Your ref: SSD-50725708
Our ref: DOC24/556164

Julia Green
Senior Environmental Assessment Officer
Department of Planning, Housing and Infrastructure

Via Major Projects Portal: PAE-73233463

Dear Julia

Subject: **Dinawan Wind Farm (SSD-50725708) – Environmental Impact Statement**

Thank you for your email dated 11 July 2024 seeking advice from the Biodiversity, Conservation and Science Group (BCS) of the NSW Department of Climate Change, Energy, the Environment and Water on the Environmental Impact Statement (EIS) for the Dinawan Wind Farm.

We note that the proponent did not submit the complete spatial data package for the project to BCS until 26 July 2024. A detailed review of a Biodiversity Development Assessment Report (BDAR) can only start when all the required data has been provided. In this instance, we have not able to meet the statutory agency response timeframe due to the delay in receiving the required data.

We have reviewed the exhibited EIS against the Secretary's Environmental Assessment Requirements (SEARs) issued to the proponent on 14 December 2022, BCS SEARs input dated 29 November 2022 and the Supplementary SEARs (EPBC 2023/09537).

Provided the proponent addresses issues 1 and 2 in Attachment A, BCS considers that the EIS meets the Secretary's requirements for flooding.

BCS considers that the EIS does not currently meet the Secretary's requirements for biodiversity. This is because the BDAR is not consistent with the Biodiversity Assessment Method (BAM). To meet the SEARs for biodiversity, the proponent will need to address several matters in a revised BDAR and provide a Bird and Bat Adaptive Management Plan (BBAMP). Until these actions are complete, the biodiversity credit liability in the current BDAR may not reflect the actual impact of the project.

To resolve the issues and ensure the EIS meets the requirements of the BAM and SEARs, the proponent and their BAM accredited assessor should engage with BCS throughout the Response to Submissions (RTS) stage to address the recommendations identified in Attachment A.

In summary, the proponent needs to:

- Provide further detail on the efforts they have made to avoid and minimise impacts to Serious and Irreversible Impact (SAII) entities.
- Complete further assessments and survey to adequately assess the impacts to Austral Pillwort, Claypan Daisy and Plains-wanderer
- Apply further efforts to avoid and minimise impacts to match the EIS project description of a maximum 200 turbines rather than the 267 turbines currently included in the BDAR
- Further assess the impacts on bird and bats at risk of turbine strike
- Demonstrate how impacts to at-risk birds and bats will be mitigated

- Complete targeted threatened species surveys that follow BAM requirements, or if a an alternative survey approach is proposed, obtain agreement from BCS prior to the surveys commencing
- Correct the assessment to address omissions that affect the credit obligation
- Provide additional, more specific detail to allow BCS to assess if the proposed mitigation measures will be effective in managing residual impacts
- Revise the Matters of National Environmental Significance (MNES) impact assessment to include the information needed for BCS to complete a Bilateral Assessment in accordance with the SEARs.

BCS recommendations are provided in **Attachment A** and detailed comments are provided in **Attachment B**.

The project has been determined as a controlled action under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (2023/09537) and impacts to EPBC Act-listed entities will be assessed under the Assessment Bilateral Policy. This response includes comments and recommendations related to the MNES impact assessment to ensure that the assessment report that BCS prepares contains all relevant information. **Attachment C** details the information and data required for this assessment.

All plans required as a Condition of Approval that relate to flood risk management or biodiversity should be developed in consultation with BCS, so that outstanding matters are adequately addressed.

If you have any questions about this advice, please contact Simon Maffei, Senior Project Officer Planning, via planning.southwest@environment.nsw.gov.au or 02 6022 0646.

Yours sincerely

Adam Vey
20 August 2024
Director South West
Biodiversity, Conservation and Science Group
NSW Department of Climate Change, Energy, the Environment and Water

ATTACHMENT A – BCS Assessment Summary for Dinawan Wind Farm Environmental Impact Statement (SSD-50725708)
ATTACHMENT B – BCS detailed advice for Dinawan Wind Farm EIS
ATTACHMENT C – BCS Bilateral Assessment information and data requirements

ATTACHMENT A BCS Assessment Summary for Dinawan Wind Farm Environmental Impact Statement (SSD-50725708)

In preparing this advice BCS have reviewed the following documents:

- Dinawan Wind Farm Environmental Impact Statement, prepared by EMM Consulting Pty Ltd for Spark Renewables Pty Ltd, dated 20 June 2024
- Dinawan Wind Farm Biodiversity Development Assessment Report (BDAR) prepared by Biosis Pty Ltd, for EMM Consulting Pty Ltd, dated 28 May 2024 as Appendix E.3
- Dinawan Wind Farm Water Resources Assessment (WRA), prepared by EMM Consulting Pty Ltd, for Spark Renewables dated 28 May 2024 as Appendix E.7

Key Assessment Issues

The following issues and recommendation are to be resolved prior to determination.

Flood Risk Management

1. The proponent consult with the local Council and the NSW SES on emergency management related flood impacts.

1.1. Actively engage with the local Council and the NSW SES on emergency management matters, and develop a site-specific flood emergency response plan that includes actions the Council and NSW SES support.

2. Additional detail is required on the impact of the proposed development on flood behaviour, as well as the impacts and risks of flooding on the development.

2.1. Ensure future hydraulic models include the detailed designs associated with proposed project infrastructure to adequately show the impact of the project on flood behaviour and the impact and risks of flooding on the development.

Biodiversity

The BDAR needs to be updated to allow BCS to determine if serious and irreversible impacts (SAII) are likely

1.1. Provide further evidence-based justification that the proposal will not contribute to SAII Principle 3 for Austral Pillwort and Claypan Daisy.

2.1. Provide justification for the impact to Plains-wanderer important habitat mapping including where mapping incorporates existing access tracks.

2.2. Relocate the permanent meteorological mast DINW02E to an area outside mapped Plain-wanderer habitat. Include access to DINW20E in the assessment, ensuring that proposed access tracks avoid Plains-wanderer habitat.

The candidate lists of threatened species, survey effort, suitable habitat and species polygons need to be revised to ensure they are prepared in accordance with the BAM.

3.1. Provide further justification for excluding candidate fauna species in Section 4.3 and Table 110. If further justification cannot be provided in accordance with the BAM, Section 5.2.2 (3) should be applied, and the species assessed further.

4.1. Provide additional information to confirm threatened species surveys were conducted in accordance with relevant guidelines and the TBDC. If additional surveys cannot be completed, assume presence or provide an expert report.

5.1. Review threatened flora survey effort data to ensure the spread of survey effort covers all associated PCT grid points in the correct survey months.

5.2. Where survey effort including walking transects and grid points have not been completed in the correct survey month, remove this effort from the effort calculations in Table 30.

5.3. Remove any driving transects from survey effort calculations and maps then reevaluate additional survey effort for each species.

5.4. Complete additional flora surveys in the correct survey month for each flora species to meet the minimum survey requirements set out in the BAM *'Surveying threatened plants and their habitats*' guide or seek agreement from BCS to use a different approach for this project. If additional surveys cannot be undertaken, assume presence or provide an expert report.

6.1. Prepare species polygons in accordance with Box 2 of the BAM for each species credit species, in consultation with BCS.

6.2. Present the species polygons for fauna species on maps in the BDAR.

The proponent needs to demonstrate the efforts to avoid and minimise

7.1. Use the outcomes of turbine risk assessment and collision risk modelling to further avoid and minimise project impacts and identify the 200 turbines that have the lowest impacts on biodiversity including birds and bats.

7.2. Use the outcomes of the species surveys, State and Commonwealth TEC mapping and prescribed impact assessment to further to further avoid and minimise project impacts for the proposed 200 turbines.

7.3. Prepare an additional (third) BAM-C child case in the parent case to include those turbines and ancillary facilities above the maximum of 200 turbines that are the least likely to be developed.

Table 70 of the BDAR summaries the turbine risk assessment. Of the 267 turbines, four have a very high risk, 59 are high risk and 114 are moderate risk. There is no evidence in the avoid and minimise measures of the BDAR that the proponent has used the results of the turbine risk assessment to further reduce impacts. Given the project only intends to construct 200 of the 267 turbines, the very high and high risk turbines (totalling 63) should be removed. Where the proponent proposes retaining any very high or high risk turbines, BCS requests they provide a detailed justification for doing so.

8.1. Remove or relocate all very high-risk turbines.

8.2. Remove or relocate all high-risk turbines, or where this is not possible, provide a detailed justification for retaining them.

9.1. Revise Section 7 to detail how changes to the development corridor has reduced biodiversity impacts, in accordance with BAM section 7.1.2.

9.2. Include maps of the alternative and selected development options with key biodiversity constraints including (but not limited to) Plains-wanderer important habitat mapping, no-go zones, and areas of high biodiversity value.

10.1. After completing additional survey identified in issues 5 and 6, and updating the avoid and minimise assessment as per issues 7, 8 and 9, revise Table 74 to demonstrate the application of avoid and minimise in accordance with the BAM.

10.2. If the required survey is not completed, the BDAR must include:

– a statement in Table 74 about survey limitations and clearly identifying that high biodiversity values may not all have been identified and avoided.

– mapping in section 7.1 and 7.4 of the BDAR for unsurveyed areas for threatened flora and fauna species where the avoid and minimise principle could not be applied based on the outcomes of survey results.

