) = 22%	Total no of species = 6 Foliage cover (%) = 12%	Total no of species = 1 Foliage cover (%) = 2%	Total (m) = 5 Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

2D

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	
Project Name:	
Waypoint (plot_ID):	2d
Observer:	GL / JP
Date:	12/2
Veg Zone:	
Easting:	54 73553 430438mE
Northing:	146 23576 6155983mS
Elevation:	133
Bearing:	330
Photo Number:	see marked
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Eucalyptus largiflorens	3
2	Muehl. sterilata	4
3	Rhagodia spinescens	2
4	Einadia nutans	1
5	Oxalis perennans	1
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	5
Total native species	5
Total exotic species	
% perennial native understorey cover*	<10

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** Bleasby **Date:** 12/02/15 **Recorder(s):** JP

Vegetation type: Black Box Woodland **AMG Zone** 55 **Easting/Northing:** **Photos:**

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5 1	0-5			1111			
10				1			
15							
20				1			
25							
30				11			
35 1				1111			
40 1				11			
45							
50 1				1			

Total number of species =
Foliage cover (%) = 10% 5
Benchmark value (%FC) = ?
Average crown diameter =
Average foliage cover (%) =
Number of trees =
Sample area =

Whole zone
Number of trees with hollows = 1
Sample area = 20 x 50m
Benchmark value =

Total no of species = 0	Total no of species = 0	Total no of species = 15	Total no of species = 0	Total no of species = 0	Total (m) = 22
Foliage cover (%) = 0	Foliage cover (%) = 0	Foliage cover (%) = 8%	Foliage cover (%) = 0	Foliage cover (%) = 0	Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB 2E

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14072
Project Name:	BURLEY FARM BIS
Waypoint (plot_ID):	2E
Observer:	AL
Date:	12/02
Veg Zone:	Black Box-Lignum Woodland
Easting:	34 739 42
Northing:	146 24 799
Elevation:	138
Bearing:	180
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

2E

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Eucalyptus largiflorens	4
2	Dysphania florulenta	3
3	Marsilea drummondi	2
4	Juncus subsecundus	3
5	Rhagodia spinescens	2
6	Eragrostis parviflora	2
7	Chloris truncata	2
8	Chamaesyce drummondi	2
9	Panicum effusum	2
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	9
Total native species	9
Total exotic species	
% perennial native understorey cover*	40

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** FURSLOF **Date:** 12/02 **Recorder(s):** JP

Vegetation type: Black Box Lignum Wlld **AMG Zone** 55 **Easting/Northing:** **Photos:** 17-20

Native over-storey species list At 10 points along the 50-m transect	**Regen-eration** (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5 /	1.0						
10				/ / /	/ /		4
15			/		/		8
20							4
25		/ / /		/	/		3
30							5
35							2
40				/			
45			/				
50			//			/	
				/			
Total number of species = 1 Foliage cover (%) = 2% 2% Benchmark value (%FC) = Average crown diameter = Average foliage cover (%) = Number of trees = Sample area = 20 x 50 **Whole zone** Number of trees with hollows = 2 Sample area = 20 x 50m Benchmark value =		Total no of species = 3 Foliage cover (%) = 3%	Total no of species = 4 Foliage cover (%) = 8% 8%	Total no of species = 6 Foliage cover (%) = 12%	Total no of species = 5 Foliage cover (%) = 6%	Total no of species = 1 Foliage cover (%) = 2%	Total (m) = 26 Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB2F

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14072
Project Name:	EUROLEY EIS
Waypoint (plot_ID):	BB2F
Observer:	GL
Date:	12.02.15
Veg Zone:	Black Box open Woodland low
Easting:	34°.74099"
Northing:	146.23855"
Elevation:	145m
Bearing:	230°
Photo Number:	-> see Theodolite
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

(2F)

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Eucalyptus largiflorens	3
2	Sida corrugata	2
3	Rytidosperma setaceum	2
4	Eragrostis parviflora	2
5	Rhagodia spinescens	1
6	Oxalis perennans	1
7	Chamaesyce drummondii	1
8	~~Ap~~ Teucrium racemosum	1
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	8
Total native species	8
Total exotic species	
% perennial native understorey cover*	<10

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

BB2F

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14072
Project Name:	EUROLEY EIS
Waypoint (plot_ID):	BB2F
Observer:	GL
Date:	12.02.15
Veg Zone:	Black Box Open Woodland low
Easting:	34°.74099"
Northing:	146.23855"
Elevation:	145m
Bearing:	238°
Photo Number:	-> See Theodolite
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

2F

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Eucalyptus largiflorens	3
2	Sida corrugata	2
3	Rytidosperma setaceum	2
4	Eragrostis parviflora	2
5	Rhagodia spinescens	1
6	Oxalis perennans	1
7	Chamaesyce drummondii	1
8	~~Ap[illegible]~~ Teucrium racemosum	1
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	8
Total native species	8
Total exotic species	
% perennial native understorey cover*	<10

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

882F

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** Ellerston **Date:** 12/02 **Recorder(s):** TP

Vegetation type: Black Box Open Woodland **AMG Zone** 56 **Easting/Northing:** _____ **Photos:** Transect 2

Native over-storey species list At 10 points along the 50-m transect	Regen-eration (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5	1 0.33						4
10	1						5
15					1	1	5
20					1		3
25					1		2 5
30					1		
35					1		
40							
45							
50			1				
Total number of species = 2							
Foliage cover (%) = 40%							
Benchmark value (%FC) =							
Average crown diameter =							
Average foliage cover (%) =							
Number of trees =							
Sample area =							
Whole zone							
Number of trees with hollows = 1							
Sample area = 20 x 50							
Benchmark value =							
		Total no of species = 0	Total no of species = 2	Total no of species = 0	Total no of species = 3	Total no of species = 1	Total (m) = 40.5
		Foliage cover (%) = 0	Foliage cover (%) = 4%	Foliage cover (%) = 0	Foliage cover (%) = 12%	Foliage cover (%) = 2%	Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	60.16072
Project Name:	Darley
Waypoint (plot_ID):	BB2G
Observer:	AL
Date:	12/02
Veg Zone:	Black Box Open Woodland low
Easting:	146.23440°
Northing:	34.73867°
Elevation:	142m
Bearing:	271°
Photo Number:	(Theodolite)
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

(2G)

Floristic datasheet – 20 m X 20 m quadrat

No.	Species	Cover/abundance Score (see table above)
1	Rhagodia spinescens	1
2	Sida corrugata	2
3	Rytidosperma setaceum	2
4	Callitris glaucophylla	3
5	Oxalis perennans	2
6	Enteropogon ~~ramosus~~ acicularis	2
7	Alternanthera denticulata	2
8	Chamaesyce drummondii	2
9	~~[illegible]~~ Ptilotus exaltatus	1
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	9
Total native species	9
Total exotic species	
% perennial native understorey cover*	15

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking Biodiversity Banking and Offsets Scheme

BB2a

Site type: Development / BioBank **Proposal ID:** EUROLEY **Date:** 12/02 **Recorder(s):** JT

Vegetation type: Black Box Open Woodland **AMG Zone** 55 **Easting/Northing:** **Photos:**

Native over-storey species list At 10 points along the 50-m transect	**Regen-eration** (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5 /	0		/ /				
10			/		//		7.5
15			/				3
20			/		/	/	3
25			/				2
30			/		/		
35 *		/	/				
40 *		/	/ /		/	/	
45					/	/	
50					/	/	
					/		
Total number of species = /							
Foliage cover (%) =							
Benchmark value (%FC) =							
Average crown diameter =							
Average foliage cover (%) =							
Number of trees =							
Sample area =							
Whole zone							
Number of trees with hollows = 2							
Sample area = 20 x 50		Total no of species = 2	Total no of species = 10	Total no of species = 0	Total no of species = 9	Total no of species = 4	Total (m) = 13
Benchmark value =		Foliage cover (%) = 10	Foliage cover (%) = 28	Foliage cover (%) = 0	Foliage cover (%) = 11	Foliage cover (%) = 8	Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

Site value:
Transect plot data sheet

(Start a new sheet for each vegetation zone)

BioBanking
Biodiversity Banking and Offsets Scheme

CMA area	CMA subregion	Recorder	Date
Murrumbidgee		JP	16.01.15

Proposal ID	Proposal name	Zone ID
Euro	EUROLEY FARM EIS	1

Vegetation formation

Vegetation class Inland Floodplain Woodland

Vegetation type Black Box Open Woodland / Callitris

Condition (low or mod/good)	Zone descriptor (optional)	Geographic/habitat features (tick after printing step 2 of Credit Calculator)
LOW		☐

Coordinates (GPS datum GDA94: MR517)

Transect / plot number	BB8	BB7	BB6	BB5	BB4	BB3	BB2	BB1	9	10
Easting 146° 14' 30"E										
Northing 34° 44' 42"S										
Zone AMG	55	55	55	55	55	55	55	55		

