Department of Planning and Environment

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Senders ref: SSI-9172452

Mr Iwan Davies
Team Leader
Energy Resource Assessment
Department of Planning and Environment

Via Major Projects Portal: PAE-35178734

4 March 2022

Dear Iwan

Subject: **Environmental Impact Statement - EnergyConnect (NSW Eastern Section) (SSI 9172452)**

Thank you for your email dated 17 January 2022 about the EnergyConnect NSW Eastern Section (SSI-9172452) seeking comments from the Biodiversity and Conservation Division (BCD) of the Department of Planning and Environment (the Department) on the Environmental Impact Statement (EIS) exhibited 19 January 2022.

We have reviewed the EIS against the Secretary's Environmental Assessment Requirements (SEARs) for biodiversity assessment issued by the Department on 2 October 2020.

BCD considers that the EIS meets the Secretary's requirements for flooding. A summary of our assessment, advice and recommended actions for flooding is provided in **Attachment A.** Detailed comments on flooding are in **Attachment B**.

The EIS requires substantial revision in order to meet the Secretary's requirements for biodiversity. A summary of our assessment, advice and recommended actions is provided in **Attachment C.** Detailed comments on biodiversity are in **Attachment D**.

The Biodiversity Development Assessment Report (BDAR) does not currently meet the minimum requirements of the Biodiversity Assessment Method (BAM). Key issues include:

- inadequate consideration of potential impacts, including prescribed and serious and irreversible (SAII) impacts
- insufficient detail has been provided about measures to mitigate, monitor, and manage impacts
- underestimation of residual impacts and the resulting credit requirement.

The BDAR will need to be revised so that it is consistent with the BAM. This will ensure the calculation of security to offset the impact of the development on biodiversity adequately meets any credit liability.

BCD requires further information to complete the Matters of National Environmental Significance (MNES) assessment. This includes adequate consideration of potential impacts to entities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and detail about measures to mitigate, monitor, and manage impacts.

All plans required as a Condition of Approval that relate to biodiversity should be developed in consultation with and to the satisfaction of BCD, to ensure that issues identified in this submission are adequately addressed.

If you have any questions about this advice, please contact Andrew Fisher, Senior Team Leader, via rog.southwest@environment.nsw.gov.au or 02 6022 0623.

Yours sincerely

Adam Vey
Director
South West Branch
Biodiversity and Conservation Division
Department of Planning and Environment

ATTACHMENT A – BCD Assessment Summary for Flooding – EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

ATTACHMENT B – Detailed comments for Flooding – EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

ATTACHMENT C – BCD Assessment Summary for Biodiversity – EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

ATTACHMENT D – Detailed comments for Biodiversity – EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

ATTACHMENT A BCD Assessment Summary for Flooding – EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

1.	*Issue*	The qualitative flood risk assessment completed as part of the EIS does not fully satisfy the submitted BCD environmental assessment requirements related to flooding. **Recommended action:** • Complete quantitative flood modelling and assessments in the detailed design phase for infrastructure located in floodplain areas, with the aim of reducing flood impacts to acceptable levels of risk.
	Extent and Timing	Pre-construction
	Recommended Conditions of Approval	*In the detailed design phase, the proponent will complete flood modelling and assessments on infrastructure located in floodplain areas, to reduce flood impacts to acceptable levels of risk, to the satisfaction of BCD.*

ATTACHMENT B Detailed comments for Flooding - EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

BCD has reviewed the flooding component in Section 16 (Hydrology, flooding, and water quality) of the EIS and Technical paper 8 (Hydrology and flooding impact assessment). We agree that it is an assessment of the potential flooding impacts and risks of the project consistent with the general nature of the SEARs.

However, the EIS (Section 16 and Technical Paper 8 - Hydrology and flooding impact assessment including the preliminary flood risk assessments for the study area in Appendix A) does not address the Department's environmental assessment requirements related to flooding.

BCD acknowledge that the infrastructure design has not progressed to a stage where site-specific flood impact can be assessed consistent with the Department's requirements. Since flood impacts of the project are likely to be minor, flood modelling and assessment in the detailed design stage should aim to reduce any identified flood impact to an acceptable level through design modifications. That work should focus on infrastructure located in floodplain areas.

The aim of the assessment should be to determine the potential flood effects on other developments or land. That should include redirection of flow, changes to flow velocity, flood levels, hazards, and hydraulic categories. If any flood impacts are determined to be real and prejudicial, then the designs must be modified to reduce the impacts to an acceptable level.

Recommended action

- Complete quantitative flood modelling and assessments in the detailed design phase for infrastructure located in floodplain areas, with the aim of reducing flood impacts to acceptable levels of risk.

ATTACHMENT C BCD Assessment Summary for Biodiversity – EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

Key Issues

1	General administration	The BDAR does not meet certification requirements of the BAM **Recommended action:** 1.1 BDAR must be certified by lead Accredited Assessor including a declaration statement signed and dated including BAM Accreditation number.
	Extent and Timing	Pre-determination

2.	Introduction	**Report terminology is inconsistent, and impacts have not been clearly or fully described** Glossary and Report terminology requires updating for consistency. There are inconsistencies between the glossary and report terminology throughout the BDAR. These inconsistencies impact the interpretation of the BDAR. Operational activities for the life of the project have not been specified, including maintenance procedures. Treatment of hazard trees has not been clearly described and development consent will not authorise the clearing of trees outside the assessed footprint. **Recommended actions:** 2.1 Clarify terms used for the assessment in the glossary and use these consistently throughout the BDAR. 2.2 Fully describe the construction activities, including techniques and machinery, to inform the impact assessment. 2.3 Describe the operational activities for the life of the project, including specifying maintenance procedures that are identified in the assessment (mitigation and easement management). 2.4 Include identification and removal of hazard trees and assess the impacts according to the BAM. 2.5 Specify how offset calculations will be revised if there are changes to the assessed impact zones during the detailed design phase.
	Extent and Timing	Pre-determination

3.	Landscape Context	**Landscape assessment is incomplete** Buffers require review for site-based application. Sources of information used to determine native vegetation and vegetation cover must be demonstrated. **Recommended actions:** 3.1 Update landscape assessment buffers to include both site based and linear buffers as appropriate. Review percent native vegetation categories at completion. 3.2 Identify and provide a review of the potential waterbird movement areas that may be impacted by the proposal.
	Extent and Timing	Pre-determination

Native vegetation

4.	Native Vegetation	**Outcomes of Category 1 land assessment, including land not accessed, are not justified** The BDAR does not discuss properties not accessed for field survey or the outcomes of the Category 1 assessment. **Recommended actions:** 4.1 Update section 4.2 to include a table which states the area that could and could not be accessed. Where land could not be accessed, provide the comparison of area of native and non-native vegetation. 4.2 Update section 4.2 to include assessment of conflicting land categorisation and how these areas were treated in the BAM. 4.3 Include a table in section 4.2 that outlines the area (ha) and percentage of total area of the subject land mapped as category 1 land for each subregion. 4.4 Justify the allocation of PCTs in non-accessed lands when the allocation is different to the PCT on adjacent land verified during the field survey. Areas field verified are indicated by spatial data.
	Extent and Timing	Pre-determination

5.	Native Vegetation	**Not all ancillary facility impacts have been included in the 'verified vegetation impacts' dataset** Some ancillary facilities have been included in the spatial data of ancillary facilities but not in the vegetation impacts spatial layer. **Recommended actions:** 5.1 Update vegetation zone mapping to include native vegetation associated with all ancillary facilities including new access tracks to laydown sites and accommodation camps. 5.2 Update the scattered tree assessment to capture all scattered trees for the Urana-Lockhart Road accommodation camp, and

		any other ancillary facilities with scattered trees where they are currently not assessed.
	Extent and Timing	Pre-determination

6.	Native Vegetation	**The vegetation integrity plots should adequately sample vegetation variability across a vegetation zone and be within relative proximity of the vegetation zone impacted, including within the subregion** The approach taken to define PCTs and assign plots to vegetation zones lacks clarity, is not consistent with the BAM, and lacks supporting evidence. **Recommended actions:** 6.1 Update PCT selections to include additional justification. For each BOAMS case, review how PCT was determined consistent with the BAM including evidence of source information (including plots) and endorsement from BCD. 6.2 Include more detail about plot locations and justify them with BCD. This consultation should include ensure plot locations and the number of plots for each subregion are adequate and appropriate along the length of the project. 6.3 Prepare a plot justification table, indicating plots outside the vegetation zone and plots that have been used more than once.
	Extent and Timing	Pre-determination

7.	Native vegetation	**High Threat Weeds are not discussed** **Recommended action:** 7.1 Include a general discussion around High Threat weeds and prepare a new table of all High Threat Weeds recorded and the plots identifier/s in which each species was recorded.
	Extent and Timing	Pre-determination