11.1. Justify the location of the development footprint for each large hollow-bearing tree proposed to be removed.

11.2. Amend the scattered tree spatial data to include tree identifiers and proposed impact (removed or retained) as per Table 73 of the BDAR.

PCT, TEC, and vegetation zone identification and mapping need to be revised and the biodiversity credit calculation updated.

12.1. Provide maps showing the distribution and extent of the PCTs identified on the subject land and described in BDAR s.3.2.3, as required by BAM s.4.2.

13.1. Update the BDAR and calculations of impacts to NSW Weeping Myall TEC to include derived native grassland condition.

14.1. Update each BAM-C child case for each stage to only include VI plots collected for that stage.

14.2. Where VI plots from another stage are required to make up for a shortfall in the required VI plots, provide justification within the BDAR for each plot on why it is suitable to use in the vegetation zone.

15.1. Collect additional VI plots where plots are not within the vegetation zone for each stage of the development footprint.

The impact assessment requires revision, and mitigation measures need to include more specific detail to be effective in managing impacts.

16.1. Assess all areas where native vegetation will be impacted by the project, including where there will be clearing for ancillary infrastructure, and to construct or upgrade access and transport routes.

16.2. Clarify the location and number of accommodation camps included in the assessment.

17.1. Amend Section 8.2 of the BDAR to provide evidence to justify the predicted impacts and discuss any limitations to the data and assumptions made. Revise Table 80 to detail specific measures to mitigate indirect impacts, including details required by BAM s.8.4.

17.2. Further assess the impacts wood collection and exotic plant invasion into adjacent vegetation, including Plains-wanderer habitat.

17.3. Provide feasible measures to minimise or mitigate any identified impacts from exotic plant invasion or wood collection.

18.1. Include measures to minimise or mitigate impacts of sedimentation on threatened entities, including Plains-wanderer habitat, and specify monitoring requirements to ensure controls are effective.

19.1. Update Section 9 of the BDAR (including Table 83) to include mitigation measures that follow the SMART principles and address the identified impacts.

19.2. Ensure that the language in Table 83 sets out clear commitments.

19.3. Revise Table 83 to detail auditable mitigation and management measures to be implemented through post-approval plans. Amend Table 83 to include residual impacts and risk of failure.

19.4. Provide details in measure B2 to specify the criteria for micro-siting and pre-clearing survey requirements.

19.5. Detail how injured and uninjured animals will be treated, particularly with respect to relocation to nearby habitat. The BDAR should discuss what the potential impacts of any relocations/translocations of displaced fauna (particularly threatened species)may

be on adjoining habitat and what measures (e.g. monitoring) will be used to minimise any detrimental effects on existing faunal populations that use such areas.

19.6. Remove requirements for handling and relocating Southern Bell Frog from Action B2, Table 83.

19.7. Document the mitigation priorities and strategies proposed to reduce impacts of predators on Plains-wanderer as indicated in Table 80.

The prescribed impact assessment needs to include all prescribed impacts and further assess the impacts to individual entities

20.1. Revise Section 8.3 of the BDAR to assess the prescribed impacts that the proposal will, or is likely to have, on threatened entities and their habitat in accordance with Section 8.3 of the BAM. The BDAR should include information on how each prescribed ipact is likely to impact each specific species or guild.

20.2. Revise the BDAR to include figures displaying corridors for different guilds (arboreal, terrestrial, aquatic, etc) to demonstrate that movement will not be impaired.

20.3. Assess the impact of the new network of access tracks on habitat connectivity for threatened entities.

20.4. Assess the risk of sedimentation (from clearing, construction and operation) on threatened species habitat for individual species during and after high rainfall events when water is moving through the landscape.

20.5. Include Southern Myotis and Corben's Long-eared Bat in the assessment of fauna that may use the site as a flyway or migration route

21.1. Include all threatened fauna in the vehicle strike assessment and provide mitigation measures to address all impacted species.

21.2. Assess vehicle strike impacts for all roads and tracks constructed or used for the project.

21.3. Detail the nature and extent of night vehicle movements and revise the assessment to include all additional species at risk of vehicle strike.

The Bird and Bat Adaptive Management Plan (BBAMP) and collision risk model need to be revised

22.1. Confirm the proposed lower tip height and update Figure ES1 in the EIS to match the assessed RSA or revise the assessment to address the additional impact of a lower tip height of 50 metres.

22.2. Update all results in the draft Bird and Bat Management Adaptive Plan (BBAMP), including Bird and Bat Use Survey results and collision risk modelling) if the lower tip height is 50 metres.

23.1. Review the list of birds recorded at the subject land in Table A.5 and correct any potential misidentifications.

23.2. Update all results in the draft BBAMP after revising the species list.

24.1. Revise the collision risk assessment in Tables 62 and 63 to include a column for 'Likelihood and nature of collision impacts'.

24.2. Include Painted Honeyeater and White-fronted Chat in the collision risk assessment.

25.1. Update triggers for Tier 1 and 2 non threatened ‘at risk’ species in consultation with BCS.

25.2. In consultation with BCS review the turbine layout and, where appropriate, group turbines where they are in proximity to a landscape feature and treat them as a single turbine for the purpose of impact triggers.

26.1. Revise the draft BBAMP framework in Section 9.1.2 in consultation with BCS, and ensure outcomes based on the results of the BBUS data are fully justified with supporting information and literature.

26.2. Prepare a standalone BBAMP that is appended to the BDAR.

26.3. Ensure the measures in the BBAMP follow the SMART principles and set out clear and specific commitments.

Potential Biodiversity Stewardship

27.1. Discuss any potential stewardship sites that may be within turbines area of influence with BCS.

The assessment of Matters of National Environmental Significance requires review.

28.1. Amend Table 98 of the BDAR to include further justification to support excluding MNES species from further assessment.

28.2. Amend section 12 of the BDAR and specifically address each of the bilateral assessment requirements as detailed in Attachment C to this response.

28.3. Amend s12.1.7 of the BDAR to address MNES offset requirements covered by the bilateral agreement as per s6 in Attachment C of this response.

28.4. After additional surveys for threatened flora are completed, review the significance assessments in Appendix 6 of the BDAR to ensure the validity of outcomes.

28.5. Provide specific information around the proposed additional offsets outlined in s12.1.7 of the BDAR for MNES.

BAM and BOAMS administration

29.1. Add a new child case within the parent case in BOAMs for stage 2 of the development.

29.2. Add a new child case within the parent case to split the scattered trees by stage.

29.3. Revise Table 77 to present the scattered tree impact summary for Stage 1 and Stage 2. Revise Table 91 to present the scattered tree credit liability for each stage.

ATTACHMENT B BCS detailed advice for Dinawan Wind Farm EIS

Flood Risk Management

BCS has reviewed the Flooding Assessment component in Section 6.7 of the EIS and the Dinawan Wind Farm Water Resources Assessment at Appendix E.7.

Provided the proponent addresses the following issues, BCS considers that the EIS addresses the Secretary's requirements for flooding.

1. The proponent consult with the local Council and the NSW SES on emergency management related flood impacts.

The WRA in Appendix E (S9) suggests that the flood risks at the site will be managed through implementing a Flood Management Plan (FMP) developed pre-construction. However, the WRA does not include any evidence of the proponent having consulted with the Local Council or the NSW State Emergency Services (SES) on the emergency management impacts. As this is a requirement set out in BCS's input to SEARs, we recommend the proponent actively consult with Council and the NSW SES about emergency management matters and to inform a site-specific flood emergency response plan that will be developed during detailed design.

Recommendation:

1.1. Actively engage with the local Council and the NSW SES on emergency management matters, and develop a site-specific flood emergency response plan that includes actions the Council and NSW SES support.

2. Additional detail is required on the impact of the proposed development on flood behaviour, as well as the impacts and risks of flooding on the development.

The Dinawan Wind Farm WRA provides a low-resolution overview of the project. The mapping provided does not include detail of the proposed project infrastructure, including ancillary works, in the landscape. This means it is difficult for BCS to determine the impact of the entire project on flood behaviour and the impacts and risks of flooding on the individual elements of the development. This is particularly important for those areas where sensitive and hazardous infrastructure would be constructed, such as accommodation and substations.

BCS recommends that the proponent complete additional hydraulic modelling based on the detailed designs of the project infrastructure, which will include all aspects of development, at a higher resolution to adequately demonstrate the impact of the project on flood behaviour and the impact and risk of flooding on the development.

Recommendation:

2.1. Ensure future hydraulic models include the detailed designs associated with proposed project infrastructure to adequately show the impact of the project on flood behaviour and the impact and risks of flooding on the development.

Biodiversity

BCS has reviewed the Biodiversity Assessment component in Section 6.3 of the EIS and the Dinawan Wind Farm Biodiversity Development Assessment Report (BDAR) at Appendix E.3.

The BDAR at Appendix E.3 does not meet the Secretary's requirements for biodiversity.