Transect 10 points along 50-m transect (see transect tally table for % foliage cover variables)

Native over-storey cover (%)	0	0	2	0	4	0	4	2		
Native mid-storey cover (%)	4	2	2	0	0	34	36	0		
Native ground cover (grasses) (%)	38	6	14	26	24	40	50	66		
Native ground cover (shrubs) (%)	0	24	32	0	0	0	0	0		
Native ground cover (other) (%)	2	0	6	8	2	26	36	12		
Exotic plant cover	4	0	0	78	64	14	4	6		

Larger sampling area

Native plant species richness [1]	7	4	6	7	4	9	6	9		
Number of trees with hollows [2]	0	1	4	1	0	0	0	0		
Over-storey regeneration [3]	1.0	1.0	1.0	0.0	0.5	0.5	1.0	0.33		
Total length of fallen logs (m) [2]	0	9	8	10	10	0	5.5	5		

Comments/additional conservation values (riparian areas, special features, geology, etc.):

[1] 20 x 20 m plot [2] 20 x 50 m plot [3] whole zone

Site value: Transect tally table

BioBanking
Biodiversity Banking and Offsets Scheme

CMA area	CMA subregion	Recorder	Date
Murrumbidgee		JP	16.01.15

Proposal ID	Proposal name	Zone ID
Euro_dev	Eurolay Farm EIS	Black Box_low

Vegetation formation

Vegetation class Inland Floodplain Woodlands

Vegetation type Black Box

Condition (low or mod/good)	Zone descriptor (optional)	Geographic/habitat features (tick after printing step 2 of Credit Calculator)
Low		☐

Transect number BBB	Number of hits (tally)	%
Native over-storey cover (%)	0	0
Native mid-storey cover (%)	2	4
Native ground cover (grasses) (%)	19	38
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	1	2
Exotic plant cover (%)	2	4

Transect number BB7	Number of hits (tally)	%
Native over-storey cover (%)	0	0
Native mid-storey cover (%)	1	2
Native ground cover (grasses) (%)	3	6
Native ground cover (shrubs) (%)	12	24
Native ground cover (other) (%)	0	0
Exotic plant cover (%)	0	0

Transect number BB6	Number of hits (tally)	%
Native over-storey cover (%)	1	2
Native mid-storey cover (%)	1	2
Native ground cover (grasses) (%)	7	14
Native ground cover (shrub) (%)	16	32
Native ground cover (other) (%)	3	6
Exotic plant cover (%)	0	0

Transect number BB5	Number of hits (tally)	%
Native over-storey cover (%)	0	0
Native mid-storey cover (%)	0	0
Native ground cover grasses (%)	13	26
Native ground cover shrubs (%)	0	0
Native ground cover other (%)	4	8
Exotic plant cover (%)	39	78

Transect number BB4	Number of hits (tally)	%
Native over-storey cover (%)	2	4
Native mid-storey cover (%)	0	0
Native ground cover (grasses) (%)	12	24
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	1	2
Exotic plant cover (%)	32	64

Transect number BB3	Number of hits (tally)	%
Native over-storey cover (%)	0	0
Native mid-storey cover (%)	17	34
Native ground cover (grasses) (%)	20	40
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	13	26
Exotic plant cover (%)	7	14

Transect number BB2	Number of hits (tally)	%
Native over-storey cover (%)	2	4
Native mid-storey cover (%)	18	36
Native ground cover (grasses) (%)	25	50
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	18	36
Exotic plant cover (%)	2	4

Transect number BB1	Number of hits (tally)	%
Native over-storey cover (%)	1	2
Native mid-storey cover (%)	0	0
Native ground cover (grasses) (%)	33	66
Native ground cover (shrubs) (%)	0	0
Native ground cover (other) (%)	6	12
Exotic plant cover (%)	3	6

Transect number	Number of hits (tally)	%
Native over-storey cover (%)		
Native mid-storey cover (%)		
Native ground cover (grasses) (%)		
Native ground cover (shrubs) (%)		
Native ground cover (other) (%)		
Exotic plant cover (%)		

Transect number	Number of hits (tally)	%
Native over-storey cover (%)		
Native mid-storey cover (%)		
Native ground cover (grasses) (%)		
Native ground cover (shrubs) (%)		
Native ground cover (other) (%)		
Exotic plant cover (%)		

Floristic datasheet – (General Info Sheet)

Project Number:	610.14072
Project Name:	PROTEN
Waypoint (plot_ID):	BB Plot No. 1
Observer:	JP
Date:	08/01
Veg Zone:	Callitris Woodland mod-good
Easting:	146° 16' 8" E
Northing:	36° 40' 35" S
Elevation:	
Bearing:	East-west 80°
Photo Number:	104-4191; 4152; 4153
Notes	near northern boundary

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, 10%-30% weed cover
Poor	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	**Form***	**Height Range (m)**		**PFC ****	**Dominant Species**		
NOS tree	open forest/woodland	**Lower** 16	**Upper** 20	20 %	**1.** C. glauc.	**2.** E. melliodora	**3.**
Mid –	absent	–	–	0	**1.**	**2.**	**3.**
Lower –	0			0	**1.**	**2.**	**3.**
Ground-Cover tussock	grass	0	0.5	70%	**1.** (grasses)	**2.**	**3.**
** **PFC** = Projective Foliage Cover as %							
% perennial native understorey cover***:					**(>50% ?)**		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

***Form**	**Description**
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** B **Date:** 08/01 **Recorder(s):** JP

Vegetation type: Callitris Wood - mod good **AMG Zone** 55 **Easting/Northing:** see ~~Habitat~~ sheet 1 **Photos:** Sheet 1

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	Native mid-storey species list (>1m to <over-storey) At 10 points along the 50-m transect	Native ground cover (grasses) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (shrubs) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (other) species list (ground stratum <1m) At 50 points along the 50-m transect	Exotic plants species list At 50 points along the 50-m transect	Fallen logs (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5m -	0.33	-	1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1	1 1 1	1 x 5m
10m			1 1 1 1 1 1 1 1 1 1				
15			1 1 1 1 1 1 1 1 1 1				
20 i 20%			1 1 1 1 1 1 1 1 1 1				
25							
30							
35							
40							
45							
50 m							

Total number of species = 1
Foliage cover (%) = 20%
Benchmark value (%FC) = ?
Average crown diameter = 5m
Average foliage cover (%) = 20%
Number of trees = 1
Sample area = ~~20m~~ 50m

Whole zone
Number of trees with hollows = 0
Sample area = 50 x 20
Benchmark value =

Total no of species = 0	Total no of species = 33 hits	Total no of species = 0	Total no of species = 6	Total no of species = 3	Total (m) = 5m
Foliage cover (%) = 0	Foliage cover (%) =	Foliage cover (%) = 0	Foliage cover (%) =	Foliage cover (%) =	Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14672
Project Name:	EUROLEY FARM EIS
Waypoint (plot_ID):	BB PLOT No 1
Observer:	FL
Date:	08/01/15
Veg Zone:	Callitris Woodland – mod good
Easting:	See Gen. Info. sheet
Northing:	
Elevation:	
Bearing:	
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

Dissocarpus paradoxus

BB1

ID FI 13 Jan 15

Floristic datasheet – 20 m X 20 m quadrat

Actinobole uliginosum

No.	Species	Cover/abundance Score (see table above)
1	Callitris glaucophylla ✓	3
2	Austrostipa scabra subsp. scabra ✓	4
3	Dytidosperma sp. (S) R. setaceum ✓	3
4	Eragrostis australasica (S) ✓	3
5	Burr medic (S) ✓	2
6	Elymus scaber (S) ✓	3
7	Sida corrugata (S) ✓	2
8	Small woolly Ball. Daisy (S) ✓	2
9	Bare sand, sticks + wood ✓	5
10	Peppermint-like tree (S) Eucalyptus intermedia ✓	1
11	Maireana enchylaenoides ✓	1
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Exotic (Non-native)

Not plant

X

Total species	9
Total native species	9
Total exotic species	0
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

Floristic datasheet

Project Number:	610.14072
Project Name:	EUROLEY
Waypoint (plot_ID):	BB2
Observer:	JP
Date:	09/01
Veg Zone:	Callitris Woodland – mod good
Easting:	146° 16' 28" E
Northing:	34° 45' 57"S
Elevation:	
Bearing:	68°
Photo Number:	104 4158 / 4157
Notes	

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, 10%-30% weed cover
Poor	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

BB2

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	**Form***	**Height Range (m)**		**PFC ****	**Dominant Species**		
NOS	tree	**Lower** 16	**Upper** 18	10	**1.** C. g laucophylla	**2.** —	**3.** —
Mid	〃	4	6	10	**1.** 〃	**2.**	**3.**
Lower	—	—	—	—	**1.** —	**2.** —	**3.** —
Ground-Cover	tussock	0	0.5		**1.** Brown grass	**2.** mosi + lichen	**3.** wheat?
** **PFC** = Projective Foliage Cover as %							
% perennial native understorey cover***: 90%					**(>50% ?)** Y		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