8.	Native vegetation	**Scattered tree assessments require review** The Scattered Tree module may not be applied when the: • scattered tree is itself a threatened species, or when candidate species credit species (flora or fauna) have been recorded using it • impact is likely to be serious and irreversible (SAII). Assumptions about use of scattered trees are not justified. Scattered trees are likely to have been missed in the assessment. **Recommended actions:**

		8.1 Update the scattered tree assessment to capture all scattered trees for the Urana-Lockhart Road accommodation camp and any other ancillary facilities with scattered trees. 8.2 Provide scattered tree spatial data for verification. 8.3 Provide justification and reasoning for the assumption that no candidate species credit species would be using the scattered trees for habitat. 8.4 Provide justification and reasoning for the assumption that impacts on scattered trees are not likely to be SAII.
	Extent and Timing	Pre-determination

Threatened species

9.	Threatened species	**The threatened species survey effort lacks evidence and is not consistent with the BAM** Candidate threatened species included and excluded in the BDAR do not match the Calculator credit reports. There are conflicts in the reported survey effort, which is likely to be lower than prescribed by the BAM. The mapped effort (BDAR Appendix C5) does not match the described method (Appendix C3) and does not cover all vegetation zones. **Recommended actions:** 9.1 Complete a thorough review of predicted and candidate species surveys, including justification of candidate inclusion and exclusion for each subregion. 9.2 Review the survey effort for candidate species and associated PCTs to ensure survey effort is consistent with the BAM.
	Extent and Timing	Pre-determination

10.	Threatened species	**The polygons representing species credit species lack clarity and rigour** It is not explained why vegetation zones with associated PCTs have been excluded from species polygons. Some species polygons for species assumed to occur within the subject site do not conform with BAM s6.4.1.30. If there is no survey, species must be assumed to occur if an associated PCT occurs on site or be excluded with an expert report. Areas of known and assumed presence species polygons in the spatial data do not match the BOAMS case data. The fauna candidate species polygons are poorly justified and decisions about lack of suitable habitat are not supported by evidence. **Recommended actions:** 10.1 Conduct a consistency review of associated PCTs land where species polygons have not been prepared targeted surveys have not been completed, or where no access was granted.

		10.2 Update the GIS spatial data for each candidate species and each associated PCT to include outcomes of survey and assumed presence where no surveys were completed (due to no access or other constraints) and provide justification for each candidate species associated PCT polygons for exclusion (in part or in full). 10.3 Update assumed presence species polygons after completion of the above tasks.
	Extent and Timing	Pre-determination

Matters of National Environmental Significance (MNES)

11.	Matters of National Environmental Significance	The potential association between Plains Mallee-Box Woodland CEEC and PCT 173 has not been considered. Assessment of the Mallee Bird Community of the Murray Darling Depression Bioregion requires detailed consideration. **Recommended actions:** 11.1 Include a justification for the absence of PCT 173 in the project area. If present, include an assessment of PCT 173 against the EPBC-listed Plains Mallee Box Woodland CEEC and provide evidence about how patches of PCT 173 within the survey area conform to the listing advice. 11.2 Include the EPBC listed Mallee Bird Community of the Murray Darling Depression Bioregion within Section 7 of the BDAR. Assess the impacts on the Mallee Bird Community of the Murray Darling Depression Bioregion and provide detail.
	Extent and Timing	Pre-determination

Avoid and minimise impacts

12.	Avoid and Minimise	**Avoid and minimise measures have not been adequately addressed** The BDAR does not demonstrate avoidance and minimisation of prescribed impacts associated with connectivity, or that uncertain impacts associated with bird collision have been avoided. Specific measures for clearing have not been provided to support statements that biodiversity impacts, including impacts to Plans-wanderer habitat, will be avoided and minimised during construction and maintenance. The criteria for constraints presented in the EIS (section 3.3.1.2) are flawed regarding protected areas and legislative responsibilities. **Recommended actions:** 12.1 Provide a detailed analysis of the risk of collision to fauna, including identifying areas of highest risk, and how they are being avoided or minimised.

		12.2 Ensure that all avoid and minimise measures proposed in the BDAR are documented in Table 10-1, and that they are feasible and achievable. 12.3 In the revised BDAR, detail required vegetation maintenance outcomes, including an interpretation of how they are reflected in EMPs and operational protocols.
	Extent and Timing	Pre-determination

Assessment of impacts

13.	Impact Assessment	**The assessment of direct impacts on native vegetation and threatened species habitats is inconsistent** Determination of vegetation integrity decline in the Disturbance Area B4 and B10 requires review. Prescribed impacts are underestimated and lack any species-specific evidence-based justification for lack of impacts. Credits for direct impacted scattered trees do not match BOAMS case data. Impact areas do not match the supplied spatial data. **Recommended actions:** 13.1 Revise the nine BOAMS cases to better reflect the spatial data so that BCD can test and repeat the calculations to validate the reliability of the Calculators. 13.2 Consult with BCD to further develop agreed partial impact definitions for Composition, Structure and Function and the application of partial impacts in the B4 and B10 disturbance areas. 13.3 Document and explain with supporting references why specific percent reductions in VI scores were chosen, including supporting assessments or literature to support assumptions. 13.4 Document the discussions with BCD and agreed outcomes for future vegetation integrity scores of PCTs that are also impacted by Project EnergyConnect (Western). 13.5 Complete a consistency review of all subregion data to ensure TECs are correctly identified in each related case and impact areas in Table 9-8 and BOAMS data are consistent and correct. 13.6 Conduct a review of all Tables in s9.1.5 of the BDAR to ensure they are consistent with the outputs for each subregion scattered tree assessment. 13.7 Ensure data presented in the BDAR is consistent with spatial data. 13.8 Provide shapefiles with areas that correspond exactly with what is presented in the BDAR tables and each related case in BOAMS. 13.9 Provide all spatial and digital data (excluding jpegs) required by BAM Appendix K at the time of submission of the revised

		BDAR. Vegetation zones must be clearly identified as per BAM-C and the BDAR and be attributed to species polygon data.
	Extent and Timing	Pre-determination

14.	Impact assessment	**There is no justification for indirect credit ratios and species selected for indirect impact offsets** The use of additional biodiversity credits to offset the loss of indirect impacts as result of bird strike and EMF may be appropriate, however the BDAR does not provide any evidence-based justification for applying 10% to impacted habitat in the Calculator. There is no evidence to support the selection of areas of indirect impact for the small group of selected species. The list of species is not representative of those expected to occur. The type and severity of indirect impact is likely to vary for different species and should be assessed accordingly. Trampling of threatened flora is addressed for species that were not recorded in the project area but is not considered for threatened plants that were recorded. The assessment should consider impacts other than trampling that are likely to occur due to removal of mallee trees, such as changes to factors such as shading, soil disturbance and runoff, to the range of flora species present. **Recommended actions:** 14.1 Update the indirect impact assessment to use evidence-based justification for any proposed additional biodiversity offsets. 14.2 Prepare a table of ecosystem and species credit species likely to require additional indirect impact offsets including identification of at-risk species, behaviours, and locations. For each species, provide justification for the use of any surrogate species entered in the Calculator. 14.3 Review indirect impacts to known threatened flora populations. Consider if extra assessment of direct or indirect impacts is required, and if subsequent additional offset requirements and/or adaptive management strategies for uncertain impacts are needed.
	Extent and Timing	Pre-determination

Prescribed impacts

15.	Prescribed Impacts	**Prescribed impacts are underestimated** The treatment of prescribed impacts underestimates the important terrestrial and aerial connectivity north and south of the line. There is no explanation of the limited list of threatened species assessed for prescribed connectivity impacts. This assessment should be expanded to identify all threatened species with the potential to be impacted, include a discussion of mobility, abundance, range, and other relevant life history factors, and specify methods of mitigation. Offsets should be proposed for all residual prescribed impacts to connectivity. The impacts of co-locating the transmission parallel to an existing transmission line have not been adequately addressed. The assessment does not include an analysis of impacts in accordance with section 8.3.3 (b) of the BAM. There is no explanation of how the co-location of powerlines has minimal connectivity impacts to fauna. The analysis of the increased likelihood of vehicle strike during construction and operation/maintenance does not include mitigation or avoidance. **Recommended actions:** 15.1 Pre-construction and post-construction fauna connectivity states should be spatially represented within the BDAR in accordance with Section 6.1.3 of the BAM. The post-construction fauna connectivity state should provide indicative locations of any proposed fauna features to be installed. 15.2 Prescribed impacts to connectivity for threatened species should be revised to include all threatened species likely to be affected by the proposed development. 15.3 Avoidance and mitigation measures should be proposed which contribute to the recovery of the entities that could be impacted by prescribed impacts. 15.4 Residual prescribed impacts to the connectivity of threatened species which are likely to occur after the proposed avoidance and mitigation measures are implemented should be identified. 15.5 If residual prescribed impacts are identified, measures for offsetting residual prescribed impacts should be proposed in accordance with Section 7.14(4) of the BC Act and Section 6.1(2)(b) of the BC Regulation 2017.
	Extent and Timing	Pre-determination