The BDAR needs to be updated to allow BCS to determine if serious and irreversible impacts (SAII) are likely

1. It is not possible to determine if SAII to Austral Pillwort and Claypan Daisy are likely

The proponent has assumed the Austral Pillwort (*Pilularia novaehollandiae*) to be present in a total of 7.81 hectares (ha) within the development footprint. Austral Pillwort is a candidate SAII entity under Principle 3 listed under Section 6.7 of the *Biodiversity Conservation Regulations 2017*. This principle states:

> *Principle 3: it is an impact on the habitat of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very limited geographic distribution*

The SAII assessment in Appendix 5 of the BDAR states that '*It is not anticipated that impacts on the on the geographic range would occur for the project as a result from the clearing of native vegetation, increased weed invasion, or changes in hydrology with result from the project*'. However, the proponent has provided only limited evidence to support this statement, and the evidence that is provided in the BDAR is contrary to this statement – Appendix 5.2 (4a) states that approximately 536.59 ha of potential habitat would be disturbed or removed from the Project.

The proponent needs to provide further information to justify that the Project will not contribute to Principle 3. BCS requires SAII assessments to be supported by evidence-based justifications.

The proponent has completed targeted surveys for Claypan Daisy (*Brachyscome muelleroides*) using driving transects. However, this is not an appropriate survey method for flora species (see issue 5). Of the 114 hectares of associated Plant Community Types (PCTs) that could be potential habitat for this species, about 38 hectares was surveyed. However about 28 hectares was completed by transects of which there is no distinction the BDAR between suitable walked transects and unsuitable driving transects.

The proponent has not assumed this SAII flora species to be present and BCS is unable to rely on the information presented in the SAII assessment in Appendix 5 of the BDAR given the issues with how this species has been surveyed.

Recommendation:

1.1. Provide further evidence-based justification that the proposal will not contribute to SAII Principle 3 for Austral Pillwort and Claypan Daisy.

2. The direct impact to 4.02 hectares of Plains-wanderer important habitat mapping needs to be avoided or explained.

From BCS's review of the development footprint, aerial imagery, and Plains-wanderer important habitat mapping, it appears that direct impacts to the mapped areas is largely restricted to existing roads and farm tracks that may not support native vegetation. The exception is the footprint of one permanent meteorological mast site and any proposed widening of existing roads and tracks.

The impact to Plains-wanderer habitat should be explained in more detail to make it clear that most impacts are to areas that have been cleared for farm infrastructure but have not been removed from the important habitat mapping. As occurred with the Yanco Delta Wind Farm assessment (SSD-41743746), BCS supports the proponent manually removing these areas from the impact

area, provided the approach is adequately justified and visual evidence of existing clearing is provided in the BDAR.

The proponent should relocate the permanent meteorological mast DINW02E to an area outside of the Plains-wanderer important habitat mapping. No access track currently exists for this location so after the proposed mast has been relocated, the proponent will need to revise the development footprint and assessment to include access tracks for construction and operation. The location of any new tracks should also avoid Plains-wanderer habitat.

Recommendations:

2.1. Provide justification for the impact to Plains-wanderer important habitat mapping including where mapping incorporates existing access tracks.

2.2. Relocate the permanent meteorological mast DINW02E to an area outside mapped Plain-wanderer habitat. Include access to DINW20E in the assessment, ensuring that proposed access tracks avoid Plains-wanderer habitat.

The candidate lists of threatened species, survey effort, suitable habitat and species polygons need to be revised to ensure they are prepared in accordance with the BAM.

3. More detail is needed to justify why candidate fauna species have been excluded.

Section 4.3 of the BDAR states that the proponent has excluded Koala and Southern Myotis from further assessment as species credit species. The BDAR justifies excluding Koala based on the distance from existing records and describes the habitat on the subject land as 'hostile'. However, there has only been very limited survey for koalas in western NSW, and so lack of records is not a suitable justification to exclude species from further assessment. In addition, the presence of Koala food tree species on site means that the proponent should survey to confirm absence as per the Koala (*Phascolarctos cinereus*) Biodiversity Assessment Method Survey Guide (2022).

The species complex containing Southern Myotis was recorded on site, but the proponent has excluded Southern Myotis due to it being only associated with one PCT (PCT 10) along 'larger more permanent waterways where foraging habitat (water) and roost habitat (tree hollows) are common to abundant'. However, Section 4.1.1 of the BAM Operational Manual – Stage 1 states that if any past surveys of the subject land have recorded the presence of a threatened species or it has been incidentally observed on site, the species must be assessed in accordance with Steps 2-6 in BAM Subsections 5.2.2 to 5.2.6, irrespective of the criteria in Table 11. Therefore, Southern Myotis should be included in Table 39 of the BDAR and assessed in accordance with the BAM.

Recommendations:

3.1. Provide further justification for excluding candidate fauna species in Section 4.3 and Table 110. If further justification cannot be provided in accordance with the BAM, Section 5.2.2 (3) should be applied, and the species assessed further.

4. Targeted threatened fauna species surveys need to comply with the BAM.

Threatened species surveys must be conducted as per section 5.3 of the BAM, which requires surveys to comply with the Department's threatened species survey guides and the Threatened Biodiversity Data Collection (TBDC). The BDAR must include sufficient evidence to demonstrate compliance with the relevant guideline and the TBDC, including GPS coordinates and tracks, dates, timing, person hours, weather conditions and photographs.

The proponent needs to provide further detail and justification for the fauna survey methods used. Fauna transects shown in the spatial data appear to be following vehicle tracks. While this may be acceptable for Australian Bustard it is not an appropriate approach for other fauna surveys.

The proponent has also not provided evidence of the fauna survey effort for large areas of the proposal. For example:

- There is no detail about where Bush Stone-curlew surveys were conducted.
- It is not appropriate to use Bird Utilisation Survey (BUS) as targeted survey for dual credit raptor species.

BCS recommend additional information be provided for the following fauna species and guilds:

- Raptors
- Forest owls
- Amphibians
- Australian bustard
- Bush stone-curlew

Recommendations:

4.1. Provide additional information to confirm threatened species surveys were conducted in accordance with relevant guidelines and the TBDC. If additional surveys cannot be completed, assume presence or provide an expert report.

5. The targeted flora survey method needs to be consistent with the BAM guidance to ensure threatened flora are properly surveyed.

The BAM requires proponents to follow the targeted survey methods set out in guidance documents, or where this is not possible to obtain agreement from BCS in advance to use an alternative method. The proponent has used a method that is different from the BAM guidance but did not seek BCS's agreement to do so before carrying out the surveys and submitting the EIS.

Section 4.3 (Table 25) needs to demonstrate, for each species, the area of habitat present, the required survey months, the area adequately surveyed, and if survey was within the TBDC timing.

The proponent needs to seek agreement from BCS to use an alternative survey method prior to submitting a revised BDAR.

The proponent has justified using a larger grid square based on homogenous landscape, but this is not an appropriate justification due to the presence of threatened flora characterised by micro-elevation changes, very low previous survey effort in the area and numerous threatened flora records being reported from other South West Renewable Energy Zone (SW REZ) projects.

While the large area survey method from the BAM *'Surveying threatened plants and their habitats*' guide can be applied to the project, the proponent has applied it in a way that is consistent with that guide and advice from BCS. While the accredited assessor sought guidance from BCS when they were drafting the BDAR for Dinawan Solar Farm, the assessor did not seek BCS's advice for Dinawan Wind Farm. In addition, BCS did not support the methods the assessor applied to Dinawan Solar Farm (Letter to DPHI dated 21 December 2023).

Table 30 of the BDAR shows the level of survey effort completed, by species and total associated PCTs. Although the total areas are comparable with what is required using the large area survey method, there are large areas for which there were no surveys completed in accepted survey months in the grid points or any transects. These areas have no assumed presence species polygons despite surveys not being completed in required survey months.

For example, Figure 1 shows a large area of mostly Weeping Myall woodland that is an associated PCT for *Swainsona murrayana* and *Swainsona plagiotropis*, for which the survey must occur in September. However, the proponent did not complete targeted flora surveys (grid points or transects) for these species in September and did not include assumed presence species polygons for these species. There are other areas like this within the spatial data.