*Form	Description
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

Transect plot worksheet

BioBanking
Biodiversity Banking and Offsets Scheme

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

Site type: Development / BioBank **Proposal ID:** Eurory **Date:** 09/01/15 **Recorder(s):** JP

Vegetation type: Callitris Woodland – mod good **AMG Zone** 55 **Easting/Northing:** see attached **Photos:**

Native over-storey species list At 10 points along the 50-m transect	Regen-eration (√) (zone)	Native mid-storey species list (>1m to <over-storey) At 10 points along the 50-m transect	Native ground cover (grasses) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (shrubs) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (other) species list (ground stratum <1m) At 50 points along the 50-m transect	Exotic plants species list At 50 points along the 50-m transect	Fallen logs (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5	1.0	|||||||||	||||||||||		||||||||	||	
10 |		||||||	||||||||		||||||||		
15 |		|||||||	|||||||||		|||||		
20			|				
25							
30							
35							
40							
45							
50							
		Total no of species = 18 Foliage cover (%) =	Total no of species = 25 Foliage cover (%) =	Total no of species = 0 Foliage cover (%) = 0	Total no of species = 18 Foliage cover (%) =	Total no of species = 2 Foliage cover (%) =	Total (m) = 5.5 Benchmark (m) =

Total number of species = 1
Foliage cover (%) = 10%
Benchmark value (%FC) = ?
Average crown diameter = 5
Average foliage cover (%) = 10%
Number of trees =
Sample area = 20 x 50

Whole zone
Number of trees with hollows = 0
Sample area = Zone
Benchmark value =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB2

ID FI 13Jan15

Floristic datasheet – 20 m X 20 m quadrat

Exotic

No.	Species	Cover/abundance Score (see table above)	Non plant
1	Callitris glaucophylla ✓	4	
2	Lachnagrostis filiformis ✓	4	
3	Austrostipa scabra subsp. scabra ✓	3	
4	Moss + lichen ✓	3	X
5	Bare soil/sand + sticks ✓	2	X
6	Small woolly ball daisy Actinobole uliginosum ✓	3	
7	Wheat*? (S) / Elymus? Hordeum leporinum ✓	3	
8	~~Exotic grass hairy inflorescence (S)~~	~~1~~	
9	Twiner (S) Glycine clandestina ✓	1	
10	Einadia nutans ? (S) ✓	1	
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

X

Total species	7
Total native species	6
Total exotic species	1
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610 14072
Project Name:	Euroley Farm EIS
Waypoint (plot_ID):	BB2
Observer:	Fiona
Date:	09/01/15
Veg Zone:	Callitris mod good
Easting:	146°16'28" E
Northing:	34°40'57"S
Elevation:	
Bearing:	67
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

BB3

Floristic datasheet

Project Number:	610.14072
Project Name:	EUROLEY
Waypoint (plot_ID):	BB3
Observer:	JP
Date:	09/01
Veg Zone:	Callitris Woodland – low
Easting:	146° 16'24" E
Northing:	34° 41' 8" S
Elevation:	
Bearing:	104°
Photo Number:	104 4160 / 4159
Notes	

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, ~~10%-30% weed cover~~ heavily grazed
~~Poor~~	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	Form*	Height Range (m)		PFC **	Dominant Species		
NOS	tree	Lower 16	Upper 18	25%	1. C. glaucophylla	2. E. melliodora	3. —
Mid	"	3	5	50%	1. "	2. —	3. —
Lower	—	—	—	—	1. —	2. —	3. —
Ground-Cover	tussock	0	0.5	50%	1. Blown grass, Wallaby grass ?	2. bare earth	3. moss + lichen
** PFC = Projective Foliage Cover as %							
% perennial native understorey cover***:	50%				(>50% ?) Y		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

*Form	Description
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

BB3

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** BB3 **Date:** 09/01 **Recorder(s):** JP

Vegetation type: Coastal Woodland - low **AMG Zone** 55 **Easting/Northing:** _____ **Photos:** _____

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	Native mid-storey species list (>1m to <over-storey) At 10 points along the 50-m transect	Native ground cover (grasses) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (shrubs) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (other) species list (ground stratum <1m) At 50 points along the 50-m transect	Exotic plants species list At 50 points along the 50-m transect	Fallen logs (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5	0.5	1 1	1 1		1		
10		1 1	1 1				
15		1 1	1 1				
20		1 1	1 1		1		
25		1 1	1 1			1	
30		1 1	1 1			1	
35		1 1	1 1				
40		1 1	1 1		1		
45		1 1	1 1		1		
50		1 1	1 1				
		1 1	1 1			1	
		1 1	1 1		1		
Total number of species = 8		1 1	1 1		1 1	1	
Foliage cover (%) = 80		1 1	1 1		1 1	1	
Benchmark value (%FC) =		1 1	1 1		1 1	1	
Average crown diameter =		1 1	1 1		1 1	1	
Average foliage cover (%) =		1 1	1 1		1 1	1	
Number of trees = 8		1 1	1 1		1 1	1	
Sample area = 20 x 50m		1 1	1 1		1 1	1	
Whole zone		1 1	1 1		1 1	1	
Number of trees with hollows = 0		1 1	1 1		1 1	1	
Sample area = 20 x 50m		1 1	1 1		1 1	1	
Benchmark value =		1 1	1 1		1 1	1	
		Total no of species = 17	Total no of species = 20	Total no of species = 0	Total no of species = 13	Total no of species = 7	Total (m) = 0
		Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Benchmark (m) =

SITE AND OTHER NOTES:

Only C. glaucophylla regen's

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB3

Floristic datasheet – 20 m X 20 m quadrat

10 Fl 14 Jan 15
Tribulus terrestris
Chamaesyce drummondii
Caustic weed.

No.	Species	Cover/abundance Score (see table above)
1	Callitris glaucophylla ✓	3
2	Bare soil ✓	4
3	Eragrostis Aliformis ✓	2 & 3
4	Elymus scaber ✓	2
5	moss ✓	2 & 3
6	Austrostipa scabra Subsp. scabra ✓	2
7	E. melliodora ✓	1
8	Wheat grass? (S) Hordeum leporinum ✓	2
9	Small ground herb prostrate (S) Harry ✓	1
10	Herb with purple underside (S) Boerhavia dominii ✓	1
11	Sida corrugata ✓	1
12	Eriadia nutans? (from before) ✓	1
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Exotic

Non plant

X

X

Total species	10
Total native species	9
Total exotic species	1
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610-14072
Project Name:	Eurdey Farm EIS
Waypoint (plot_ID):	BB3
Observer:	Fiona I
Date:	09/01/2015
Veg Zone:	Callitris -low
Easting:	146°16'24" E
Northing:	34°41'8" S
Elevation:	
Bearing:	104°
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

Floristic datasheet

Project Number:	610 14072
Project Name:	EUROLEY
Waypoint (plot_ID):	B34
Observer:	JP
Date:	09/01
Veg Zone:	Callitris Woodland - low
Easting:	146°15'58"
Northing:	36°41'7"S
Elevation:	
Bearing:	80°
Photo Number:	104 4162; 4161
Notes	

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, 10%-30% weed cover
Poor	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	**Form***	**Height Range (m)**		**PFC ****	**Dominant Species**		
NOS		**Lower**	**Upper**		**1.**	**2.**	**3.**
Mid					**1.**	**2.**	**3.**
Lower					**1.**	**2.**	**3.**
Ground-Cover					**1.**	**2.**	**3.**
** **PFC** = Projective Foliage Cover as %							
% perennial native understorey cover***:					**(>50% ?)**		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

*Form	Description
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

BD4

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** BB4 **Date:** 09/01 **Recorder(s):** JP

Vegetation type: Callitris - low **AMG Zone** 55 **Easting/Northing:** **Photos:**

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	Native mid-storey species list (>1m to <over-storey) At 10 points along the 50-m transect	Native ground cover (grasses) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (shrubs) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (other) species list (ground stratum <1m) At 50 points along the 50-m transect	Exotic plants species list At 50 points along the 50-m transect	Fallen logs (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5	0.5		1 1 1 1 1 1		1	1 1 1 1 1 1	
10			1 1 1 1			1 1 1 1 1 1	
15			1 1			1 1 1 1 1 1	
20						1 1 1 1 1	
27						1 1 1 1	
30						1 1 1 1 1 1	
35						1 1 1 1 1	
40							
45 1							
50 1							

Total number of species = 1
Foliage cover (%) = 30%
Benchmark value (%FC) =
Average crown diameter = 5m
Average foliage cover (%) =
Number of trees =
Sample area = 20x50

Whole zone
Number of trees with hollows = 0
Sample area =
Benchmark value = 20 x 50m

Total no of species = 0	Total no of species = 12	Total no of species = 0	Total no of species = 1	Total no of species = 32	Total (m) = 10	
Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Benchmark (m) =	