Mitigation and management of impacts

16.	Mitigation and management of impacts	**Mitigation and management measures require further detail** There is not enough detail about measures to mitigate, monitor and manage impacts to have confidence that the calculated credit requirement will sufficiently offset residual impacts of the development. The success of impact mitigation will depend entirely on how well post-approval construction and operation management plans are implemented. It is it difficult to determine likely success because these plans have not been prepared. The mitigation and management measures outlined in the BDAR do not provide enough information to inform the post-approval plans and are likely to underestimate the potential harm. The risk of mitigation failure has not been addressed nor monitoring actions to determine if the measures have failed. BAM Section 8.4 outlines the requirements for a mitigation strategy which provides the level of detail that BCD expect to see in the BDAR. **Recommended actions:** 16.1 Provide specific mitigation measures and detail according to BAM s8.4 and the BAM Stage 2 Operational Manual. 16.2 Provide further detail about measures to mitigate, monitor and manage potential impacts, including risk of failure. This detail should be prepared to ensure that the calculated credit requirement will sufficiently offset residual impacts of the development. 16.3 Identify criteria and prepare maps of zones/areas mentioned in Table 10-1 (Measure B20) that inform detailed design and future construction and operational management plans - biodiversity exclusion zones (Measure B11) and areas of high biodiversity conservation significance (Measure B1, B19, B20). 16.4 Interpret the vegetation integrity scores of the assessed zones to produce specific vegetation maintenance outcomes and specify how these are to be implemented in EMPs and operational protocols. 16.5 Prepare a Preliminary Connectivity Strategy prior to project approval to be further developed and finalised during detailed design (in consultation with BCD), establishing the objectives for managing and mitigating fauna connectivity during project design and construction. It should provide the framework for the continued development of the design and management measures into subsequent phases of the project.
	Extent and Timing	Pre-determination

Impact summary

17.	Impact Summary	**SAII candidates have not been adequately assessed** The SAII assessment of threatened flora and TECs lacks clarity and does not address all assessment criteria. For example, the SAII assessment for *Pilularia novae-hollandiae* includes information that is conflicting, is confused by assumed presence species polygons, and has not addressed the key threat to the species (drainage of swamps). It is difficult accurately assess the impacts to this SAII species when the impacts are misrepresented in the BDAR and the spatial data. The BDAR states impacts to threatened flora candidates for SAII will be avoided through design refinements and provides actions based on general principles. There are no details regarding how the actions will be applied at the known locations of SAII candidate flora. **Recommended actions:** 17.1 Provide clarification in the spatial data and BDAR as to the impacts to *Pilularia novae-hollandiae* and *Pimelea serpyllifolia* subsp. *serpyllifolia* and update the SAII assessment to address assessment criteria in accordance with section 6.7 (2) (a-d) of the BC Regulation 2017. 17.2 Review all SAII assessments to include accurate areas to be impacted and review against each assessment criteria.
	Extent and Timing	Pre-determination

18.	Biodiversity Offset Strategy	A package to deliver the Biodiversity Offset Strategy is to be defined in consultation with BCD before project determination. The BDAR must be consistent with the BAM before the calculation of an offset fund security bond. **Recommended action:** 18.1 The revised BDAR should describe a package of measures to offset and mitigate the impacts on biodiversity. The Biodiversity Offset Package should be developed in consultation with BCD. The Package must include, but not necessarily be limited to: - details of the specific biodiversity offset measures to be implemented and delivered - the cost for each specific biodiversity offset measure - a bond that would be paid into the Biodiversity Conservation Fund if the other measures are not implemented and delivered. The bond is to be calculated in accordance with Division 6 of the *Biodiversity Conservation Act 2016* (NSW) and the offsets payment calculator - the timing and responsibilities for the implementation and delivery of the measures required in the Package - confirmation that the biodiversity offset measures will have been implemented and delivered before construction commences. Following project determination, the Proponent must implement and deliver the Biodiversity Offset Package.
	Extent and Timing	Pre-construction

ATTACHMENT D Detailed comments for Biodiversity - EnergyConnect (NSW Eastern Section) Environmental Impact Statement (SSI 9172452)

The Biodiversity Development Assessment Report (BDAR) at Technical Paper 1 (Parts 1 and 2) requires substantial review to meet the Secretary's requirements for biodiversity.

Specific comments on the BDAR and related sections in the EIS are as follows:

Biodiversity Development Assessment Report

General administration

1 The BDAR does not meet certification requirements of the BAM

The version control table at the front of the BDAR is not a surrogate for certification of the BDAR. There is no evidence that the Accredited Assessor (including name and accreditation number) has certified the BDAR to be true and correct under Section 6.15 of the BC Act 2016.

Recommended action

1.1 BDAR must be certified by the lead Accredited Assessor(s) including a declaration statement signed and dated with BAM Accreditation number.

Introduction

2 Report terminology is inconsistent, and impacts have not been adequately described.

Terminology

To avoid misinterpretation of aspects of the assessment during post-approval planning and project implementation, it is critical that terminology is simple and clearly defined in one section of the BDAR, and then used consistently throughout.

Assessment areas need to be consolidated, defined, and included in the Glossary. For example, some terms are not included in the glossary but described in Section 1.7 (page 10) - Report Terminology.

Section 4.4 explains that "*Vegetation mapping was completed over a 100-metre section of the proposal study area to inform avoidance measures during design development*". It is unclear if this 100-metre wide corridor is 50 metres either side of the proposed centreline. Section 1.4.4 describes a 1-kilometre wide corridor as the Proposal study area, and a Biodiversity Study Area as 200-metre-wide corridor for biodiversity surveys. Appendix 3 (figure A-3) shows a Native vegetation assessment area.

Characterising Disturbance Areas

The description of Disturbance Areas in Section 1.7 (page 11) is confusing. It is also partially duplicated in the description of the construction impact area.

Revision of Disturbance Area descriptions is required, including specifying the machinery that will be used to remove trees and tall-growing shrubs.

For example, the following do not appear to be identified in Disturbance Area A and included in the assessment, but should be considered:

- temporary and permanent sediment and stormwater controls
- stockpile locations for removed soil and vegetation (including root balls). Pushed trees and soil will result in total direct impact to biodiversity values, and these activities should be within the mapped direct impact zone. The method for soil removal and stockpiling must be in place before clearing commences for early works.
- hazard trees (identification and removal)

- gravel hardening of access tracks
- RFS requirement for groundcover management (i.e. slashing).

The assessed Area A should be revised if it is not large enough to contain these impacts.

It is misleading to state in both the EIS and BDAR that Disturbance Area B has no ground disturbance. Removal of the overstorey including root balls has ecological consequences for vegetation composition, structure, and functioning, and as fauna habitat. Activities for maintaining the reduced canopy will also have impacts on soils through compaction by vehicles reducing germination potential. The decision about what plants to remove during maintenance could further alter species composition and therefore habitat suitability for some species.

Operational activities

Section 1.4 of the BDAR needs to include a description of operational activities. Operational impacts are part of the BAM assessment so the activity must be described to allow the biodiversity impacts to be characterised and linked to the biodiversity mitigation measures.

Hazard trees

Development consent will not include clearing of trees outside the assessed footprint. Any clearing recommended by a qualified arborist may only be cleared if it is assessed consistent with the BAM. Such clearing must be avoided and minimised or included in the assessment.

It is unclear if Hazard Trees are included in Disturbance Area B. BCD understand that LiDaR data are flown for each of TransGrid's line proposals. We see no evidence that hazard trees or canopy intrusions have been identified and assessed for the proposal. In assessing other projects, BCD have established a level of understanding with TransGrid regarding the method and equipment used to remove trees, and how that impact is assessed. Such agreed approaches have not informed this assessment and will need to be addressed.

Changes to impact areas during detailed design

The discussion of mitigation in Section 10.2.1 indicates that the final design refinement phase will include additional survey in areas that were not previously subject to biodiversity survey. 'No access' polygons appear on survey results maps in appendices (e.g. Appendix B-5). Should the boundaries of disturbance areas A and B change, there is potential for harm to biodiversity that has not been assessed, or included in offset calculations, including MNES.

Recommended actions

2.1 Clarify terms used for the assessment in the glossary and use these consistently throughout the BDAR.

2.2 Fully describe the construction activities, including techniques and machinery, to inform the impact assessment.

2.3 Describe the operational activities for the life of the project, including specifying maintenance procedures that are identified in the assessment (mitigation and easement management).

2.4 Include identification and removal of hazard trees and assess the impacts according to the BAM.

2.5 Specify how offset calculations will be revised if there are changes to the assessed impact zones during the detailed design phase.

Landscape Assessment

3 Landscape assessment is incomplete

A 500-metre linear buffer has been correctly applied to the powerline project footprint. The proposal includes various ancillary facilities such as substations, accommodation camps, compounds and laydown areas. Most of these ancillary facilities are not linear in nature and a 1500

metre site-based buffer for the landscape assessment should be applied to these facilities. The site-based calculations should be included as part of the total percentage native vegetation for each subregion case (powerline and ancillary facilities) and still be selected as a linear based assessment in the Calculator.