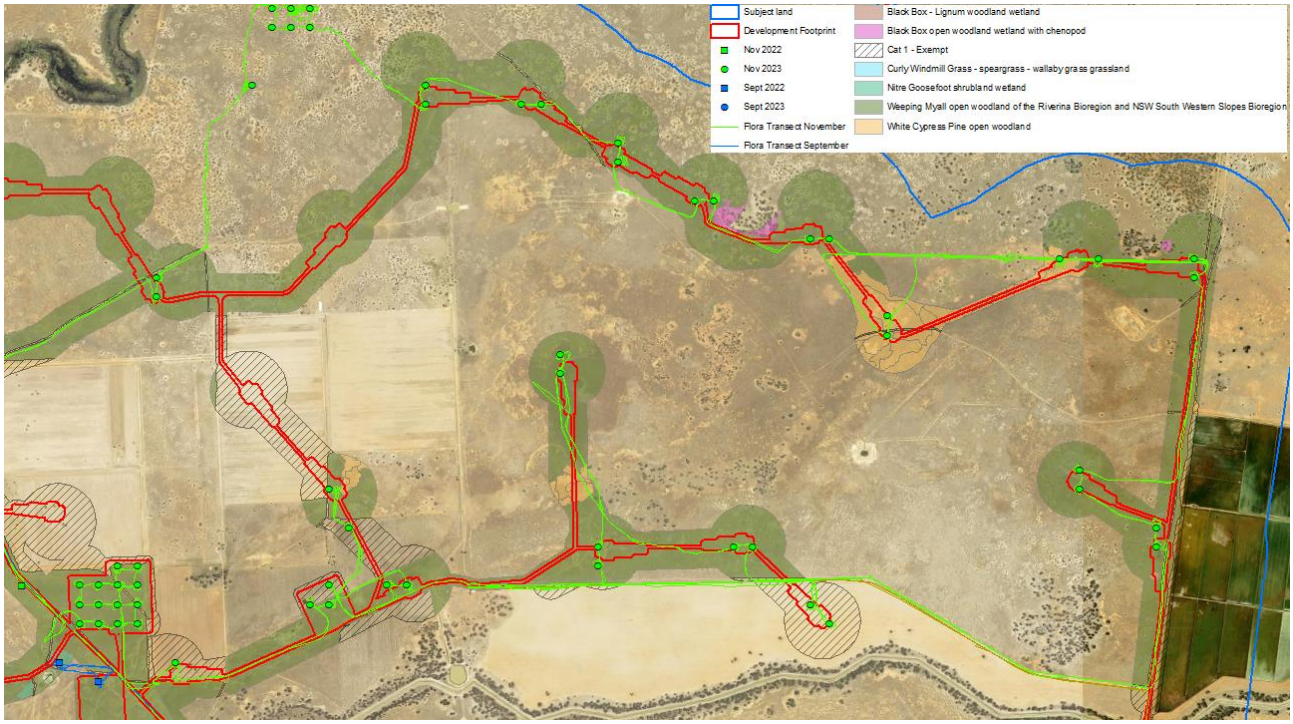

Figure 1: Northeast corner of stage 2 where threatened flora surveys were not completed in September despite associated PCTs occurring for two September only species (*Swainsona murrayana* and S.*plagiotropis*).

Further to previous correspondence from BCS to the proponent for the Dinawan Solar Farm and Pottinger Wind Farm, driving transects are not a suitable survey approach for threatened flora species, and is not in accordance with BAM *'Surveying threatened plants and their habitats*'. Table 32 of the BDAR has driving transects listed as part of the survey effort for nine species (*Maireana cheelii, Brachyscome muelleroides, Brachyscome papillosa, Leptorhynchos orientalis, Swainsona murrayana, Swainsona sericea, Swainsona plagiotropis, Sclerolaena napiformis* and *Eucalyptus leucoxylon*). BCS's emailed advice to the accredited assessor, Biosis, on 16 October 2023 about the Dinawan project modified survey methods stated that slow vehicle transects are not an acceptable threatened flora survey method. The assessor needs to remove any survey effort calculations and maps that include driving transects and complete walking transects in the revised BDAR.

It appears from survey tracks that the assessor surveyed multiple species in each transect at the same time (September and November) surveys. The *'Surveying threatened plants and their habitats'* guideline (Section 5.1) recommends that multi-species searches be restricted to a maximum of five species. If the accredited assessor wishes to continue to use the modified method, the revised BDAR needs to justify why more than five species can be targeted at one time.

Recommendations:

5.1. Review threatened flora survey effort data to ensure the spread of survey effort covers all associated PCT grid points in the correct survey months.

5.2. Where survey effort including walking transects and grid points have not been completed in the correct survey month, remove this effort from the effort calculations in Table 30.

5.3. Remove any driving transects from survey effort calculations and maps then reevaluate additional survey effort for each species.

5.4. Complete additional flora surveys in the correct survey month for each flora species to meet the minimum survey requirements set out in the BAM *'Surveying threatened plants and their habitats*' guide or seek agreement from BCS to use a different approach for this project. If additional surveys cannot be undertaken, assume presence or provide an expert report.

6. Species polygons for threatened fauna need to be reviewed

Several species polygons are inconsistent with the relevant guidelines or the TBDC. The maps in the BDAR do not show any fauna species polygons despite there being species impacts and credits listed for fauna species in s10.3.1 of the BDAR. The fauna species polygons spatial data is inconsistent, with some polygons clipped to the development footprint and others clipped to the development corridor.

The species polygon for the Southern Bell Frog does not include all aquatic habitat within the site. The '*NSW Survey Guide for Threatened Frogs: A guide for the survey of threatened frogs and their habitats for the BAM*' states that the species polygon for Southern Bell Frog:

> *'should align with aquatic habitats linked directly to the record and a buffer, incorporating the PCTs with which the species is associated, of 200 metres radius from the top of bank. Where relevant this should include minimum 50 metre wide corridors of native and non-native vegetated areas linking the available waterbodies.'*

Due to the number of observations within the site, the assessor should apply a precautionary approach and create a polygon for all suitable habitat within the site.

Table 45 of the BDAR provides the method for preparing the species credit species polygons however, the spatial data package is inconsistent with the method provided. For example Table 45 of the BDAR states that the species polygons for Masked Owl are associated with 'All vegetation zones within 800 m of the associated PCTs containing a living or dead tree with a hollow >20 centimetres diameter that occurs >4 metres above the ground.' However, there are areas fitting this description without species polygons.

The TBDC entry for Superb Parrot states that 'Where a breeding site has been identified in accordance with the BAM the species polygon should be established by providing a circular buffer with a 100 metre radius around the nest tree.' Given this, the revised BDAR needs to include further justification as to why the TBDC for this species has not been complied with.

Recommendations:

6.1. Prepare species polygons in accordance with Box 2 of the BAM for each species credit species, in consultation with BCS.

6.2. Present the species polygons for fauna species on maps in the BDAR.

The proponent needs to demonstrate the efforts to avoid and minimise

7. Avoid and minimise measures need to consider the full extent of the project

Section 1.1 of the BDAR and section 1.2 of the EIS describes the project as comprising 267 turbines constructed across two stages:

- Stage 1 (east) - up to 117 turbines
- Stage 2 (west) - up to 150 turbines.

The project description states that a total maximum of 200 turbines would be constructed. Despite this all 267 turbines and associated access roads are included in the development footprint and calculations of ecosystem and species credit requirements.

While BCS recognise that the proponent has applied the principles of avoid and minimise during the project design, section 1.2 of the EIS project description confirms that a further 67 turbines will not be constructed, or impacts required. BCS recommends that further avoid and minimise measures be applied during the pre-approval stage. This take into consideration the outcomes of the turbine and collision risk modelling to identify the 200 turbines that have the lowest impacts on biodiversity including birds and bats.

BCS also reminds the proponent that they should thoroughly consider and apply these principles prior to approval as there is currently no legal mechanism to decrease biodiversity credit obligations for SSD projects post-approval if consent is granted.

If the proponent still wishes to include potential impacts for all 267 turbines, BCS suggests an additional (third) BAM calculator (BAM-C) child case could be developed which includes those turbines and associated infrastructure that are least likely to be developed, including higher risk turbines (see Issue 29). This will provide the proponent greater flexibility in reducing the requirements for retiring credits within a stage for turbines that may not be constructed**.**

Recommendations:

7.1. Use the outcomes of turbine risk assessment and collision risk modelling to further avoid and minimise project impacts and identify the 200 turbines that have the lowest impacts on biodiversity including birds and bats.

7.2. Use the outcomes of the species surveys, State and Commonwealth TEC mapping and prescribed impact assessment to further to further avoid and minimise project impacts for the proposed 200 turbines.

7.3. Prepare an additional (third) BAM-C child case in the parent case to include those turbines and ancillary facilities above the maximum of 200 turbines that are the least likely to be developed.

8. Outcomes of the turbine risk assessment must be used to relocate or remove turbines with very high, high and moderate risk ratings.

Table 70 of the BDAR summaries the turbine risk assessment. Of the 267 turbines, four have a very high risk, 59 are high risk and 114 are moderate risk. There is no evidence in the avoid and minimise measures of the BDAR that the proponent has used the results of the turbine risk assessment to further reduce impacts. Given the project only intends to construct 200 of the 267 turbines, the very high and high risk turbines (totalling 63) should be removed. Where the proponent proposes retaining any very high or high risk turbines, BCS requests they provide a detailed justification for doing so.

Recommendations:

8.1. Remove or relocate all very high-risk turbines.

8.2. Remove or relocate all high-risk turbines, or where this is not possible, provide a detailed justification for retaining them.

9. The description of how the proponent has refined the project to avoid and minimise impacts needs to be revised to address biodiversity constraints.

Table 72 of the BDAR summarises the key ways in which the proponent has refined the project but it does not specifically address biodiversity impacts. Similarly, Figure 17 shows the alternative options versus the selected option but does not include specific information on biodiversity. Table 72 should detail the biodiversity impacts (including to TECs) and how the impacts have changed after the project has been refined. The revised BDAR should include a new table comparing the biodiversity impact of the selected and alternative options.

Table 72 demonstrates that the proponent has reduced the development corridor area from Version 1 being 10,366 hectares to Version 8 at 7,256 hectares. BCS notes from section 7.2 that some of the impact reduction is due to avoiding biodiversity values, however the BDAR does not present the extent of this avoidance due to specific biodiversity values (e.g. SAII entities, TECs, threatened flora, collision risk etc).

For example, it would be informative to see areas of Plains-wanderer mapped habitat, TECs, threatened flora and collision risk in the Version 1 layout compared to the Version 8 layout, rather than just the development corridor area. To show how the proponent has considered these features and to help with implementing mitigation measures, the BDAR could include maps showing the location of no-go zones and areas categorised as 'high' biodiversity value for layout Versions 1 to 8.

It is also unclear whether the proponent has used the presence of raptor nests to inform collision risk and subsequent avoidance. For example, the Black Falcon was recorded nesting on site but there has been no indication of where this was, whether the nesting location was avoided and whether specific turbines have been rated to reflect any additional risk.