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB4

Floristic datasheet – 20 m X 20 m quadrat

IDFI 14 Jan 15

Exotic

Non plant

No.	Species	Cover/abundance Score (see table above)
1	Callitris glaucophylla ✓	2
2	Wheat grass (Hordeum leporinum) ✓	5
3	Elymus scaber ✓	3
4	Austrostipa scabra Subsp scabra ✓	2
5	Eragrostis filiformis ✓	2
6	Bare soil / Sand / Sticks ✓	3
7	✓	
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	5
Total native species	4
Total exotic species	1
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

BB4

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14072
Project Name:	Ewoley farm ES
Waypoint (plot_ID):	BB 4
Observer:	Flore I
Date:	09/01/2015
Veg Zone:	Callitris low
Easting:	146°15'58"E
Northing:	34°41'7"S
Elevation:	
Bearing:	80°
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

BB 5

Floristic datasheet

Project Number:	610.14072
Project Name:	EUROLEM
Waypoint (plot_ID):	BB5
Observer:	JP
Date:	09/01
Veg Zone:	Black Box Woodland - low
Easting:	146 13' 59" E
Northing:	34° 44' 47" S
Elevation:	
Bearing:	0° NORTH
Photo Number:	4168 / 4167
Notes	PPU 5 - southern rectangle

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, 10%-30% weed cover
Poor	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	**Form***	**Height Range (m)**		**PFC ****	**Dominant Species**		
NOS	—	**Lower** 10	**Upper** 10	10%	**1.** E. largiflorens	**2.** —	**3.** —
Mid	—	—	—	—	**1.** —	**2.** —	**3.** —
Lower	—	—	—	—	**1.** —	**2.** —	**3.** —
Ground-Cover	tussock	0	0.2	85%	**1.** exotic grass	**2.** Austrip a scabra	**3.** Wallaby
** **PFC** = Projective Foliage Cover as %							
% perennial native understorey cover***: 20% ?					**(>50% ?)** NO		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

***Form**	**Description**
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

Transect plot worksheet

BioBanking Biodiversity Banking and Offsets Scheme

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

Site type: Development / BioBank **Proposal ID:** BB 5 **Date:** 09/01 **Recorder(s):** JP

Vegetation type: Black Box Open Woodland - low **AMG Zone** 55 **Easting/Northing:** ____ **Photos:** ____

Native over-storey species list At 10 points along the 50-m transect	Regen-eration (√) (zone)	Native mid-storey species list (>1m to <over-storey) At 10 points along the 50-m transect	Native ground cover (grasses) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (shrubs) species list (ground stratum <1m) At 50 points along the 50-m transect	Native ground cover (other) species list (ground stratum <1m) At 50 points along the 50-m transect	Exotic plants species list At 50 points along the 50-m transect	Fallen logs (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5	0.0		/ / / / /		/ / / /	/ / / / / /	
			/ / / / /			/ / / /	
			/ / /			/ / / / / /	
						/ / / / /	
						/ / / / /	
						/ / / / / / /	
no canopy						/ / / / / /	
						/ /	
Total number of species = 1 Foliage cover (%) = 10% Benchmark value (%FC) = ? Average crown diameter = 10m Average foliage cover (%) = Number of trees = 0 Sample area = **Whole zone** Number of trees with hollows = 1 Sample area = 50x20m Benchmark value =		Total no of species = 0 Foliage cover (%) =	Total no of species = 13 Foliage cover (%) =	Total no of species = 6 Foliage cover (%) =	Total no of species = 4 Foliage cover (%) =	Total no of species = 57 Foliage cover (%) =	Total (m) = 10m Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB5

Boerhavia dominii Tar vine

ID FI 14 Jan 15

Floristic datasheet – 20 m X 20 m quadrat

Cranesyce drummondii Caustic weed.

Exotic

Non plant

No.	Species	Cover/abundance Score (see table above)
1	Eucalyptus largiflorens ✓	1
2	Veronica - like with small geranium flowers ✓	3
3	Solanum ⑤ S. elaeagnifolium ✓	2
4	White flower herb decumbent ① ✓	1
5	Sida corrugata ✓	3
6	Prostrate herb (Euphorbia?) ⑤ ✓	2
7	Sedge seedhead ⑤ Juncus usitatus ✓	1
8	Austrostipa scabra subsp scabra ✓	3
9	Dyti'dosperma sp. R Setaceum ✓	2
10	Exotic wheat grass Hordeum leporinum ✓	4
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Heliotropium europaeum

Total species	10
Total native species	7
Total exotic species	3
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

BB5

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14072
Project Name:	Eviden Farm EIS
Waypoint (plot_ID):	BB5
Observer:	Fiona I
Date:	09/01/2015
Veg Zone:	Black Box Low
Easting:	
Northing:	
Elevation:	See other sheet
Bearing:	
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

BB6

Floristic datasheet

Project Number:	610 14072
Project Name:	EURELEY
Waypoint (plot_ID):	BB6
Observer:	JP
Date:	09/01
Veg Zone:	Black Box Woodland - mod good
Easting:	146° 26' 1" E
Northing:	34° 44' 44" S
Elevation:	
Bearing:	348°
Photo Number:	4173/4174
Notes	

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, 10%-30% weed cover
Poor	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	**Form***	**Height Range (m)**		**PFC ****	**Dominant Species**		
NOS	tree	**Lower** 14	**Upper** 16	30%	**1.** E. largiflorens	**2.**	**3.**
Mid	"	3	4	5%	**1.**	**2.**	**3.**
Lower	shrub	0.5	1.0	40%	**1.** green-stemmed shrub	**2.**	**3.**
Ground-Cover	tussock	0	0.2	30%	**1.**	**2.**	**3.**
** **PFC** = Projective Foliage Cover as %							
% perennial native understorey cover***:					(>50% ?)		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

*Form	Description
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

BB6

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** BB6 **Date:** 09/01 **Recorder(s):** JP

Vegetation type: Black Box Wood - mod-good **AMG Zone** 56 **Easting/Northing:** _____ **Photos:** _____

Native over-storey species list At 10 points along the 50-m transect	Regen-eration (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
10m 10%	10	1	1111	1111	111		
15			11	1111			
30				1111			
25				1111			
50				1			
35							
0							
1 hit							
Total number of species = 1							
Foliage cover (%) =							
Benchmark value (%FC) =							
Average crown diameter =							
Average foliage cover (%) =							
Number of trees =							
Sample area =							
Whole zone							
Number of trees with hollows = 4							
Sample area =							
Benchmark value =		Total no of species = 1	Total no of species = 7	Total no of species = 16	Total no of species = 3	Total no of species = 0	Total (m) = 8m
		Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB6

ID F1 13 Jan 15

Floristic datasheet – 20 m X 20 m quadrat

Exotic

Non plant

No.	Species	Cover/abundance Score (see table above)
1	Eucalyptus largiflorens ✓	3
2	Green stemmed bush (S) Duma florulenta Lignum	5
3	Black Roly poly bush Sclerolaena muricata	2
X 4	Exotic wheat grass Hordeum leporinum ✓	2
5	Rytidosperma setaceum ✓	3
6	Elymus scaber ✓	2
7	Teucrium racemosum ✓	2
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Total species	7
Total native species	6
Total exotic species	1
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

BB6

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14012
Project Name:	Eurolely Farm EIS
Waypoint (plot_ID):	Plot 6
Observer:	Fiona Lolin
Date:	09/01/2015
Veg Zone:	Black Box mod
Easting:	146° 26' 9 E
Northing:	34° 46' 44" S
Elevation:	
Bearing:	348
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

BB7

Floristic datasheet

Project Number:	610.14072
Project Name:	Eurasia
Waypoint (plot_ID):	BB7
Observer:	JP
Date:	09/01
Veg Zone:	Blakely Box Woodland — mod good
Easting:	146° 14' 34" E
Northing:	34° 44' 24" S
Elevation:	
Bearing:	109°
Photo Number:	4176 / 4177
Notes	eastern portion (the 'neck') of patch

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, 10%-30% weed cover
Poor	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	**Form***	**Height Range (m)**		**PFC ****	**Dominant Species**		
NOS	tree	**Lower** 12	**Upper** 14	30%	**1.** E. largiflorens	**2.**	**3.**
Mid	"	1	3	20%	**1.** "	**2.**	**3.**
Lower	shrubs	1.0	1.0	30%	**1.** green-stem shrubs	**2.**	**3.**
Ground-Cover	tussock	0.0	0.5	10%	**1.** ?	**2.**	**3.**
** **PFC** = Projective Foliage Cover as %							
% perennial native understorey cover***: >50%					**(>50% ?)** Y		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

***Form**	**Description**
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** BB7 **Date:** 09/01 **Recorder(s):** JP

Vegetation type: Black Box Woodland **AMG Zone** 55 **Easting/Northing:** **Photos:**