Tables in Section 3.1 list rivers, streams, and important and local wetlands. There is no assessment of the potential connectivity between the wetlands, rivers or creeks for waterbirds or threatened fauna that prey on waterbirds. The BDAR needs to use the landscape information to predict how threatened biodiversity relate to the landscape (e.g. waterbirds flying between rivers and lakes), which should then be used to inform the impact assessment.

For example, we note the proximity of various Ramsar wetlands north and south of the proposed development and anticipate the line to have some effect on migration to, from and between these sites.

Recommended actions

3.1 Update landscape assessment buffers to include both site based and linear buffers as appropriate and review percent native vegetation categories at completion.

3.2 Identify and provide a review of the potential waterbird movement areas that may be impacted by the proposal.

Native vegetation

4 Outcomes of Category 1 land assessment, including land not accessed, are not justified

There is no discussion in Section 3 or 4 of the BDAR of the number of properties where there was no access. However, Appendix B-1 displays the areas that were not accessed for field surveys.

It would be beneficial to understand the portion of the subject land that could not be accessed but which most likely contains native vegetation and therefore requires assessment under the BAM. A table should be added to either Section 3 or 4.2 which details:

- the total development area (in hectares)
- the area (ha and %) that could be accessed and could not be accessed
- for the area that could not be accessed - the area considered to be non-native vegetation or cropped land (Category 1) to the area of native vegetation.

There is no discussion of the outcomes of the Category 1 assessment as it applies to the project.

There is no discussion of how data were treated in the process of overlaying of spatial layers if it produced conflicting results. For example, where category 1 and category 2 land was mapped for the same vegetation polygon.

There is no indication that BCD advice about the category 1 land assessment (9 November 2021) or PCT mapping on non-accessed properties (10 December 2021) has been considered. WSP's response on 10 December 2021 identified areas not included in the supplied vegetation dataset that may exist as non-woody or derived vegetation and identified conflicts in PCT allocation at the boundaries between field-verified polygons and non-accessed areas.

The spatial data demonstrates that non-accessed lands are adjacent to areas where vegetation was verified by survey. Despite this, areas of non-accessed land with visibly similar vegetation have been allocated to different PCTs. We see no justification for that approach. Section 4 does not give any commentary on how assumptions about the non-accessed lands could influence the assessment, for example the implications of incorrect PCT allocation in the regional scale State-wide Vegetation Maps.

Recommended actions

4.1 Update section 3 or 4.2 to include a table which states the area that could and could not be accessed in the project footprint. Where land could not be accessed, provide the area comparison of native and non-native vegetation.

4.2 Update section 4.2 to include assessment of conflicting land categorisation outputs and how these areas were treated in the BAM.

4.3 Include a table in section 4.2 that outlines the area (ha) and percentage of total area of the subject land mapped as category 1 land for each subregion.

4.4 Justify the allocation of PCTs in non-accessed lands when the allocation is different to the PCT on adjacent land verified during the field survey. Areas field verified are indicated by spatial data.

5 Not all ancillary facility impacts have been included in the 'verified vegetation impacts' dataset

Most of the larger ancillary construction facilities, including substations, construction compounds and laydown areas have been identified and allocated to vegetation zones. However, other associated ancillary facilities, such as access roads, have been included in the spatial data of *'DisturbanceAreas_AncillaryFacilites_220208'*. This means such ancillary works are not included in the *'ECO_WSP_PECe_FieldVerifiedVegetation_Impacts_212224'* layer and are not considered as vegetation zones to be impacted.

For example, the proposed laydown site adjacent to the Cobb Highway does not include impacted vegetation zones. Despite this, a 10-metre wide access road will cut through 6.5 kilometres of native vegetation to the laydown site from the proposed easement (see Figure 1 below).

Similarly, the accommodation camp on the Urana-Lockhart Road is mapped as PCT 0. However, there are many scattered trees across the entire camp site that have not been included in the scattered tree assessment for the Lower Slopes.

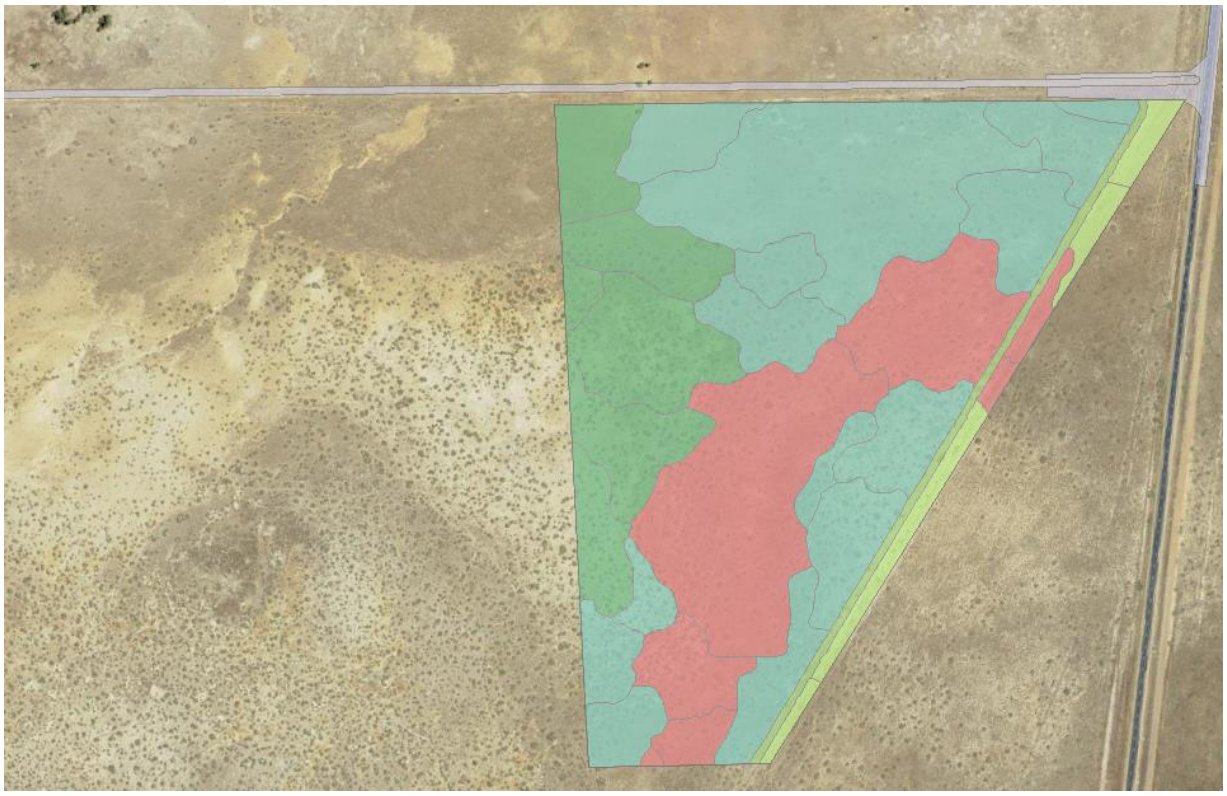

Figure 1 Proposed laydown site adjacent to the Cobb Highway. Native vegetation mapping on the proposed laydown site that is not included in vegetation zones.

Recommended actions

5.1 Update vegetation zone mapping to include native vegetation associated with all ancillary facilities including, but not limited to, new access tracks to laydown sites and accommodation camps.

5.2 Update the scattered tree assessment to capture all scattered trees for the Urana-Lockhart Road accommodation camp, and any other ancillary facilities with scattered trees where they are currently not assessed.

6 The vegetation integrity plots should adequately sample vegetation variability across a vegetation zone, and be in relative proximity of the vegetation zone impacted, including within the subregion.

The approach taken to define PCTs and assign plots to vegetation zones lacks clarity, is not consistent with the BAM, and lacks supporting evidence including:

- the extent of each PCT in the subject land is not documented
- the abundance of key main species is not documented to support PCT selection
- patch size is estimated in the South West Slopes bioregion and is not supported by maps
- benchmark (BioNet Vegetation Classification) and local data (plots) may have been used to define PCTs but that evidence is not clear in the BDAR
- the use of benchmark plots where the minimum number of plots has not been met is not discussed.

BCD has reviewed a sample of vegetation zones mapped within the subject site against the relative location of individual vegetation plots that have been used to inform the zone's vegetation integrity score for a subregion. It was found that several zones had plots that were located outside the zone.

The BDAR does not indicate which plots are within each zone or justify the use of individual plots that are a significant distance outside the zone. Section 4.3.3 states that some vegetation zones were being informed by plots located outside the subregion but does not specify which plots or provide specific justification for their use.

The BDAR should include more detail about plot locations and should justify that location in consultation with BCD. This should include ensuring vegetation integrity (VI) plot location and the number of VI plots for each subregion are adequate and appropriate along the length of the project. The BDAR should include a plot justification table (as per the example below), indicating which plots are outside the vegetation zone, and plots that have been used more than once.