Recommendations:

9.1. Revise Section 7 to detail how changes to the development corridor has reduced biodiversity impacts, in accordance with BAM section 7.1.2.

9.2. Include maps of the alternative and selected development options with key biodiversity constraints including (but not limited to) Plains-wanderer important habitat mapping, no-go zones, and areas of high biodiversity value.

10. Avoid and minimise needs to be reconsidered after additional survey for some threatened flora species and breeding habitat for threatened fauna is completed

Table 74 (page 262) demonstrates how the project has avoided and minimised impacts, including 'relocating wind turbines away from key nesting and breeding sites for threatened avifauna' as an example of avoiding higher biodiversity values. As noted in Issue 6 above, the proponent needs to reassess breeding habitat after completing the necessary survey as it is likely the extent of breeding habitat on the project site is underestimated. Specifically, the proponent needs to complete targeted breeding survey of dual credit raptor species, Spotted Harrier, Little Eagle and Square-tailed Kite.

As discussed in Issue 5, the proponent needs to use a survey method that complies with the BAM for *Swainsona murrayana* and *Swainsona sericea* (see above) and survey the large areas of associated PCTs. The proponent also needs to complete surveys for target flora species in the associated PCTs in correct survey months before they can adequately demonstrate they have avoided and minimised the impacts as per Table 74. In addition, while the proponent has provided species polygons for locations where these species were recorded, they also need to provide point data threatened flora records within the spatial data and provide this to BCS.

Recommendations:

10.1. After completing additional survey identified in issues 5 and 6, and updating the avoid and minimise assessment as per issues 7, 8 and 9, revise Table 74 to demonstrate the application of avoid and minimise in accordance with the BAM.

10.2. If the required survey is not completed, the BDAR must include:

- a statement in Table 74 about survey limitations and clearly identifying that high biodiversity values may not all have been identified and avoided.
- mapping in section 7.1 and 7.4 of the BDAR for unsurveyed areas for threatened flora and fauna species where the avoid and minimise principle could not be applied based on the outcomes of survey results.

11. Impacts to large hollow-bearing trees should be avoided by re-locating tracks and cable routes.

Section 7.3 and Table 73 detail the 67 hollow-bearing trees (HBTs) recorded in the development corridor and whether they will be removed or retained. The HBT spatial data does not include the tree identifiers from Table 71 or identify which trees are to be removed or retained, making it difficult for BCS to verify the information in the BDAR. While BCS acknowledges that the proponent is retaining 78% of HBTs, we note that the main impacts to HBTs are due to access and cabling requirements. The diameter of some trees to be removed (50 - 100 cm, and greater than 100 cm) indicate that they were likely present before European settlement, so have high conservation value within the Riverina bioregion. BCS expects the proponent to avoid large, HBTs in the location of access tracks and cable routes.

Recommendations:

11.1. Justify the location of the development footprint for each large hollow-bearing tree proposed to be removed.

11.2. Amend the scattered tree spatial data to include tree identifiers and proposed impact (removed or retained) as per Table 73 of the BDAR.

PCT, TEC, and vegetation zone identification and mapping need to be revised and the biodiversity credit calculation updated.

12. Plant community types must be mapped for the subject land.

The vegetation maps presented in BDAR Figure 6A are of vegetation classes, which are a broader classification than PCTs. BAM s.4.2 requires PCTs to be identified and mapped on the subject land.

Recommendation:

12.1. Provide maps showing the distribution and extent of the PCTs identified on the subject land and described in BDAR s.3.2.3, as required by BAM s.4.2.

13. The NSW Threatened Ecological Community (TEC) of Weeping Myall woodland should include all condition states.

BCS agrees that the derived native grassland (DNG) condition state for Weeping Myall does not meet the thresholds within the EPBC final determination. However, as stated in the BDAR '*The BC Act does not contain key diagnostics or condition thresholds for this community.'* Given this, it is unclear why the proponent has excluded the DNG condition state for the NSW listing of this community. Table 18 of the BDAR also recognises that parts of the DNG zone contain recruitment and fallen timber consistent with Weeping Myall. As the NSW Threatened Species Scientific Committee determination does not include condition thresholds, and without site specific knowledge of how these DNG zones may respond to grazing exclusion and recruitment, the proponent should adopt a precautionary approach and include the DNG condition zone as part of the NSW Weeping Myall TEC.

Recommendation:

13.1. Update the BDAR and calculations of impacts to NSW Weeping Myall TEC to include derived native grassland condition.

14. Vegetation integrity (VI) scores need to be revised.

Stage 1 (east) and stage 2 (west) of the proposed development have different impact areas for each vegetation zone and some different PCTs. The VI plots entered in the BAM-C for each stage have used the same VI plot data for each vegetation zone regardless of area and location of VI

plots in the east (stage 1) or west (stage 2). This means the VI score for vegetation zones in each stage are exactly the same .

Where there is a shortfall in the number of VI plots for a vegetation zone, the BDAR should justify including VI plots from a different stage. Similarly, where the area of the vegetation zone for a stage has enough plots within the stage, VI plots from the other stage should not be used to ensure the VI score is most accurately reflected within the vegetation zone in each stage.

Recommendations:

14.1. Update each BAM-C child case for each stage to only include VI plots collected for that stage.

14.2. Where VI plots from another stage are required to make up for a shortfall in the required VI plots, provide justification within the BDAR for each plot on why it is suitable to use in the vegetation zone.

15. VI plots across vegetation zones need to be consistently placed and used, and need to sample the extent of variability across some vegetation zones.

BCS completed a review of plot locations to vegetation zones. This review identified several inconsistencies with plot allocation to vegetation zones and large areas of vegetation zones that are mostly unsurveyed as the VI plots have not been appropriately placed across the vegetation zone. While BCS's review is not exhaustive, it found examples of inconsistences that may affect the outcome of VI score including:

- Vegetation zone PCT17 (moderate) – no plots within the vegetation zone impact areas with the nearest plots used being nine kilometres away.
- Vegetation zone PCT45 (mod-good) – only one of three VI plots used is in the vegetation zone and none are in stage 2 where more than half of the impact to this vegetation zone occurs.
- Vegetation zone PCT15 (thinned) – uses one plot from PCT13 (thinned)
- Vegetation zone PCT 26 (intact) – plot 'DEH_W_607' is mapped within the 'sparse' condition zone but has been used in the 'intact' condition zone.

BCS recommends that the proponent review the plot placement and provide justification for the placement in parallel with implementing the recommendations set out in Issue 14 (above). Where the proponent does not include any plots in a vegetation zone within a stage, they must collect additional VI plots to reflect actual conditions within the impact area.

Recommendation:

15.1. Collect additional VI plots where plots are not within the vegetation zone for each stage of the development footprint.

The impact assessment requires revision, and mitigation measures need to include more specific detail to be effective in managing impacts.

16. The assessment needs to include impacts to transport routes, road and intersection widening, access tracks, asset protection zones and the Stage 1 accommodation camp.

The BDAR assesses the impacts for up to 10 meteorological masts but there proponent has not included tracks to access these masts in the construction or operation footprint or impact assessment.

The description of the development in the EIS Table ES1 includes six intersection upgrades and five existing road upgrades, which are not specified in the BDAR (s.1.1.1). Given this, BCS cannot determine if the proponent has assessed the biodiversity impacts of all road and intersection

upgrades required for the proposal. The BDAR also does not assess the biodiversity impacts of the transport route that will be used to delivering turbine components.

The BDAR does not discuss the proposed accommodation camp for Stage 1 in detail or mapped it as an impact. On Figure 18 it appears to be co-located with the Dinawan Solar Farm accommodation camp. EIS Table 3.2 states that there would be two accommodation facilities and three locations have been assessed, however there are only two locations in the spatial data.

Recommendations:

16.1. Assess all areas where native vegetation will be impacted by the project, including where there will be clearing for ancillary infrastructure, and to construct or upgrade access and transport routes.

16.2. Clarify the location and number of accommodation camps included in the assessment.

17. The indirect impact assessment requires review and the BDAR must detail the measures to mitigate indirect impacts.

Table 80 of the BDAR shows the indirect impacts have been assessed as low and negligible risk largely based on assumptions that measures in the Biodiversity Management Plan (BMP) and Construction Environmental Management Plan (CEMP) will be effective. However the BMP and CEMP have not yet been developed. Section 9.1 and Table 83 need to include more detail to allow BCS to have confidence that the consequences presented in Table 80 would be realised.

For example, page 285 of the BDAR states that it is unlikely there will be increases in pathogens and weeds transported and the residual risk will be managed by biosecurity measures outlined in a CEMP or similar. The Traffic Impact Assessment at Appendix E.6 states that *'462 light vehicle movements and 176 heavy vehicle movements across eight site access points, for a total of 638 vehicle movements'* will occur daily during peak construction. The high number of daily vehicle movements suggests that the likelihood of transporting pathogens or weeds is very likely. The BDAR should document the proposed biosecurity methods to manage this risk.

Table 80 also states that the project would not result in wood collection and if so it would be negligible. However, this assessment does not consider the recreational impacts of the large number of staff living and working on the project site. The proponent estimates there will to be approximately 600 people employed during peak construction and 50 full time employees during operation and, with up to 75% of the peak construction workforce (450 people) staying in on-site accommodation, the proponent needs to consider, document and propose mitigation measures to address the risk of these staff collecting wood for campfires.