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
5 0	1.0	1	1 1 1	1 1 1 1 1			
10 0				1 1 1 1 1			
15 0				1 1			
20 0							
25 0							
30 0							
35 0							
40 0							
45 0							
50 0							
0							
≥ 0							
Total number of species = 1							
Foliage cover (%) = 30%							
Benchmark value (%FC) = -							
Average crown diameter = 10m							
Average foliage cover (%) =							
Number of trees = 2							
Sample area = 50 x 20							
Whole zone							
Number of trees with hollows = 1							
Sample area = 50 x 20							
Benchmark value =		Total no of species = 1	Total no of species = 3	Total no of species = 12	Total no of species = 0	Total no of species = 0	Total (m) = 7m
		Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Foliage cover (%) =	Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB7

10 F1 13 Jan 15

Floristic datasheet – 20 m X 20 m quadrat

Exotic	No.	Species	Cover/abundance Score (see table above)	Non plant
	1	Eucalyptus largiflorens ✓	3	
	2	~~Green stemmed bush~~ Duma florulenta Lignum ✓	3	
	3	Eytrichospermum setaceum ✓	2	
	4	Nardoo (S) Marsilea drummondii ✓	2	
	5	Bare ground leaflitter sticks ✓	5	X
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
	24			
	25			
	26			
	27			
	28			
	29			
	30			

Total species	4
Total native species	4
Total exotic species	0
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

BB87

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	610.14072
Project Name:	Ewiley Farm EIS
Waypoint (plot_ID):	Plot 7.
Observer:	Flora Calc
Date:	09/01/15
Veg Zone:	Black Box mod
Easting:	146°14'34"E
Northing:	34°44'20"S
Elevation:	
Bearing:	1090
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

BBS

Floristic datasheet

Project Number:	610.14072
Project Name:	EUROLEY
Waypoint (plot_ID):	BBS
Observer:	JP
Date:	09/01
Veg Zone:	Blackbox Woodland - low
Easting:	146° 14' 30" E
Northing:	34° 44' 42" S
Elevation:	
Bearing:	301°
Photo Number:	4181, 4182
Notes	open grazed woodland in S portion

Age Class (circle one)	**Description**
Early regeneration	Dominated by small, dense top open regenerating plants, with few older, emergent plants
Advanced regeneration	Dominated by dense to open regenerating plants, with scattered larger plants (NB in treed habitats, large 'habitat' trees scattered amongst smaller regenerating plants may be described as 'uneven aged'.
Uneven age	Mixture of different sizes and age classes present amongst species recorded in the tallest stratum
Mature age	Well-spaced mature sized plants, but with few 'over mature' plants
Senescent	Dominated by 'over mature' plants, evidence of senescence in many plants, some with no disturbance evident. Stags (i.e. large dead trees) may be present
Resilience Class (circle one)	**Description**
Good	Intact soil profile, <10% weed cover
Moderate	Intact soil profile, 10%-30% weed cover
Poor	Intact soil profile, 30% - 80% weed cover
Very Poor	Intact soil profile, >80% weed cover
Un-Managed	Disturbed soil profile, generally a severe weed plume
Managed – reveg site	Disturbed soil profile, site that has been previously revegetated (i.e., replanted)
Managed – open space	Disturbed or intact soil profile area managed as open space or parkland
Hard surface/tracks	Roads, tracks, buildings, carparks. Not likely to be returned to bushland
Exotic pasture	Exotic pasture (less than 50 per cent native groundcover

Floristic datasheet

Veg Structure and Composition (RDP)							
Strata	**Form***	**Height Range (m)**		**PFC ****	**Dominant Species**		
NOS	—	**Lower**	**Upper** —	—	**1.** —	**2.** —	**3.** —
Mid	tree	2	3	5%	**1.** E. longifloreus	**2.**	**3.**
Lower	tree	1	1.5	5%	**1.** "	**2.**	**3.**
Ground-Cover	tussock	0	0.2	50%	**1.** ?	**2.**	**3.**
** **PFC** = Projective Foliage Cover as %							
% perennial native understorey cover***:		?			**(>50% ?)**		

*** Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

*Form	Description
Tree	Woody plant < 2 m tall with a single stem
Tree mallee	Woody Multi-stemmed tree usually of the genus Eucalyptus
Shrub	Woody plant, multi stemmed at the base
Tussock grass	Forms discrete but open tussocks with distinct individual shoots
Sod grass	Grass of short to medium height forming compact tussocks e.g. couch and kikuyu
Sedge	Non-grass herbaceous monocots of the families Cyperaceae and Restionaceae
Rush	Non-grass herbaceous monocots of the families Juncaceae, Typhaceae, Restionaceae and the genus Lomandra
Forb	Herbaceous dicot
Fern	Ferns
Vine	Climbing, twining, winding or sprawling plant

BB8

Transect plot worksheet

Full species IDs are not required for BioBanking, but may be useful for identification of correct vegetation type and for monitoring and audit purposes.

BioBanking
Biodiversity Banking and Offsets Scheme

Site type: Development / BioBank **Proposal ID:** BB8 **Date:** 09/01 **Recorder(s):** JP

Vegetation type: Black Box Open Woodland – low **AMG Zone** 55 **Easting/Northing:** — **Photos:** —

Native over-storey species list At 10 points along the 50-m transect	Regeneration (√) (zone)	**Native mid-storey species list** (>1m to <over-storey) At 10 points along the 50-m transect	**Native ground cover (grasses) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (shrubs) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Native ground cover (other) species list** (ground stratum <1m) At 50 points along the 50-m transect	**Exotic plants species list** At 50 points along the 50-m transect	**Fallen logs** (min. 10 cm diameter x 50 cm long) (20 x 50m plot)
	1.0	1 1	1 1 1 1 1		1	1 1	
			1 1 1 1 1				
			1 1 1 1 1				
			1 1 1 1				
Total number of species = 1 Foliage cover (%) = 100% Benchmark value (%FC) = Average crown diameter = 5m Average foliage cover (%) = Number of trees = Sample area = **Whole zone** Number of trees with hollows = 0 Sample area = 20x50m Benchmark value =		Total no of species = 2 Foliage cover (%) =	Total no of species = 19 Foliage cover (%) =	Total no of species = 0 Foliage cover (%) =	Total no of species = 1 Foliage cover (%) =	Total no of species = 2 Foliage cover (%) =	Total (m) = 0 Benchmark (m) =

SITE AND OTHER NOTES:

NB: Transects / plots should be placed randomly with the minimum number required for the zone in accordance with Table 4 of the Operational Manual.

BB8

Floristic datasheet – 20 m X 20 m quadrat

10 F1 13 Jan 15

No.	Species	Cover/abundance Score (see table above)
1	E. longiflorum ✓	2
2	Elymus scaber ✓	4
3	Rytidosperma (S) setaceum ✓	3
4	Avena barbata ✓	1
5	Austrostipa scabra subsp scabra ✓	2
6	Sida corrugata ✓	2
7	Bare ground ✓	3
8	Juncus usitatus ✓	1
9	Dolypoly Sclerolaena muricata ✓	1
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Exotic

Non plant

X

X

Total species	8
Total native species	7
Total exotic species	1
% perennial native understorey cover*	NA

* Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers with a lifecycle of more than two growing seasons

BBS

Floristic datasheet – 20 m X 20 m quadrat

Project Number:	~~bio1076~~ 610.14072
Project Name:	Eurdey Farm EIS
Waypoint (plot_ID):	~~BNT~~ BBS
Observer:	Fiona Tolin
Date:	09/01/2015
Veg Zone:	Black Box Ieq
Easting:	
Northing:	
Elevation:	
Bearing:	307
Photo Number:	
Notes	

Cover/Abundance Scores

1	Present but uncommon
2	< 5 % and common
3	6-20 %
4	21 – 50 %
5	51 – 75 %
6	> 75%

LIKELIHOOD OF OCCURRENCE TABLE

KEY

Status	The "*threatened species*" or "*endangered ecological community*" listing in the *Threatened Species Conservation Act 1995*
V	Species listed as "*Vulnerable*"
E1	Species listed as "*Endangered*"
E4A	Species listed as "*Critically Endangered*"
E2	An "*endangered population*"
E	An EEC listed as "*endangered*"
CE	An EEC listed as "*critically endangered*"
On site	Yes/No
LoO	Likelihood or Occurrence - the probability of a threatened species occurring on the site
P	Present or recorded on the subject site
H	High likelihood of occurrence
M	Moderate likelihood of occurrence
L	Low likelihood of occurrence
N	No potential relevance