Such tables should include the justifications agreed with BCD. This should be completed for all VI plots used in each subregion case in the Calculator.

Example headings for plot justification are provided below:

PCT ID	**Vegetation zone**	**Plot ID**	**Subregion**	**Within development footprint**	**Plot use justification for plots outside development footprint or subregion**
South Western Slopes Bioregion, Lower Slopes subregion					
75	74_Mod-good	Q204E	Lower slopes	No	Justification
Murray Darling Depression Bioregion, Southern Olary Plains subregion					

Recommended actions

6.1 Update PCT selections to include additional justification. For each BOAMS case, review how each PCT was determined consistent with the BAM including evidence of source information (including plots) and endorsement by BCD.

6.2 Include more detail about plot locations and justify them with BCD. This consultation should include ensure plot locations and the number of plots for each subregion are adequate and appropriate along the length of the project.

6.3 Prepare a plot justification table (as per example above), indicating plots outside the vegetation zone and plots that have been used more than once.

7 High Threat Weeds are not discussed

Section 4.7 would benefit from a discussion of the High Threat Weeds recorded during field surveys. The discussion should describe the most commonly recorded species and percent cover at higher density locations and distribution.

Recommended action

7.1 Include a general discussion around High Threat Weeds and prepare a new table of all High Threat Weeds recorded, identifying the plot in which each species was recorded.

8 Scattered tree assessments require review

The scattered tree assessment has assumed that no candidate species credit species are likely to use recorded scattered trees for habitat. Similarly, the assessment assumes impacts on candidate communities are not serious and irreversible. There is no justification or reasoning provided for this assumption.

Mapping of scattered trees is at a coarse level (maps cover 100km areas). No spatial data has been provided to verify the number of scattered trees being impacted.

Review of the Category 1 land mapping indicates many scattered trees are not mapped as Category 2 and are likely to not been assessed. This is particularly so in the east of the project footprint.

It is likely that a significant number of scattered trees have been missed in the assessment.

Recommended actions

8.1 Update the scattered tree assessment to capture all scattered trees for the Urana-Lockhart Road accommodation camp and any other ancillary facilities with scattered trees.

8.2 Provide scattered tree spatial data for verification.

8.3 Provide justification and reasoning for the assumption that no candidate species credit species are using the scattered trees for habitat.

8.4 Provide justification and reasoning for the assumption that impacts on scattered trees are not serious and irreversible (SAII).

Threatened Species

9 The threatened species survey effort lacks evidence and is not consistent with the BAM

Candidate threatened flora and fauna species for exclusion and some inclusions do not match the credit reports in BOAMS.

Several species have been excluded as candidate or predicted species in the Calculator but their justification for exclusion has not been included in section 5.4.1.3 or section 5.4.2.3 of the BDAR. Similarly, some species excluded in the BDAR have been included in the credit reports and have been recorded as 'surveyed'.

For example, *Amphibromus fluitans* has been added to the Murrumbidgee subregion in the BDAR but has not been added in the related case in the Calculator (00026670).

The survey effort mapped in Appendix C5 does not align with the method described in Appendix C3. The survey effort does not cover the whole vegetation zone. It is likely that the survey effort is below that prescribed.

For example, Section 5.5.2.3 describes the two-phase grid-based systematic survey approach used. However, survey locations have not been provided or shown on maps. This prevents a review of the method applied.

There is no evidence relating to how a list of fauna species to be targeted by the survey effort was defined. That evidence should include the survey effort for each candidate target fauna species, the survey personnel and experience, and limitations to the survey effort.

Recommended actions

9.1 Complete a thorough review of predicted and candidate species surveys, including justification of candidate inclusion and exclusion for each subregion.

9.3 Review the survey effort for candidate species and associated PCTs to ensure survey effort is consistent with the BAM.

10 The polygons representing species credit species lack clarity and rigour.

Vegetation zones with associated PCTs excluded from species polygons needs to be justified.

Despite targeted surveys being undertaken for candidate species, some threatened species have been assumed to occur within the subject site. This precautionary approach has been used due to seasonal survey requirements for some species and the limited access to some areas of the subject site.

Section 6.4.1.3 of the BAM states that where a species is assumed to be present on the subject land the assessor must use either an expert report to delineate the species polygon, or the species polygon must encompass the entire vegetation zone/s in which the candidate species is predicted to occur. Several species polygons do not conform with this section of the BAM.

Species occurrence has been omitted for numerous species with an associated PCT occurring where survey was not undertaken due to lack of access. For example, Property HO15 has no access but contains PCT 170 in the Southern Olary Plains bioregion. That PCT is an associated PCT for *Acacia acanthoclada* and *Atriplex infrequens*, amongst others. If there is no survey, species must be assumed present when an associated PCT occurs on site.

In addition, the areas of known and assumed presence species polygons in the spatial data does not match the BOAMS case data. For example, there is 46.33 hectares of known *Maireana cheelii* species polygon and 323 hectares of assumed presence species polygon in the spatial data (256.37 in disturbance areas A and B4, and B10). However, there is only 109.7 ha entered in the BOAMS case data. The flora species polygon data does not match any specific vegetation zones in the spatial data set.

Section 5.2 of the BAM establishes that for each candidate species with an associated PCT/vegetation zone, the assessor must justify why each candidate species may or may not occur for each part of the vegetation zone.

The fauna candidate species polygons are poorly justified. For example, Major Mitchell's Cockatoo occurs across the development area from the Hay Plain to Buronga and the Little Eagle in most parts of the alignment. Nesting habitat could be anywhere with trees. Despite this, the extent of species polygon is not justified and cannot be interpreted from the supplied spatial data.

Many of the excluded vegetation zones have associated PCTs that potentially provide suitable habitat for the candidate species. No justification or evidence has been provided to support the absence of suitable habitat within these vegetation zones, or parts of these zones, nor to exclude these zones from species polygons.

We note that the lack of nearby BioNet Atlas records is not justification for a vegetation zone's exclusion from a species polygon in full or part, particularly given the relative paucity of threatened species records within the region, and the low frequency of threatened species survey that has occurred historically.

Recommended actions

10.1 Conduct a consistency review of associated PCTs where species polygons have not been prepared, there have been no targeted surveys completed, or where no access was granted.

10.2 Update the GIS spatial data for each candidate species and each associated PCT to include outcomes of survey and assumed presence where no surveys were completed due to no access or other constraints. Provide justification for each candidate species associated PCT polygons for exclusion (in part or full).

10.3 Update assumed presence species polygons after completion of the above tasks.

Matters of National Environmental Significance (MNES)

BCD requires further information to complete the MNES assessment.

As described throughout this response, potential impacts to threatened species and communities, including EPBC-listed entities, have not been adequately considered. Further detail is required about measures to mitigate, monitor, and manage impacts. Residual impacts of the development have been underestimated.

BCD will provide separate advice about MNES assessment following the Response to Submissions (RTS).

The point below is also relevant to the assessment of native vegetation.

11 The potential association between Plains mallee-box woodland and PCT 173 has not been considered.

Section 7.1.1.4 associates the EPBC-listed 'Plains Mallee Box Woodland' CEEC with PCT 170. The CEEC listing advises that it may also be associated with PCT 173, but this has not been discussed. There are records for the dominant *Eucalyptus porosa* in and around the western end of the study area. We acknowledge that the listing's author was involved with the project fieldwork, however Table 7-12 should also include PCT 173 and demonstrate how patches of PCT 173 conform to the listing where it was recorded (see PCT identification).

It appears that PCT 173 was not considered when sandplain mallee vegetation VI plots were assigned to a PCT. The justification for not including this PCT should be included in the BDAR, particularly for the eastern extent of mallee in the project area.

The Mallee Bird Community of the Murray Darling Depression Bioregion was listed as Endangered under the EPBC Act on 7 December 2021. While this community has been briefly addressed in section 4.10, it has not been considered under MNES.

Recommended actions

11.1 Justify the absence of PCT 173 in the project area. If present, include an assessment of PCT 173 against the EPBC-listed Plains Mallee Box Woodland CEEC and provide evidence about how patches of PCT 173 within the survey area conform to the listing advice.

11.2 Include the EPBC-listed Mallee Bird Community of the Murray Darling Depression Bioregion within Section 7 of the BDAR. Assess the impacts on the Mallee Bird Community of the Murray Darling Depression Bioregion and provide detail.

Avoid and minimise impacts

12 Avoid and minimise measures have not been adequately addressed

We do not consider that an appropriate effort has been made to avoid and minimise biodiversity impacts, particularly uncertain impacts associated with bird collision, direct impacts to threatened flora and prescribed impacts associated with connectivity.

For example, discussion of underground options has not been considered at any location, including high risk areas that involve a considerable credit liability.

Constraints criteria

The criteria for constraints presented in the EIS (section 3.3.1.2) are flawed regarding protected areas and legislative responsibilities.