Table 80 (first row, page 283) assesses that there would be a low likelihood of impact to retained vegetation and threatened species habitat through *'appropriate exclusion fencing of sensitive areas'.* However, the BDAR does not include specific locations, maps or details about exclusion fencing design or a definition of sensitive areas. Action B3 in Table 83 mitigation measures states that no-go zones will be established for construction works adjacent to threatened flora populations but does not specify what component of the spatial data should be used to delineate a population, any buffers, or the location of populations.

The proponent has not adequately consider the impact to Plains-wanderer habitat from exotic plant species introduced during construction. BCS does not consider that the risk of weed and pathogen infestation of adjacent vegetation is low. This indirect impact is likely during construction, as BCS has observed on other similar projects. Table 83 Action B7 needs to detail specific measures to mitigate this impact and include a commitment to monitor exotic plant invasion outside the development footprint. Common exotic plants that invade native vegetation and degrade habitats over time may not be Weeds of National Significance or listed on the NSW *Biosecurity Act 2014* so are not typically targeted for control measures in rural weed control programs or recognised by weed control contractors because they do not generally impact agricultural productivity.

Table 80 states there is a negligible likelihood the project will reduce the viability of adjacent habitat due to noise, dust or light spill, but does not provide sufficient evidence to support this statement. Wind turbine noise has been found by Teff-Seker et al. (2022)[1] to alter the natural acoustic environment by introducing airborne load broadband sound which is within the hearing range of a variety of fauna, including most bird species. Noise pollution has been shown to affect species demography and may promote habitat avoidance. Table 100 should consider the noise thresholds for the threatened species known to inhabit the subject land.

Section 8.3.2 of the BDAR provides a general discussion about the loss of habitat connectivity but does not assess how groups of species use particular habitats, and therefore how any indirect impacts would be appropriately minimised. The proponent needs to show how the project has considered connectivity in the context of the development footprint and the surrounding landscape.

Recommendations:

17.1. Amend Section 8.2 of the BDAR to provide evidence to justify the predicted impacts and discuss any limitations to the data and assumptions made. Revise Table 80 to detail specific measures to mitigate indirect impacts, including details required by BAM s.8.4.

17.2. Further assess the impacts wood collection and exotic plant invasion into adjacent vegetation, including Plains-wanderer habitat.

17.3. Provide feasible measures to minimise or mitigate any identified impacts from exotic plant invasion or wood collection.

18. Plain-wanderer habitat is at risk of harm from construction runoff and sedimentation

The project must minimise the impact of sedimentation on Plains-wanderer habitat. Section 8.3.3 discusses erosion and sediment mobilisation but does not provide any detail on the implications for threatened species habitat. The ecological consequences of sediment mobilisation from construction works during and after high rainfall events and overland flows has the potential to degrade the condition and extent Plains-wanderer habitat (see also Issue 20).

For example, Action B10 in Table 83 of the BDAR needs to include additional and stringent measures in specified locations for sediment and run-off control in areas that potentially run on to Plains-wanderer habitat. The proponent also needs to commit to weekly monitoring and set out rainfall event thresholds to trigger additional monitoring at these locations to ensure Plains-wanderer habitat is not impacted by the development.

Recommendations

18.1. Include measures to minimise or mitigate impacts of sedimentation on threatened entities, including Plains-wanderer habitat, and specify monitoring requirements to ensure controls are effective.

19. Mitigation measures need more detail to meet requirements of BAM section 8.4.

BAM section 8.4 requires that all measures to mitigate and manage impacts are documented in detail in the BDAR.

The mitigation measures presented in Table 83 currently lack specific detail for some proposed mitigation and management measures. It also uses non-committal language and does not assess the risk and consequence of any residual impacts. BCS requests that all mitigation measures follow the SMART principles (specific, measurable, achievable, relevant, and time-bound) and the

[1] Teff-Seker Y, Berger-Tal O, Lehnardt Y & Teschner N (2022) Noise pollution from wind turbines and its effects on wildlife: A cross-national analysis of current policies and planning regulations, *Renewable and Sustainable Energy Reviews* 168: October 2022, 112801. https://doi.org/10.1016/j.rser.2022.112801

mitigation measures be detailed in the BDAR and not be deferred to post-approval management plans (such as the BMP or CEMP).

Table 83, Action B8 of the BDAR mentions adaptive management strategies, but it does not include details about what is being managed, success measures, triggers for remedial action or what those actions are, as required by BAM section 8.5.

For native fauna encounters in Action B2, the action specifies that *'if native fauna is encountered on site and assistance is required to move fauna'* that work will stop and a licensed ecologist will be engaged. This process does not seem to be feasible and raises questions about whether there will be a project ecologist on site, particularly one with experience in identifying Plains-wanderer.

Further details are required on how fauna caught during this process will be handled. The BDAR should consider what happens to:

i. uninjured animals on the day of capture (e.g. uninjured animals should be released on the day of capture into nearby suitable secure habitat and should not be held for extended periods of time), and
ii. injured animals (e.g. they will be taken to the nearest veterinary clinic for assessment and treatment).

For example, Action B2 should specify what happens if hollow dependent fauna are found nesting is occurring in a hollow (including adults and eggs or young) in a tree that will be cleared.

BCS is generally cautious about the relocating/translocating captured threatened and non-threatened fauna due to impacts on habitat resources, potential disease implications, and social disruption to other animals already using release areas. However, provided the proponent can provide further detail, BCS is generally supportive of the proposed approach. The proponent should specify in detail what will happen to displaced threatened fauna, and if animals are to be relocated/translocated, then the BDAR should include an appraisal of the potential impacts of such relocations/translocations and what measures (e.g. monitoring) the proponent will employ to minimise any detrimental effects on existing faunal populations and adjacent habitat.

However, BCS does not support frog relocations as handling causes stress and potential hygiene issues. BCS supports the action specifying that once dewatering is complete, dams are to be left for a minimum of 48 hours and up to a week to allow species to leave the area.

Any wildlife relocations/translocations should be done in accordance with Translocation operational policy (DPIE 2019), and threatened species translocations will require a licence under section 132 of the *National Parks and Wildlife Act 1974* or a threatened species licence under Part 2 of the BC Act, if species are being relocated to areas outside the approved development consent area. The BDAR needs to include these details.

Action B2 states that there will be a trigger for measures to minimise impact to breeding individuals if MNES species are found during pre-clearing surveys. The BDAR should provide details about appropriate protections for each identified species to ensure the measures are feasible, agreed and understood.

Action B5 needs to include regular weed monitoring and management in vegetation adjacent to the development footprint during construction and operation as per Table 80 page 285. We suggest this should be focussed around TECs, Plains-wanderer habitat and threatened plant locations and habitat.

Action B8 states that the BMP will provide pre-clearing survey requirements for micro-siting and criteria to ensure no increase in biodiversity impacts. The details and criteria should be included in the BDAR.

Plains-wanderer are known to be impacted by increased predation when new access tracks are constructed that further encourage movement of predators like foxes across the species habitat. Table 80 mentions that the proponent will introduce pest management regimes but, other than mentioning the BMP, Table 83 does not include any specific commitments to manage this impact.

Recommendations:

19.1. Update Section 9 of the BDAR (including Table 83) to include mitigation measures that follow the SMART principles and address the identified impacts.

19.2. Ensure that the language in Table 83 sets out clear commitments.

19.3. Revise Table 83 to detail auditable mitigation and management measures to be implemented through post-approval plans. Amend Table 83 to include residual impacts and risk of failure.

19.4. Provide details in measure B2 to specify the criteria for micro-siting and pre-clearing survey requirements.

19.5. Detail how injured and uninjured animals will be treated, particularly with respect to relocation to nearby habitat. The BDAR should discuss what the potential impacts of any relocations/translocations of displaced fauna (particularly threatened species) may be on adjoining habitat and what measures (e.g. monitoring) will be used to minimise any detrimental effects on existing faunal populations that use such areas.

19.6. Remove requirements for handling and relocating Southern Bell Frog from Action B2, Table 83.

19.7. Document the mitigation priorities and strategies proposed to reduce impacts of predators on Plains-wanderer as indicated in Table 80.

The prescribed impact assessment needs to include all prescribed impacts and further assess the impacts to individual entities

20. Prescribed impacts need to be assessed for each impacted entity, not as generalised groups.

The prescribed impact assessment identifies the general impacts to flora, fauna and avifauna, rather than the impacts to individual entities. Section 8.3 should include a table (similar to Table 81) for each impacted species that relies on human made structures, habitat connectivity, and water bodies, or is at risk from vehicle strike.

The proponent needs to assess how the new network of access tracks throughout the site alters/reduces habitat connectivity, particularly for ground-dwelling threatened fauna and Plains-wanderer.

The proponent needs to identify the impact of changed hydrological processes on threatened entities. While Section 8.3.3 and Table 46 claims that the timing of runoff from the development site will be will similar to the current regime, the extensive flooding in 2022 shows that water does move through this landscape. As noted under issue 18, the risks of sedimentation on threatened species habitat should be further discussed.

The BDAR needs to assess the impacts on some threatened bats that may use the site as a flyway or migration route in Table 46. Southern Myotis and Corben's Long-eared Bat are not included in the assessment, but there is no conclusive evidence they are absent from the site.