NOTES

- The table below is based on data obtained from the recently reformed Atlas of NSW Wildlife website http://www.bionet.nsw.gov.au/, and the following notes accompany this dataset.
- In addition, the following species and communities were identified as being relevant in the SEARs: Sandhill Spider Orchid *Caladenia arenaria*, Bindweed *Convolvulus tedmoorei*, Small Scurf-pea *Cullen parvum*, Oaklands Diuris *Diuris* sp. (Oaklands, D.L. Jones 5380), Austral Pillwort *Pilularia novae-hollandiae*, Lanky Buttons *Leptorhynchos orientalis*, Regent Honeyeater *Anthochaera Phrygia*, Glossy Black Cockatoo *Calyptorhynchus lathami*, *Allocasuarina luehmannii* Woodland, Sandhill Pine Woodland, Inland Grey Box Woodland and Myall Woodland.
- Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions.
- Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°).
- Copyright the State of NSW through the Office of Environment and Heritage.
- Search criteria: Licensed Report of all Valid Records of Threatened (listed on TSC Act) Entities in selected area [North: -34.61 West: 146.16 East: 146.38 South: -34.79] returned a total of 132 records of 11 species.
- Report generated on 09/02/2015 4:42 PM

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
Fabaceae – Faboideae						
Silky Swainson-pea *Swainsona sericea*	Species	N	V	Low prostrate herb that can be identified by its foliage in spring to autumn, as well as its purple flowers in spring to summer. Occurs in Box-Gum Woodland in the Southern Tablelands and South West Slopes and is sometimes found in association with cypress-pine *Callitris* spp.	L	BioNet
Small Scurf-pea *Cullen parvum*	Species	N	E	Small perennial tri-foliate leaf pea with flowers also in threes and appearing in summer. Species is known to inhabit River Red Gum Woodland and Box-Gum Woodland usually adjacent to watercourses.	N	SEARs
Orchidaceae						
Sand-hill Spider Orchid *Caladenia arenaria*	Species	N	E	Typical spider orchid characterised by five long, spreading petals and sepals around a broad down-curled labellum. The species is best identified when in flower, typically within a few weeks from late August to early October. The species is currently only known to occur in the Riverina between Urana and Narranderra and occurs in woodland with sandy soil, especially that dominated by White Cypress Pine (*Callitris glaucophylla*).	L	SEARs
Oaklands Diuris *Diuris sp. (Oaklands, D.L. Jones 5380)*	Species	N	E	Characteristic donkey orchid appearance with distinct white and purple flowers (as opposed to the typical yellow) appearing in November. Known to inhabit White Cypress Pine Woodland, growing mostly on sandy loam soils.	L	SEARs
Convolvulaceae						
Bindweed *Convolvulus tedmoorei*	Species	N	E	Trailing perennial herb with two funnel-shaped flowers in leaf axil, likely to be present in August and September months. Distinguished from other Bindweeds by the more prostrate and fleshy habit, coarse stems and larger capsules and seeds. Grows in self-mulching grey clay soils on the floodplains of the Darling and Murrumbidgee Rivers. Species has been detected in Riverine Plain Grasslands and Woodlands.	L	SEARs
Marsileaceae						
Austral Pillwort *Pilularia novae-hollandiae*	Species	N	E	A semi-aquatic fern, resembling a small fine grass to 8cm height. Grows in shallow swamps and waterways, often amongst grasses and sedges. Requires periodically waterlogged site (including table	L	BBCC SEARs

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
				drains) where it is best detected when soils are drying out. Relevantly, in the Murrumbidgee area it has been recorded in Black Box-Lignum woodland and in modified environments including table drains, road verges and ploughed paddocks.		
Asteraceae						
Lanky Buttons *Leptorhynchos orientalis*	Species	N	E	Erect single or multi-stemmed annual forb to 30cm height with linear leaves and yellow flowerheads. Occurs in woodland and grassland, sometimes on the margins of swamps. Known from Bimble Box and Weeping Myall vegetation types. Best detected when flowering in Spring.	L	SEARs
Mossgiel Daisy *Brachyscome papillosa*	Species	N	V	Endemic to NSW and chiefly occurs within the Riverina Bioregion, from Mossgiel in the north, Murrumbidgee Valley (Yanga) National Park in the south west to Urana in the south east. Recorded primarily in clay soils on Bladder Saltbush (Atriplex vesicaria) and Leafless Bluebush (Maireana aphylla) plains, but also in grassland and in Inland Grey Box (Eucalyptus microcarpa) - Cypress Pine (Callitris spp.) woodland. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC
Brassicaceae						
Winged Peppercress *Lepidium monoplocoides*	Species	N	E	Widespread in the semi-arid western plains regions of NSW. Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by *Allocasuarina luehmannii* (Bulloak) and/or eucalypts, particularly *Eucalyptus largiflorens* (Black Box) or *Eucalyptus populnea* (Poplar Box). The species is highly dependent on seasonal conditions. Occurs in periodically flooded and waterlogged habitats and does not tolerate grazing disturbance.	L	BBCC
AMPHIBIANS						
Hylidae						
Southern Bell Frog *Litoria raniformis*	Species	N	E1	Large olive to bright green patterned frog with a turquoise blue under-thigh and a growling call in breeding season. Usually found in or around permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and River Red Gum swamps along floodplains and river valleys. Will use non-native vegetation such as	N	BioNet

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
				rice fields. Breeding occurs from early spring to late summer following flooding or significant rainfall events. During breeding season they are found amongst aquatic vegetation in still or slow flowing waterbodies, outside breeding season they move away from the water and are found amongst timer, rocks, soil and vegetation.		
AVES						
Accipitridae						
Little Eagle *Hieraaetus morphnoides*	Ecosystem	N	V	Medium-sized bird of prey with dark or pale brown colouring and distinctive underwing patterns. Occupies open eucalypt forest and woodland, also utilising riparian, sheoak or *Acacia* woodlands of interior NSW. Wide distribution through Australia excluding densely vegetated areas of the Great Divide. Large stick nests built in winter with eggs laid during spring.	L	BioNet BBCC
Spotted Harrier *Circus assimilis*	Ecosystem	N	V	Occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges. Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC
Anatidae						
Freckled Duck *Stictonetta naevosa*	Ecosystem	N	V	Found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. Breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	N	BBCC
Burhinidae						
Bush Stone-curlew *Burhinus grallarius*	Ecosystem	N	E1	White and brown streaked bird with large yellow eyes and long thin legs. Occurs in woodlands and open forests with a grassy layer and	L	BioNet BBCC

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
				fallen timber. Eggs are laid between spring and early summer. Nests are built on bare patches on the ground.		
Rostratulidae						
Australian Painted Snipe *Rostratula australis*	Ecosystem	N	E1	Small wader with brown-grey patterned plumage, white band around the eye and white underside. Inhabits the edges of swamps, marshes and dams with a cover of grass, shrubs or timber. Forages at night in shallow water or on mudflats. Distributed throughout Australia, more commonly found in the south than north particularly the Murray-Darling region. Breeding occurs between September and December, nesting on the ground among tall vegetation.	N	BioNet BBCC
Cacatuidae						
Major Mitchells *Lophochroa leadbeateri*	Ecosystem	N	V	Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Feeds mostly on the ground. Nesting, in tree hollows, occurs throughout the second half of the year; nests are at least 1 km apart, with no more than one pair every 30 square kilometres. Distributed throughout interior Australia, found across the arid and semi-arid inland. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC
Glossy Black-Cockatoo Riverina population ^^*Calyptorhynchus lathami*	Species	N	E2	Occurs on hills and ridges containing stands of Drooping Sheoak (*A. verticillata*). Feeds almost exclusively on Drooping Sheoak. This population is found in the Narrandera Range and to the north-west in the Brobenah Hills, McPhersons Range, Cocoparra Range, Lachlan Range and Jimberoo State Forests, and the Naradhan Range. Nests in large Eucalypt hollows often along drainage lines.	L	SEARs
Estrildidae						
Diamond Firetail *Stagonopleura guttata*	Ecosystem	N	V	Widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Cental and South Western Slopes and the North West Plains and Riverina. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum *Eucalyptus pauciflora* Woodlands. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
Falconidae						
Grey Falcon *Falco hypoleucos*	Species	N	E	Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC
Gruidae						
Brolga *Grus rubicunda*	Ecosystem	N	V	Abundant in the northern tropics, but very sparse across the southern part of its range. Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. Black Box Lignum woodland, Black Box grassy open woodland	L	BBCC
Pachycephalides						
Gilbert's Whistler *Pachycephala inornata*	Ecosystem	N	V	Distributed over much of the arid and semi-arid zone of inland southern Australia, from the western slopes of NSW to the Western Australian wheat belt. Often recorded in mallee shrublands, but also occurs in box-ironbark woodlands, Cypress Pine and Belah woodlands and River Red Gum forests with a dense shrub layer. Forages on or near the ground in shrub thickets and in tops of small trees.	L	BBCC
Regent Parrot *Polytelis anthopeplus monarchoides*	Ecosystem	N	E	Principal foraging habitat is mallee woodlands, though foraging also occurs in riverine forests and woodlands, may utilise cereal crops and will feed on spilt grain. Nests within River Red Gum forests along the Murray, Wakool and lower Murrumbidgee. River. Distribution in NSW is around the Murray River and the lower Murrumbidgee River close to junction with Murray. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC
Turquoise Parrot *Neophema pulchella*	Ecosystem	N	V	Inhabits fringes of eucalypt woodlands, often adjacent to clearings, ridges and farmland creeks. Typically forages on the ground under trees. Distributed from southern Queensland to northern Victoria, extending from the coast to the western slopes of the Great Dividing Range. Nesting occurs from December to August in tree hollows.	L	BioNet