Protection levels in NSW are implemented through gazettal and management under the NSW *National Parks and Wildlife Act 1974*; Nature Reserves have the highest level of protection (IUCN category Ia), followed by National Parks (IUCN category II), State Conservation Areas (IUCN category IV), and so on.

This hierarchy of legislative protections is not reflected in the constraint tiers of the EIS. Crown Land reserved for conservation or with conservation values, such as Travelling Stock Routes, should also be recognised and avoided.

Hazard Trees and Overhanging Canopy

Development consent will not include clearing of trees outside the assessed development footprint. Any clearing recommended by a qualified arborist may only be cleared if it is assessed consistent with the BAM. Such clearing must be avoided and minimised or included in the assessment.

The final design refinement phase will include additional survey in areas that were not previously subject to biodiversity survey (Section 10.2.1). 'No access' polygons appear on survey results maps in appendices (e.g. Appendix B-5). However, it is not clear what happens if there are changes to the boundaries of disturbance areas A and B that result in different harm within the areas that were surveyed. There is the potential for harm to biodiversity that has not been included in offset calculations.

Avoidance Measures

Table 8-1 should include ensuring that maintenance protocols meet vegetation maintenance commitments made during the RTS period. Required outcomes must be detailed in the revised BDAR, including an interpretation of how they are reflected in Environmental Management Plans and operational protocols.

BCD acknowledge that a tiered approach to locating the proposal has been used during the scoping phase to demonstrate that biodiversity impacts have been avoided and minimised at a landscape scale. Unfortunately, the approach does not reflect the legislative and land management protections in NSW.

Specific clearing measures that avoid and minimise impacts during construction and maintenance have not been provided.

Collision risk

There needs to be a demonstrated effort to understand and mitigate the collision risk for a range of species. The revised BDAR should provide an analysis that:

- is not limited to the four species selected in the BDAR
- identifies areas of highest risk for fauna collision
- discusses in detail, those species that will be most at risk with reference to relevant literature
- specifies strategies that could be implemented to minimise the impact of collision.

Areas with high risk potential for fauna collision include (but are not limited to):

- riparian areas and wetlands – Murrumbidgee River crossing, Yanga National Park, Abercrombie Creek, Yanco Creek, Colombo Creek, The Gums TSR, rice-growing areas around Coleambally, Lake Cullivel, irrigation delivery infrastructure and farm dams. Threatened species most at risk in these areas are likely to include Brolga, White-bellied Sea-eagle, Australasian Bittern, Painted Snipe, various migratory waterbirds
- areas important to Regent Parrot including the Murrumbidgee River crossing which has potential as a nesting colony area, and movement corridors north of Euston between breeding areas on the Murray River and mallee vegetation to the north
- the Grey-headed Flying-fox colony at Wagga Wagga.

The impact of raptors predating fauna attempting to cross the easement needs to be considered. Raptors are known to adopt high voltage powerline towers as nesting sites and use the elevated towers as vantage points. This is likely to increase predation on fauna that navigates the existing easement, especially when the proposed easement is close and parallel. Means of preventing raptors from nesting or perching on towers need to be considered as a viable means of minimising impact, particularly in high risk areas.

Although measures that minimisation collision have been mentioned, including diverters, they are not described or discussed in detail. Diverters of a particular style may be more effective for minimising collision risks at specific locations and should be considered further in the BDAR.

Plains-wanderer habitat construction methods

Table 8-1 states that impact to Plains-wanderer habitat will be minimised by using bespoke construction methods to prevent clearing vegetation in the centre line between towers. There is no information to assess whether this measure is feasible or achievable, and it has not been detailed in Table 10-1.

Vegetation clearance and maintenance outcomes and commitments

Avoidance measures in Table 8-1 include ‘ensuring that maintenance protocols meet vegetation maintenance commitments made during the RTS period’.

Specific measures for minimising the impact of tree and large shrub removal to surrounding vegetation (including groundcover and cryptogamic crusts) have not been detailed. The post-approval BMP is not necessarily prepared by an ecologist who understands the intricacies of the BAM and partial impact assessment. BCD are not confident that avoid and minimise will be implemented without more detail about construction and maintenance methods. Required outcomes must be detailed in the revised BDAR, including an interpretation of how they are reflected in Environmental Management Plans (EMPs) and operational protocols.

Recommended actions

12.1 Provide a detailed analysis of the risk of collision to fauna, including identifying areas of highest risk, and how they are being avoided or minimised.

12.2 Ensure that all avoid and minimise measures proposed in the BDAR are documented in Table 10-1, and that they are feasible and achievable.

12.3 In the revised BDAR, detail required vegetation maintenance outcomes, including an interpretation of how they are reflected in EMPs and operational protocols.

Assessment of impacts

13 The assessment of direct impacts on native vegetation and threatened species habitats is inconsistent

Determination of vegetation integrity decline in the Disturbance Area B4 and B10 requires review.

BCD request a review of the Composition, Structure and Function conditions score assumptions including the percent reduction thresholds. Some of the assumptions and justifications for calculation of vegetation integrity scores, and how they have been applied to PCTs, is not well documented or justified. For example, the assumption that high threat weeds will not increase from the existing rates requires justification and review.

Disturbance areas B4 and B10 have identified that 'trees would be removed and may result in temporary ground disturbance'. It is unclear when areas of temporary ground disturbance in B4 and B10 have been applied and to each PCT and vegetation zone and species credit species polygons. While in some cases this partial disturbance may be temporary for some species, partial impacts to threatened flora in small, localised populations may still result in changes to runoff, pooling of water, soil disturbance and seed banks that could result in the complete loss of the local occurrence of threatened flora species.

We understand from Snowy 2.0 Transmission Connection that it is unrealistic to expect future maintenance contractors to target particular plant species. However, the BDAR requires information specifying and identifying tall-growing species (or any plants realistically perceived to be tall growing) and how their removal will impact vegetation communities and threatened species habitats, including threatened fauna feed sources.

The agreed outcomes of discussions and workshops with BCD are not documented in the BDAR. The agreed reduction in VI score for PCTs that were assessed for EnergyConnect (Western) need to be detailed and justified. For those PCTs not assessed for EnergyConnect (Western), BCD recommended using field data from adjacent, existing transmission easements to justify the partial impact scores in the remaining ecosystems. This does not appear to have been done.

For example, multiple records of the threatened flora *Pimelea serpyllifolia* susp. *serpyllifolia* occur in the proposed Disturbance Areas A, B4 and B10. If there are any records in the parallel powerline easement, the construction and operation of the powerline in that location may provide evidence that a localised population can persist within the existing operational area. Comparison of BAM VI plot data from the proposed powerline and the existing parallel powerline should be used to justify partial reductions in VI scores wherever possible.

Disturbance associated with tree removal and subsequent ecological changes was discussed in detail over several months by BCD and WSP during preparation of the proponent's Response to Submissions for Project EnergyConnect (Western). The BDAR does not report the relevant evidence or agreed position to justify scoring of future vegetation integrity for the PCTs that are also impacted by the current proposal.

Unless a dedicated rehabilitation and weed control program is developed and implemented, native vegetation in disturbance areas described as 'temporary' is unlikely to return to its pre-development vegetation integrity. The likely success of rehabilitation must be demonstrated using evidence from literature or monitoring programs in similar PCTs.

The boundaries of each disturbance zone would need to be clearly identified for machinery operators during construction and operation. The BDAR should describe how this will be achieved.

Areas of impacts to TECs in subregions do not match BOAMS case data.

There are multiple inconsistencies between the impact areas in Table 9-8 and the BOAMS case data. BCD reviewed a subset of the subregion data and identified the following inconsistencies:

- Southern Olary Plain subregion - PCT 22 is not selected as the *Allocasuarina leuhmannii* woodland TEC in the Calculator
- Murrumbidgee subregion - PCT 23 is selected as *Acacia melvillei* shrubland in the Calculator, but no impact areas are listed in Table 9-8
- Murrumbidgee subregion - areas of impact to Myall Woodland TEC area in Table 9-8 do not match areas in the Calculator
- Murrumbidgee subregion - Sandhill Pine Woodland TEC area in Table 9-8 does not match areas in the Calculator.

This is not a full list of all inconsistencies for Table 9-8 and the BOAMS case data. BCD only reviewed a sample of all subregion data and TECs.

Credits for direct impacted scattered trees do not match BOAMS case data.

For some subregions, the BOAMS case data does not match the data in the Tables. For example, in Section 9.1.5 the number of credits for the Lower Slopes subregion in Table 9-16 does not match the data in the Calculator. In addition, the Swift Parrot is recorded as a present candidate species in the Lower Slopes subregion scattered trees case. In accordance with Appendix B of the BAM, the scattered tree module cannot be applied if candidate species credit species are recorded using scattered paddock trees.

Impact areas do not match the supplied spatial data

Threatened flora and fauna impact areas in the report tables do not match the spatial data, nor do the direct and indirect combined totals match those presented in the species credit offset tables.