Section 8.3.1 claims that the consequence of removing dams and troughs within the broader landscape is low as other large water features will remain in the area, but does not adequately address impacts of permanently removing dams to the recorded Southern Bell Frog. Removing aquatic habitat and/or its degradation a known key threat to the species so the proponent should provide further information to address how removing the habitat will impact the local population.

Recommendations:

20.1. Revise Section 8.3 of the BDAR to assess the prescribed impacts that the proposal will, or is likely to have, on threatened entities and their habitat in accordance with

Section 8.3 of the BAM. The BDAR should include information on how each prescribed impact is likely to impact each specific species or guild.

20.2. Revise the BDAR to include figures displaying corridors for different guilds (arboreal, terrestrial, aquatic, etc) to demonstrate that movement will not be impaired.

20.3. Assess the impact of the new network of access tracks on habitat connectivity for threatened entities.

20.4. Assess the risk of sedimentation (from clearing, construction and operation) on threatened species habitat for individual species during and after high rainfall events when water is moving through the landscape.

20.5. Include Southern Myotis and Corben's Long-eared Bat in the assessment of fauna that may use the site as a flyway or migration route

21. The vehicle strike assessment needs to include all threatened fauna at risk, all roads and tracks, and impacts from transporting turbine components and blades.

The BDAR only assesses the impact vehicle strike on low flying and ground foraging birds on the external roads to and from site during daytime hours. The assessment needs to consider the impacts of vehicle strike on other threatened fauna on site. This is particularly the case given the project will add a suite of new tracks and increase vehicle movement on site (up to 638 daily vehicle movements during peak construction). Species such as Plains-wanderer, Southern Bell Frog, White-fronted Chat, and Southern Whiteface are some of the other species at risk of vehicle strike that also need to be assessed.

The BDAR only maps vehicle impacts for McLennons Bore Road and Goolgumbla Road. The assessment needs to consider impacts for all roads/tracks on the proposal site.

While the BDAR assesses vehicle strike for Southern Bell Frog, the current mitigation measures listed in Table 83 are unlikely to adequately mitigate vehicle strike impacts for the species.

Table ES1 in the EIS identifies the hours of operation as '…*standard daytime construction hours... with some exceptions proposed for select works'*. A different range of fauna will be at risk of vehicle strike at night compared to the daytime, so the BDAR needs to specify the "select works" and assess the impacts including the hours and months when the exceptions will apply.

As the route for transporting turbine components and blades was not included in the BDAR, the BDAR does not consider the impact of vehicle strike along this route, including the implications of travel timing. The proponent needs to complete further assessment if the transport of over-size/over-mass items from port is required and if it will be restricted to night hours.

Recommendations:

21.1. Include all threatened fauna in the vehicle strike assessment and provide mitigation measures to address all impacted species.

21.2. Assess vehicle strike impacts for all roads and tracks constructed or used for the project.

21.3. Detail the nature and extent of night vehicle movements and revise the assessment to include all additional species at risk of vehicle strike.

The Bird and Bat Adaptive Management Plan (BBAMP) and collision risk model need to be revised

22. There are differences in the reported turbine lower tip height between the EIS and BDAR.

The BDAR s1.1.1 includes a lower tip height of 80 metres from the ground but Figure ES1 in the EIS shows it as 50 metres. As the assessment relies on rotor sweep area (RSA) dimensions to identify impacts, this discrepancy needs to be resolved to ensure consistent reporting and the

collision risk modelling (CRM) is accurate. All Bird and Bat Use Survey (BBUS) sites recorded species flying above the RSA as >80 metres and the CRM only uses species recorded above this height (s6.1.6 of the BDAR). If the lower tip height is 50 metres, the results of birds flying within the RSA and subsequent input into the CRM will need to be reviewed and revised.

Recommendations:

22.1. Confirm the proposed lower tip height and update Figure ES1 in the EIS to match the assessed RSA or revise the assessment to address the additional impact of a lower tip height of 50 metres.

22.2. Update all results in the draft Bird and Bat Management Adaptive Plan (BBAMP), including Bird and Bat Use Survey results and collision risk modelling) if the lower tip height is 50 metres.

23. Some birds appear to have been mis-identified in BBUS results.

The BBUS described in section 5.2.2 and results presented in Appendix 4 includes several species that BCS has identified as potentially out-of-range or mis-identified. These include Redthroat, Australian King-parrot, Striated Thornbill, Buff-rumped Thornbill, Brown Thornbill, Yellow-throated Scrubwren and Fuscous Honeyeater all of which are not known to occur on the Hay Plain. These results raise concerns about whether threatened and at-risk birds have been correctly identified on the proposal site, and therefore whether they are present and at-risk of turbine strike.

Recommendations:

23.1. Review the list of birds recorded at the subject land in Table A.5 and correct any potential misidentifications.

23.2. Update all results in the draft BBAMP after revising the species list.

24. Some bird species should have a higher collision risk rating.

The bird collision risks and consequences in Table 62 and Table 63 needs to include Painted Honeyeater and White-fronted Chat. While the assessor did not see these flying at the 80 metre height during the survey, that is insufficient evidence to determine that they do not fly within the RSA, particularly given the apparent low number of records. While the White-fronted Chat is more nomadic, both species are long-distance migrants that will fly high (within the RSA) when flying greater distances. Given this, they should have a higher collision risk rating. Australian Magpie should have a 'probable' likelihood as they are frequently reported as collisions.

Table 81 includes a column titled 'Likelihood and nature of collision impacts'. Most species are assessed as low risk of collision, with only a few assessed as moderate or high. For example, Wedge-tailed Eagle is rated as high for the likelihood and nature of collision, with a predicted number of collisions of 3-6 individuals per annum. However, the triggers presented in Tables 84 and 85 do not correlate with those predicted collision rates. A Tier 1 trigger for Wedge-tailed Eagle (non-threatened, at risk) requires 3 or more carcasses/feather spots/etc. to be found under a turbine in a single mortality search. This trigger is too high compared to the predicted number of eagles at risk of collision (3-6 per annum). See also Issue 25.

Recommendations:

24.1. Revise the collision risk assessment in Tables 62 and 63 to include a column for 'Likelihood and nature of collision impacts'.

24.2. Include Painted Honeyeater and White-fronted Chat in the collision risk assessment.

25. Trigger levels for monitoring require review.

Trigger alerts for non-threatened at-risk species in Table 84 and 85 of the BDAR are too high and require review. The proponent must justify proposed triggers based on literature that is relevant to the species and the region and include the justifications in Tables 84 and 85. For example, the trigger of three non-threatened 'at-risk' species found under or close to (<200m) a turbine during a single search is likely to be high. These triggers, as drafted, will not inform when turbine strike impacts reach an unacceptable level. The choice of triggers also needs to be adequately justified.

BCS does not consider it appropriate to restrict triggers to a single turbine only. Where turbines are located close together or there are multiple turbines in proximity to a landscape feature (e.g. creek, sandhill, etc), and where there are multiple high and very high-risk turbines in proximity to each other, impacts to that cluster of turbines should be considered as impacts to a single turbine (see Figure 2).