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
Superb Parrot *Polytelis swainsonii*	Ecosystem & Species	Y	V	Distinctive large, bright green parrot with red and yellow facial features and a long narrow tail. Occurs in Box-Gum, Box-Cypress pine and Boree Woodland and River Red Gum Forest. Forages in trees, shrubs and on the ground. Distribution is throughout eastern inland NSW. Breeding occurs from September to January. In the Riverina, nests in hollows of large trees in riparian River Red Gum forest or woodland. The Riverina region is considered to hold important breeding sites.	P	BioNet SLR
Climacteridae						
Brown Treecreeper *Climacteris picumnus victoriae*	Ecosystem	N	V	Small grey-brown bird with black streaking on the lower breast/belly and black bars on the undertail. Inhabits Box-Gum woodlands and dry open forest of inland slopes and plains. Preferred woodlands dominant by stringybarks or other rough-barked eucalypts. Forages in trees and on the ground. Endemic to eastern Australia, occurring from the coast to inland plains and western slopes of the great dividing range. Nests in tree or stump hollows greater than 6cm.	L	BioNet
Meliphagidae						
Regent Honeyeater *Anthochaera phrygia*	Species	N	E4A	Occurs in dry open forest and woodland, including Box-Ironbark woodland and riparian River Sheoak forests. Woodlands favoured have high species richness of birds, high number of mature trees and abundance of mistletoes Forages on a wide range of eucalypts and mistletoes as well as insects. Range occurs between north-east Victoria and south-east Queensland. Breeding occurs between July and January in Box-Ironbark forests and other woodlands containing River Sheoak.	N	SEARs
Pied Honeyeater *Certhionyx variegatus*	Ecosystem	N	V	Highly nomadic. Widespread throughout acacia, mallee and spinifex scrubs of arid and semi-arid Australia. Inhabits wattle shrub, primarily Mulga (*Acacia aneura*), mallee, spinifex and eucalypt woodlands, usually when shrubs are flowering; feeds on nectar, saltbush fruit, berries, seed, flowers and insects. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC
Painted Honeyeater *Grantiella picta*	Ecosystem	N	V	Nomadic. Greatest concentrations and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. Feeds on the fruits of	L	BBCC

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
				mistletoes growing on woodland eucalypts and acacias. Nests in outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.		
Pomatostomidae						
Grey-crowned Babbler *Pomatostomus temporalis temporalis*	Ecosystem	N	V	Fairly large brown babbler with distinctive white/grey crown and brow. Live in family groups of up to 15 birds. Inhabits Box-Gum woodlands on slopes, and Box-Cypress pine and Open-Box woodlands when on Alluvial plains. Distribution along most of the eastern side of Australia, particularly the western slopes of the Great Dividing Range. Breeding occurs between July and February. Several conspicuous dome-shaped nests are built and maintained in shrubs, sapling eucalypts or lower branches of larger eucalypts. Territories are usually around 10ha, but can be up to 50ha.	M	BioNet SEARs
Petroicidae						
Flame Robin *Petroica phoenicea*	Ecosystem	N	V	Small red, black and white (male) or brown and white (female) robin. Endemic to south eastern Australia, ranging from northern NSW to south east South Australia and Tasmania. In NSW, it breeds in upland areas, inhabiting tall open eucalypt forest, and in winter, many birds move to the inland slopes and plains. Breeding occurs in late spring to summer, nests are built in sheltered sites such as tree cavities, close to the ground.	N	BioNet
Hooded Robin *Melanodryas cucullata cucullata*	Ecosystem	N	V	Widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. The south-eastern form (subspecies *cucullata*) is found from Brisbane to Adelaide and throughout much of inland NSW. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Known to inhabit Black Box grassy open woodland, Black Box Lignum woodland.	L	BBCC
Strigidae						
Barking Owl *Ninox connivens*	Ecosystem	N	V	wide but sparse distribution in NSW, Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland.	L	BBCC

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
				Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species. Nests in mature eucalypts with hollows. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland. Floodplain Transition Woodlands		
Tytonidae						
Masked Owl *Tyto novaehollandiae*	Ecosystem	N	V	Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. There is no seasonal variation in its distribution. Lives in dry eucalypt forests and woodlands. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting. Pairs have a large home-range of 500 to 1000 hectares. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland.	L	BBCC
Neosittidae						
Varied Sitella *Daphoenositta chrysoptera*	Ecosystem	N	V	Inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Known to inhabit Black Box Lignum woodland, Black Box grassy open woodland. Floodplain Transition Woodlands	L	BBCC
Pedionomidae						
Plains-wanderer *Pedionomus torquatus*	Ecosystem	N	E1	A small quail-like bird with fawn plumage, straw yellow legs and bill. Best detected using spotlighting. Inhabits semi-arid, lowland native grasslands typically on hard red-brown soils with high plant diversity. Primarily found within the western riverina region. Breed throughout the year, requiring sparse native grassland with bare ground, grass, herb and forb and a small amount of leaf litter.	L	BioNet
MAMMALS						
Petauridae						
Squirrel Glider *Petaurus norfolcensis*	Species	N	V	The species is widely though sparsely distributed in eastern Australia, from northern Queensland to western Victoria. Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west	L	BBCC

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
				of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. Require abundant tree hollows for refuge and nest sites. Diet varies seasonally and consists of Acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein. . Known to occur in Black Box Lignum woodland, Black Box grassy open woodland.		
Vespertilionidae						
Little Pied Bat *Chalinolobus picatus*	Ecosystem	Y*	V	The Little-Pied Bat is found in inland Queensland and NSW (including Western Plains and slopes) extending slightly into South Australia and Victoria. Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress pine forest and mallee and Bimbil box woodlands. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. Can tolerate high temperatures and dryness but need access to nearby open water. Known to occur in Black Box Lignum woodland, Black Box grassy open woodland.	P	BBCC
Inland Forest Bat *Vespadelus baverstocki*	Ecosystem	Y*	V	Distribution and habitat requirements poorly known but has been recorded from a variety of woodland formations, including Mallee, Mulga and River Red Gum. Most records are from drier woodland habitats with riparian areas. Roosts in tree hollows and abandoned buildings. Known to roost in very small hollows in stunted trees only a few metres high.	P	BBCC
Yellow-bellied Sheathtail-bat *Saccolaimus flaviventris*	Ecosystem	Y	V	Wide ranging, occupies a large variety of habitats throughout NSW. Forages in most habitats across its wide range, with and without trees. Roosts in hollow-bearing trees, buildings and mammal burrows in treeless areas. Breeding has been recorded from December to mid-March. Seasonal movements are unknown.	P	SLR
ENDANGERED ECOLOGICAL COMMUNITIES						
Allocasuarina luehmannii Woodland		N	E	Dominated by Buloke *A. luehmannii*, sometimes with co-occurring tree species. An open tree canopy with a sparse and highly variable ground layer dominated by grasses and herbs, sometimes with scattered shrubs and/or small trees. Typically occupies patches of red-brown loamy sands with alkaline sub-soils on the alluvial plain of	N	SEARs

Species Name	Credit Type	On site	TSC Act	Habitat Requirements	LoO	Source
				the Murray River and its tributaries in south-western NSW.		
Sandhill Pine Woodland		N	E	Characterised by an open tree stratum, which may be reduced to isolated individuals or may be absent as a result of past clearing. The tree layer is dominated by *C. glaucophylla*, either in pure stands or with a range of other less abundant trees or tall shrubs. The community is typically associated with prior streams and aeolian source-bordering dunes.	N	SEARs
Inland Grey Box Woodland		N	E	Woodland in which the most characteristic tree species, Inland Grey Box *Eucalyptus microcarpa*, is often found in association with Bimble Box *E. populnea*, White Cypress Pine *Callitris glaucophylla*, Kurrajong *Brachychiton populneus,* Bulloak *Allocasuarina luehmannii* or Yellow Box *E. melliodora* and sometimes with White Box *E. albens*. Shrubs are typically sparse or absent and a variable ground layer of grass and herbaceous species is present at most sites. Occurs on fertile soils of the western slopes and plains.	N	SEARs
Myall Woodland		N	E	Occurs on red-brown earths and heavy textured grey and brown alluvial soils. The tree layer grows up to a height of about 10 metres and invariably includes *Acacia pendula* (Weeping Myall or Boree) as one of the dominant species or the only tree species present. The understorey includes an open layer of chenopod shrubs and other woody plant species and an open to continuous groundcover of grasses and herbs.	N	SEARs

*Probable Identification. Some possibility of confusion of calls with those of other bat species.