The submission did not include all required spatial data. Although spatial data supporting the final BDAR was provided after request from BCD, it is still incomplete. Supplied datasets were ambiguously labelled and did not allow easy replication of maps or confirmation of area calculations.

Recommended actions

13.1 Revise the nine BOAMS cases to match the spatial data so that BCD can test and repeat the calculations to validate the reliability of the Calculators.

13.2 Consult with BCD to further develop agreed partial impact definitions for Composition, Structure and Function and the application of partial impacts in the B4 and B10 disturbance areas.

13.3 Document and explain with supporting references why specific percent reductions in VI scores were chosen, including supporting assessments or literature to support assumptions.

13.4 Document the discussions with BCD and agreed outcomes for future vegetation integrity scores of PCTs that are also impacted by Project EnergyConnect (Western).

13.5 Complete a consistency review of all subregion data to ensure TECs are correctly identified in each related case and impact areas in Table 9-8 and BOAMS data are consistent and correct.

13.6 Conduct a review of all Tables in Section 9.1.5 of the BDAR to ensure they are consistent with the outputs for each subregion scattered tree assessment.

13.7 Ensure data presented in tables throughout the BDAR is consistent with spatial data.

13.8 Provide shapefiles with areas that correspond exactly with what is presented in the tables and each related case in BOAMS.

13.9 Provide all spatial and digital data (excluding jpegs) required by BAM Appendix K at the time of submission of the revised BDAR. Vegetation zones must be clearly identified as per each Calculator and the BDAR and be attributed to species polygon data.

14 There is no justification for indirect credit ratios and species selected for indirect impact offsets

While the use of additional biodiversity credits to offset the loss of indirect impacts as result of bird strike and EMF is considered appropriate, the BDAR does not provide any evidence based justification for the application and use of the 10 percent impacted habitat in the Calculator.

Indirect impacts should be considered for both ecosystem and species credit species with surrogates for each impacted species clearly outlined and justified in the BDAR.

The selection of areas of indirect impact for the small group of selected species lacks evidence. For example, Regent Parrot does not occur east of Four Corners. A polygon denoting impact for this species would need to run west of Balranald. Little Eagle occurs throughout the development area, and as such risk would exist throughout the development area wherever there are trees. Potential surrogate species include, but are not limited to:

- Square-tailed Kite in riverine habitats
- Brolga (recorded nesting in natural and artificial wetlands on both sides of the alignment)
- Australasian Bittern which routinely flies between rice-growing areas near Coleambally and the south-west coast of Victoria.

The type and severity of other indirect impact is likely to vary for different species and should be assessed accordingly. This assessment will require identification of the species at risk, locations of high and moderate risk and the behaviour that will put them at risk. This can then inform how mitigation may be achieved.

Trampling of threatened flora species (Austrostipa nullanulla and Atriplex infrequens).

These two species are mentioned in the text but they were not recorded in the survey results or spatial data. In addition, indirect impacts through trampling for other threatened flora species recorded during surveys are not addressed.

Indirect impacts to threatened flora species are likely to extend beyond trampling and impacts to known local populations should be considered regarding their habitat preference and microhabitats and how these will be impacted at each known flora location. For example, *Pimelea serpyllifolia subsp*. *serpyllifolia* is a candidate for SAII with a very high sensitivity to loss (biodiversity risk weighting of 3). The recorded area of occupancy is 1.7 ha in the BDAR and BOAMS case, but only 0.75 hectares in the species polygon spatial data. Removal of mallee trees from the B4 and B10 zone is likely to have indirect impacts to this species through changes to factors such as shading, soil disturbance, and runoff.

Recommended actions

14.1 Update the indirect impact assessment to use evidence-based justification for any proposed additional biodiversity offsets.

14.2 Prepare a table of ecosystem and species credit species likely to require additional offsetting of indirect impacts, including identification of at-risk species, behaviours, and locations. For each species, provide justification for the use of any surrogate species entered in the Calculator.

14.3 Review indirect impacts to known threatened flora populations. Consider if extra assessment of direct or indirect impacts is required, and if subsequent additional offset requirements and/or adaptive management strategies for uncertain impacts are needed.

Prescribed Impacts

15 Prescribed impacts are underestimated

Mapping of rocky habitats, connectivity features and other prescribed impacts in accordance with section 6 of the BAM is required.

From review of Appendix E2 and Table 9-24 the number and indicative location of any fauna connectivity measures within the subject land and assessment area is not clear. Mapping of any connectivity features as per s6.1.3 and any other prescribed impacts has not been supplied in the BDAR.

BCD request that prescribed impacts including connectivity across the project site for both pre-construction and post-construction states should be spatially represented in the BDAR. This will provide a better understanding of the potential impact of the proposed development, particularly the impact to connectivity between large tracts of native woodland vegetation such as riverine and mallee habitats in the Southern Olary Plains, Lachlan, and Murrumbidgee subregions.

Post construction, State connectivity mapping should provide indicative locations of any proposed fauna connectivity enhancement features, and these should be included as part of a fauna connectivity strategy to be prepared prior to project approval. This will allow for more comprehensive understanding of the coverage and adequacy of fauna connectivity measures across the subject land.

Prescribed connectivity impacts on all threatened species with the potential to be impacted should be identified, discussed, and mitigated in the BDAR. Offsets should be proposed for all residual prescribed impacts to connectivity.

Table 9-24 (c) states that *the proposal would result in a highly permeable structure for biodiversity, and connectivity is expected to remain largely unaffected for all species*. However, the table does not specifically discuss any prescribed connectivity features of species.

For example, the impact of co-locating the transmission line parallel to an existing transmission line has not been adequately addressed. The assessment does not include an analysis of impacts in accordance with section 8.3.3 (b) of the BAM including predicting consequences of impacts for the persistence of the threatened entities identified, taking into account mobility, abundance, range and other relevant life history factors.

The BDAR provides no justification that co-locating powerlines has minimal connectivity impacts on fauna.

Discussion of potential impact and proposed methods of mitigation should be expanded to include all threatened species likely to be impacted due to prescribed impacts, including but not limited to:

- Regent Parrot
- Major Mitchell's Cockatoo
- raptors such as Little Eagle and Square-tailed Kite
- Brolga
- woodland birds and mallee bird specialists including smaller passerines such as Hooded Robin, Chestnut-Quail-thrush and Southern Scrub-robin
- reptiles.

The assessment should include a new table for each relevant prescribed impact that address each of the assessment criteria for each prescribed impact. An example is provided below:

Criteria	**Connectivity feature or species**	**Discussion/Justification**
(a) describe the nature, extent and duration of short and long-term impacts (during operation, during construction, that are uncertain)	e.g. Regent Parrot, road corridors etc	c) justify predictions of impacts with relevant literature and other published sources of information and describe any limitations to data, assumptions and predictions about impacts on biodiversity).
b) predict the consequences of the impacts for the persistence		

of the threatened entities identified in Subsection 6.1.3, taking into consideration mobility, abundance, range and other relevant life history factors.		

The BDAR should be updated to discuss proposed prescribed impact avoidance measures and measures proposed to contribute to the recovery of the entities outlined above.

We suggest that Table 9-24 explicitly identifies if any residual prescribed impacts to the connectivity of threatened species are likely to occur after the proposed avoidance and mitigation measures are implemented. If prescribed impacts cannot be adequately avoided or mitigated, the residual offset obligation should be increased, or other conservation measures applied consistent with section 7.14(4) of the BC Act and section 6.1(2)(b) of the Biodiversity Conservation Regulation 2017 (BC Regulation).

The treatment of prescribed impacts underestimates the important terrestrial and aerial connectivity north and south of the line. We anticipate the clearing will result in a gap greater than 100 metres in some locations. This is likely to involve an interruption to movement likely to impact breeding and life cycles.

A method for the calculation of residual impacts should be developed in consultation with BCD. This may include development of an adaptive management plan in accordance with s8.5 of the BAM in conjunction with the potential calculation of additional biodiversity credits in accordance with s8.6 of the BAM. The BDAR should build on the literature in Appendix E of the BDAR and develop a risk matrix or similar in consultation with BCD, to identify those ecosystem and species credit species at higher risk of residual impacts.

We anticipate a significant increase in avian collisions, electrocution and electro-magnetic effects that interfere with bird navigation and predation.

For example, we note seven Ramsar wetlands within 100 km of the line (NSW Central Murray Forests, Fivebough and Tuckerbil Swamps, Barmah Forest (Vic), Gunbower Forest (Vic), Hattah-Kulkyne Lakes (Vic), Kerang Lakes (Vic), Lake Albacutya (Vic). We see no evidence relating to the impact of the proposal on species associated with these wetlands.

Other wetlands near the proposal include, Colombo Creek, Yanco Creek, Murrumbidgee River, Lake Gol Gol, Lake Cullivel, Lake Benanee, and Lake Albert (Wagga). We anticipate that the movement and life cycles of species associated with these wetlands to be impacted. We see no evidence relating to those effects. Examples include Southern Myotis, White-bellied Sea Eagle, nesting Brolgas, and Magpie Goose.

We acknowledge the analysis of the increased likelihood of vehicle strike during construction, operation and maintenance but note there is no treatment of mitigation or avoidance.

We see no evidence that partial clearing in B4 and B10 disturbance areas mitigates the interruption of connectivity either side of the line.

We anticipate various indirect impacts associated with interrupted connectivity. We anticipate that these impacts will be ongoing with the potential to become compounded over time.

Recommended actions

15.1 Pre-construction and post-construction fauna connectivity states should be spatially represented in the BDAR in accordance with Section 6.1.3 of the BAM. The post-construction fauna connectivity state should provide indicative locations of any proposed fauna features to be installed.

15.2 Prescribed impacts to connectivity for threatened species should be revised to include all threatened species likely to be affected by the proposed development.

15.3 Avoidance and mitigation measures should be proposed which contribute to the recovery of the entities that could be impacted by prescribed impacts.

15.4 Residual prescribed impacts to connectivity of threatened species should be identified.

15.5 If residual prescribed impacts are identified, measures for offsetting residual prescribed impacts should be proposed in accordance with Section 7.14(4) of the BC Act and Section 6.1(2)(b) of the BC Regulation 2017.

Mitigation and management of impacts

16 Mitigation and management measures require further detail

There is not enough detail about measures to mitigate, monitor and manage impacts to have confidence that the calculated credit requirement will sufficiently offset residual impacts of the development.

For example, Section 10.2 of the BDAR states that the impact assessment is conservative to limit the need for ongoing monitoring and management actions. However, the partial reduction in future VI scores is untested, and any loss of VI below that score has not been offset. Specific construction and operation measures will be needed to ensure vegetation integrity is maintained at the stated partial impact scores.

Measures to mitigate impact to connectivity include fauna connectivity structures. However, the number and indicative location of any fauna connectivity structures and proposed mitigation devices to deter birds from bird strike or EMF are not specified in Appendix E2 and Table 9-24.

The success of mitigation will depend entirely on how well pre-approval and post-approval construction and operation management plans are implemented. It is it difficult to determine likely success because these plans have not been prepared.

The risk of mitigation failure has not been addressed nor monitoring actions to determine if the measures have failed. For example, the design elements presented appear to be based on standard approaches that do not reflect the local conditions or vegetation communities within the project area. The potential for overland floodwater to move across the riverine plains carrying construction sediment into Plains-wanderer or other threatened species habitat has not been addressed.

Avoidance measures in Table 8-1 include ensuring that maintenance protocols meet vegetation maintenance commitments made during the RTS period. However, there is no detail about the desired vegetation maintenance outcomes and how they relate to vegetation integrity scores of the assessed zones. There is also no link between this section and measures in Table 10-1. Required outcomes must be detailed in the revised BDAR, including an interpretation of how they are reflected in EMPs and operational protocols.

The BAM Operational Manual Stage 2 includes guidance about the level of detail that is expected for a BDAR to minimise impacts that cannot be avoided and includes examples of reasonable measures to minimise impacts. For all remaining impacts, mitigation strategies should be implemented. BAM Section 8.4 outlines the requirements for a mitigation strategy which provides the level of detail that BCD expect to see in the BDAR.

Table 10-1 lists measures to avoid impacts and relies on mapped ‘biodiversity exclusion zones’. Those zones (Measure B11) are developed during detailed design and restricted activity in areas of ‘high biodiversity conservation significance’ (Measure B1, B19) during construction and operation.

Measure B20 is to develop and implement maps and guidance around these measures, however this needs to be more specific with relevant information collated in the BDAR. There is no detail to assess whether the measures are achievable, or if techniques can be carried out within Transgrid's protocols. For example, constraints on machinery not to be used for safety reasons.

Spatial data supplied to BCD and the maps in the BDAR do not currently include the 'biodiversity exclusion zones' or areas of 'high biodiversity conservation significance'. Contractors preparing the Construction Environmental Management Plan or Biodiversity Management Plan (BMP) are unlikely to be able to interpret the current data to prepare such maps.

Section 10.2 of the BDAR indicates that connectivity corridors are to be developed in a Connectivity Strategy under the BMPs.

The mitigation and management measures outlined in the BDAR do not provide sufficient information to enable the effective preparation of the post-approval plans.

Recommended actions

16.1 Provide specific mitigation measures and detail according to BAM s8.4 and the BAM Stage 2 Operational Manual.

16.2 Provide further detail about measures to mitigate, monitor and manage potential impacts, including risk of failure. This detail should be prepared to ensure that the calculated credit requirement will sufficiently offset residual impacts of the development.

16.3 Identify criteria and prepare maps of areas listed in Table 10-1 (Measure B20) that inform detailed design and future construction and operational management plans, biodiversity exclusion zones (Measure B11) and areas of high biodiversity conservation significance (Measure B1, B19, B20).

16.4 Interpret the vegetation integrity scores of the assessed zones to produce specific vegetation maintenance outcomes and specify how these are to be implemented in EMPs and operational protocols.

16.5 Prepare a Preliminary Connectivity Strategy prior to project approval to be further developed and finalised during detailed design in consultation with BCD. The strategy will establish the objectives for managing and mitigating connectivity during project design and construction. It should provide the framework for the continued development of the design and management measures into subsequent phases of the project.

Impact summary

17 SAII candidates have not been adequately assessed

The SAII assessment of candidate threatened flora lacks clarity and does not address all assessment criteria.

The SAII assessment for *Pilularia novae-hollandiae* states that '*The proposal will avoid direct removal of the nine gilgai depressions that contain the recorded individuals of Pilularia novae-hollandiae*.'

The assessment also states that '*the proposal will impact 0.32 hectares of occupied habitat'*, and '*the proposal will affect some habitat, but no individuals of the species will be directly impacted'*. In addition, the spatial data includes assumed presence species polygons for this species as well as known habitat species polygons. It is difficult to make an accurate assessment of the impacts to this candidate SAII species when the impacts are not consistently represented in the BDAR and in the spatial data.

The records of between 180-450 individuals within the study area may represent a genetically distinct population of this SAII candidate. An impact to this population could represent a significant loss to a species which meets Principle 3 of clause 6.7 of the BC Regulation, being representative of a species which has a very limited geographic distribution.

No assessment regarding how the project may impact the persisting population has been made, including fragmentation. We note that some records occur on both the northern and southern side of the disturbance areas.

In addition, the Threatened Biodiversity Data Collection lists drainage of swamps as the number one threat to this species. Assessment criteria 4b(iv) requires the assessor to consider these threats in relation the remaining subpopulation. Ground disturbance in proximity to this population has the potential to change hydrology, runoff and increase other introduced species. The threats to this species have not been addressed in the assessment.

The BDAR indicates that avoidance of *Pilularia novae-hollandiae* and *Pimelea serpyllifolia subsp*. *serpyllifolia* will be maximised through design refinements. The design refinements listed in section 10.2 and Table 10-1 of the BDAR are generic and include careful track design and micro siting of tower pads. However, the BDAR does not specifically detail how this will be applied at the known locations of floral candidate SAII entities.

Impacts to *Pimelea serpyllifolia* subsp. *serpyllifolia* habitat has been assessed considering the population's geographic extent in South Australia and Victoria. However, assessment criteria 4b(i) specifically refers to the geographic distribution of this species in NSW and has therefore not been accurately addressed.

Recommended actions

17.1 Provide clarification in the spatial data and BDAR as to the impacts to *Pilularia novae-hollandiae* and update the SAII assessment to address assessment criteria in accordance with section 6.7 (2) (a-d) of the BC Regulation 2017.

17.2 Review all SAII assessments to include accurate areas to be impacted and review each against the relevant assessment criteria.

18 Biodiversity Offset Strategy

The Biodiversity Offset Strategy requires further detail so that a Biodiversity Offset Package can be prepared.

BCD does not support using the current credit liability as the basis for the bond calculation. The BDAR must be consistent with the BAM before the calculation of an offset fund security bond.

Recommended actions

18.1 The BDAR should describe a package of measures to offset and mitigate the impacts on biodiversity. The Biodiversity Offset Package should be developed in consultation with BCD.

The Package must include, but not necessarily be limited to:

- details of the specific biodiversity offset measures to be implemented and delivered
- the cost for each specific biodiversity offset measure
- a bond that would be paid into the Biodiversity Conservation Fund if the other measures are not implemented and delivered. The bond is to be calculated in accordance with Division 6 of the BC Act and the offsets payment calculator
- the timing and responsibilities for the implementation and delivery of the measures required in the Package
- confirmation that the biodiversity offset measures will have been implemented and delivered before construction commences.

Following approval, the Proponent must implement and deliver the Biodiversity Offset Package.

19 Other matters

BCD note that the National Parks and Wildlife submission identified *Pterostylis pedina* as an endangered species that has been newly recorded in Yanga State Conservation Area and requested that it be avoided. Although the species is known only from two locations of several hundred plants, it is not listed as threatened under the BC or EPBC Acts, so is not required to be considered in the BDAR.