APPENDIX E

BIOABANKING CREDIT REPORTS

Biodiversity credit report

This report identifies the number and type of biodiversity credits required for a major project.

Date of report: 10/04/2015 Time: 11:19:29PM Calculator version: v4.0

Major Project details

Proposal ID:	0107/2015/1667MP
Proposal name:	Euroley Poultry Farm EIS
Proposal address:	Sturt Highway Euroley NSW 2700
Proponent name:	PROTEN Ltd
Proponent address:	2/66 Berry Street North Sydney NSW 2060
Proponent phone:	02 9458 1700
Assessor name:	Jeremy Pepper
Assessor address:	Level 3 10 Kings Road New Lambton NSW 2305
Assessor phone:	02 4037 3200
Assessor accreditation:	0107

Summary of ecosystem credits required

Plant Community type	Area (ha)	Credits created
Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	0.00	0.00
Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	0.46	5.98
White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone	0.29	9.58
Total	0.75	16

Credit profiles

1. Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MR517)

Number of ecosystem credits created	0
IBRA sub-region	MR - Murrumbidgee

Offset options - Plant Community types	Offset options - IBRA sub-regions
Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MR517) Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MR519)	MR - Murrumbidgee and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

2. Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MR518)

Number of ecosystem credits created	6
IBRA sub-region	MR - Murrumbidgee

Offset options - Plant Community types	Offset options - IBRA sub-regions
Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MR517) Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MR518) Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MR519)	MR - Murrumbidgee and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

3. White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone, (MR644)

Number of ecosystem credits created	7
IBRA sub-region	MR - Murrumbidgee

Offset options - Plant Community types	Offset options - IBRA sub-regions
White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone, (MR644) White Cypress Pine - Drooping Sheoak grassy open woodland of the Riverine Plain, (MR645) Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion, (MR649) Cypress Pine woodland of source-bordering dunes mainly on the Murray and Murrumbidgee River floodplains, (MR664) Slender Cypress Pine - Sugarwood - Western Rosewood open woodland on sandy rises mainly in the Riverina Bioregion and Murray Darling Depression Bioregion, (MR681)	MR - Murrumbidgee and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

4. White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone, (MR644)

Number of ecosystem credits created	3
IBRA sub-region	MR - Murrumbidgee

Offset options - Plant Community types	Offset options - IBRA sub-regions
White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone, (MR644) White Cypress Pine - Drooping Sheoak grassy open woodland of the Riverine Plain, (MR645) Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion, (MR649) Cypress Pine woodland of source-bordering dunes mainly on the Murray and Murrumbidgee River floodplains, (MR664) Slender Cypress Pine - Sugarwood - Western Rosewood open woodland on sandy rises mainly in the Riverina Bioregion and Murray Darling Depression Bioregion, (MR681)	MR - Murrumbidgee and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

Summary of species credits required

BioBanking Credit Calculator

Ecosystem credits

Proposal ID :	0107/2015/1667MP
Proposal name :	Euroley Poultry Farm EIS
Assessor name :	Jeremy Pepper
Assessor accreditation number :	0107
Tool version :	v4.0
Report created :	10/04/2015 22:58

Assessment circle name	Landscape score	Vegetation zone name	Vegetation type name	Condition	Red flag status	Management zone name	Management zone area	Current site value	Future site value	Loss in site value	Credit required for bio diversity	Credit required for TS	TS with highest credit requirement	Average species loss	Species TG Value	Final credit requirement for management zone
Big Circle	12.00	MR517_Moderate/Good_Medium	Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Moderate/Good_Medium	Yes	MR517A	0.00	54.67	54.67	0.00	0	0	Little Pied Bat	0.00	2.10	0
Big Circle	12.00	MR518_Low	Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Low	Yes	MR518_Cl	0.46	40.00	0.00	40.00	0	0		0.00	0.00	6
Big Circle	12.00	MR644_Moderate/Good	White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone	Moderate/Good	Yes	MR644_Cl_modgood	0.08	45.31	0.00	45.31	3	2	Inland Forest Bat	27.78	2.20	3
Big Circle	12.00	MR644_Low	White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone	Low	Yes	MR644_Cl_low	0.21	38.02	0.00	38.02	7	0		0.00	0.00	7

BioBanking Credit Calculator

Species credits

Proposal ID :

Proposal name :

Assessor name :

Assessor accreditation number :

Tool version : v4.0

Report created : 10/04/2015 22:58

Scientific name	Common name	Species TG value	Identified population?	Can Id. popn. be offset?	Area / number of loss	Negligible loss	Red flag status	Number of credits
			No					

APPENDIX F

EPBC ACT PMST RESULTS

Australian Government

Department of the Environment

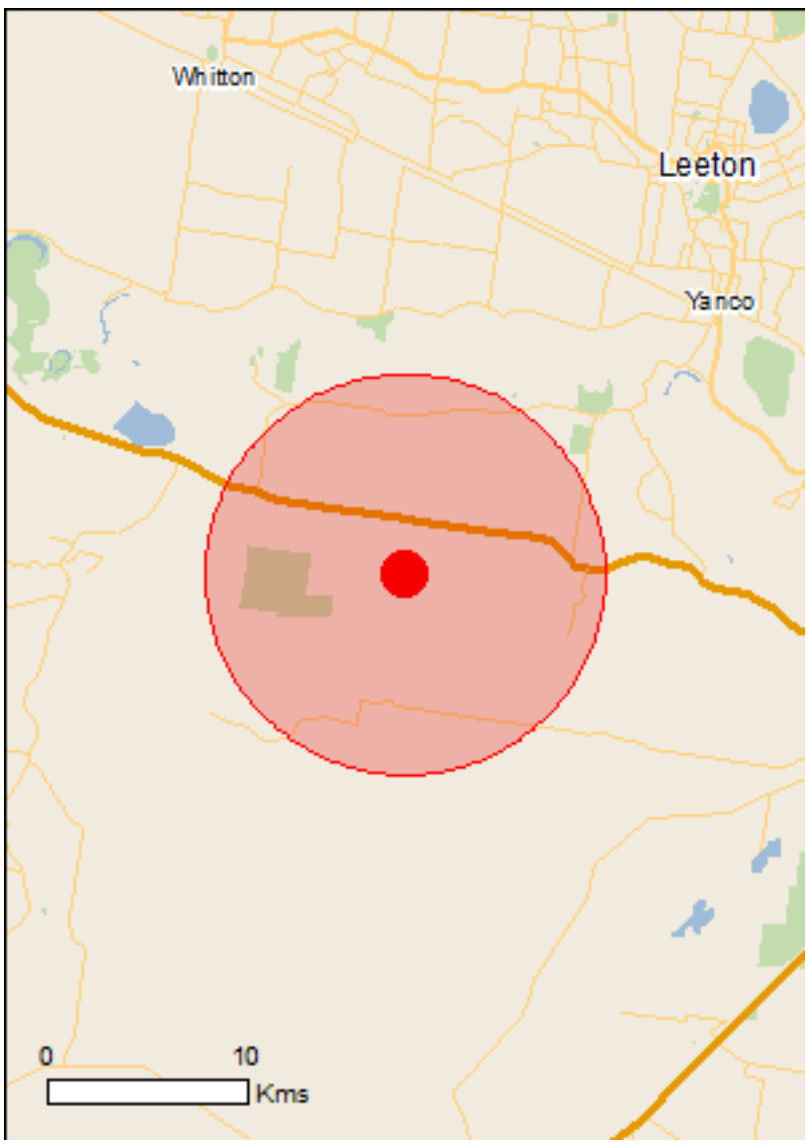
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 03/03/15 13:40:13



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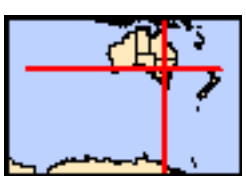

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	13
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	8
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	1
State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	22
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (RAMSAR) [Resource Information]

Name	Proximity
Banrock station wetland complex	Upstream from Ramsar
Coorong and lakes alexandrina and albert	Upstream from Ramsar
Nsw central murray state forests	Upstream from Ramsar
Riverland	Upstream from Ramsar

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Community may occur within area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Pedionomus torquatus Plains-wanderer [906]	Vulnerable	Species or species habitat may occur within area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Breeding known to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence within area
Fish		
Bidyanus bidyanus Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat may occur within area
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Frogs		
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog [1828]	Vulnerable	Species or species habitat known to occur within area
Mammals		
Nyctophilus corbeni South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Plants		
Brachyscome papillosa Mossgiel Daisy [6625]	Vulnerable	Species or species habitat likely to occur within area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat likely to occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

Places on the RNE [Resource Information]

Note that not all Indigenous sites may be listed.

Name	State	Status
Natural		
Dry Lagoon Area	NSW	Indicative Place

State and Territory Reserves [Resource Information]

Name	State
Murrumbidgee Valley	NSW
South West Woodland	NSW

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Coordinates

-34.702 146.2682

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Geoscience Australia
-CSIRO
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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