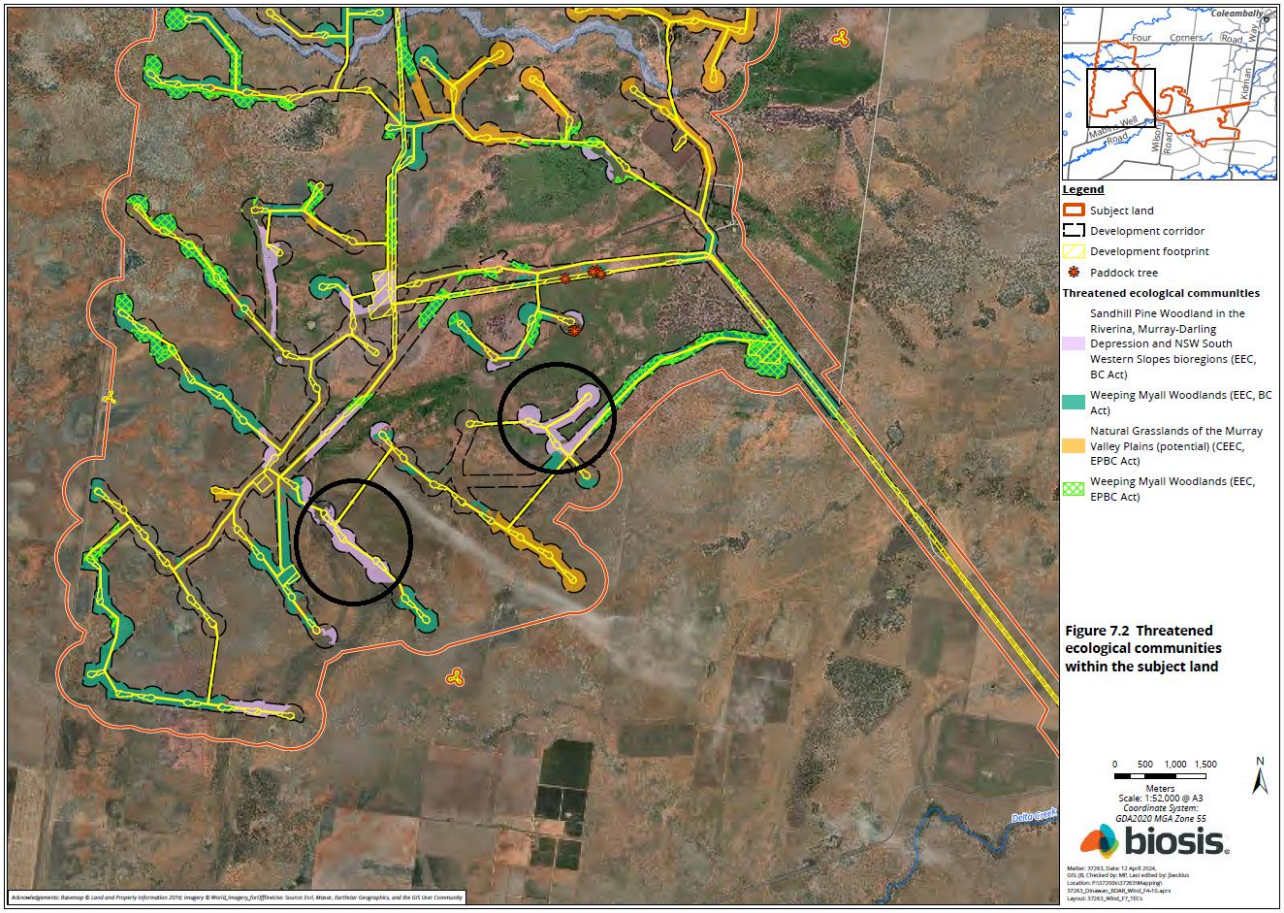

Figure 2: Example of groups of turbines (circled in black) that should be considered as a single turbine for the purpose of impact triggers.

Recommendations:

25.1. Update triggers for Tier 1 and 2 non threatened ‘at risk’ species in consultation with BCS.

25.2. In consultation with BCS review the turbine layout and, where appropriate, group turbines where they are in proximity to a landscape feature and treat them as a single turbine for the purpose of impact triggers.

26. Measures to mitigate impacts to birds and bats in the BBAMP framework need to clearly commit to specific actions to be effective.

As per Issue 19, mitigation measures should follow the SMART principles. It is unclear which mitigation measures in Table 87 of the BDAR the proponent will implement as the language used is non-committal (i.e. the title is 'Consideration of likely required mitigation measures'). Section 9.1.2 of the BDAR states it is *'not feasible to foresee what potential factors'* would lead to collisions and that mitigation measures can be prepared *'only if a cause ….. is known'*. However, the mitigation measures proposed under the title 'General' in Table 87 of the BDAR are all suitable mitigation measures to minimise strike. Table 87 should be amended to include mitigation measures that are realistic and likely to be used for this project, and are specific to the PCTs, habitats and entities being impacted.

The proponent should complete carcass persistence trials and searcher efficiency trials prior to construction and operation, and the results of the trials be used to inform the BBAMP. BCS recommends a search efficiency >70 per cent. Based on previous search efficiency trials seen by BCS this would eliminate human observers as a viable option.

The BBAMP is a stand-alone adaptive management plan that is an important tool for monitoring, mitigating and potentially offsetting residual prescribed impacts resulting from turbine strikes. As it is to be implemented after project approval, the BBAMP framework in Section 9.1.2 should be provided as a separate document appended to the BDAR. Given its importance, a more comprehensive draft BBAMP should be prepared in consultation with BCS, that justifies outcomes based on the results of the BBUS data and assessment.

Recommendations:

26.1. Revise the draft BBAMP framework in Section 9.1.2 in consultation with BCS, and ensure outcomes based on the results of the BBUS data are fully justified with supporting information and literature.

26.2. Prepare a standalone BBAMP that is appended to the BDAR.

26.3. Ensure the measures in the BBAMP follow the SMART principles and set out clear and specific commitments.

Potential Biodiversity Stewardship

27. Potential biodiversity stewardship sites should be discussed with BCS.

BCS note the five potential biodiversity stewardship sites in s11.3 and Figure 23 of the BDAR. We encourage the accredited assessor to consult early with the Nature Markets and Offsets (NMO) Division in BCS regarding these locations as potential offset sites in immediate proximity to proposed wind farms.

Recommendation:

27.1. Discuss any potential stewardship sites that may be within turbines area of influence with BCS.

The assessment of Matters of National Environmental Significance requires review.

28. A complete MNES assessment should be provided to address the Assessment Bilateral.

The biodiversity impact assessment and offsetting is being completed under the EPBC Act Assessment Bilateral Policy. As this is a controlled action bilateral assessment project, BCS requires additional information to confirm that the proponent has addressed all relevant MNES. The NSW Government issued Supplementary SEARs for the project which outline the species and communities requiring assessment, which have been replicated in the BDAR section 12.1.1.

The BDAR currently does not demonstrate that Australian Government assessment requirements for impacts to all MNES have been adequately addressed. The required MNES information under the Australian Government DCCEEW Bilateral Assessment (provided in **Attachment C** to this response) is not complete. For example, item 4 of Attachment C to this response requires all efforts to avoid and minimise impacts on EPBC Act-listed threatened species and communities to be demonstrated. Table 83 of the BDAR discusses general project avoidance (not MNES specific) and section 12.1.4 refers to general project avoidance in section 7 of the BDAR.

The impact to MNES entities is unclear. Some species have not been included on the grounds of vagrancy but the reasons for this are not clearly justified. For example, the Blue-winged Parrot is a regular migrant to southwestern NSW and is known to fly within the RSA height, but it was not included in the assessment based on vagrancy. This species has been recorded recently at other wind farm sites in the SW REZ. Other migratory species that require further consideration include Rainbow bee-eater, Glossy Ibis and Caspian Tern. Further information should be provided to support the impact assessment to MNES species, including full references to any peer-reviewed literature relied upon and correspondence with any species experts engaged.

Some MNES fauna species have been excluded 'based on habitat assessment', however minimal detail is provided to support this statement (Table 98 of the BDAR).

Significance assessments in Appendix 6 for flora conclude no significant impact to EPBC listed flora species despite some species not surveyed and assumed presence being required. Given the survey issues raised earlier in this response, the significance assessment will need to be updated when the proponent has reviewed the minimum survey effort requirements for all species (see Issues 4 and 5) and completed additional surveys completed. The outcomes of these surveys should be used to update Appendix 6 of the BDAR.

Table 99 does not to identify those ecosystem credit species that are also EPBC listed species that will have associated PCTs impacted and for which a credit requirement is generated.

Section 12.1.7 of the BDAR says:

> *'The project is committed to providing additional offsets, over and above those required by the NSW BOS and EPBC Act Environmental Offsets Policy to benefit significantly impacted communities and species through means such as providing additional funding for habitat management, predator exclusion and pest control…The quantum of additional offset contributions, specific measures to be funded, and relevant mechanisms will be detailed in the projects final designs Biodiversity Offset Strategy, to be developed post-approval*.'

Without any further information to support the proposed additional offset contributions, BCS is unable to consider these actions and how they may mitigate impacts to MNES.

Recommendations:

28.1. Amend Table 98 of the BDAR to include further justification to support excluding MNES species from further assessment.

28.2. Amend section 12 of the BDAR and specifically address each of the bilateral assessment requirements as detailed in Attachment C to this response.

28.3. Amend s12.1.7 of the BDAR to address MNES offset requirements covered by the bilateral agreement as per s6 in Attachment C of this response.

28.4. After additional surveys for threatened flora are completed, review the significance assessments in Appendix 6 of the BDAR to ensure the validity of outcomes.

28.5. Provide specific information around the proposed additional offsets outlined in s12.1.7 of the BDAR for MNES.

29. The two stages proposed for credit retirement should be allocated to two separate child cases for vegetation zones and scattered trees.

The BDAR includes Stage 1 and Stage 2 to allow for credits to be retired in stages. While the BDAR includes two separate credit reports (one for each stage), these stages have been prepared as revisions within the one child case (revision 3 and revision 2 in child case 00046668). It is not possible to create two revisions in a child case to allow a staged development approach. When multiple assessment revisions have been finalised, only the credit recordings from the most recently finalised revision is recorded in BOAMS, and only the latest finalised revision is sent to the consent authority. To ensure credits for both stages are recorded in the parent case in BOAMS, two separate child cases within the one parent case must be prepared.

Similarly, the credit requirements for scattered trees presented in Table 91 are not split by stage and there is only one child case for scattered trees in the parent case in BOAMS. The spatial data shows that there are 17 trees in stage 2 (PT 1 to 17) and 12 trees in stage 1 (PT18 to PT29). This separation should also be made clear in Table 77 (impact summary) of the BDAR.

Recommendations:

29.1. Add a new child case within the parent case in BOAMs for stage 2 of the development.

29.2. Add a new child case within the parent case to split the scattered trees by stage.

29.3. Revise Table 77 to present the scattered tree impact summary for Stage 1 and Stage 2. Revise Table 91 to present the scattered tree credit liability for each stage.

ATTACHMENT C BCS Bilateral Assessment information and data requirements

For BCS to complete the assessment of threatened species and communities listed under the EPBC Act, the BDAR needs to include following information.

1. Background and description of action

The revised BDAR must:

1. Describe the operational and construction footprints of the project that relate to MNES and provide the relevant maps.
2. Describe staging and timing of the action that may impact on MNES and provide the relevant maps.
3. Provide maps of the subject land boundary showing the final proposal and disturbance footprint with regards to MNES.
4. Submit GIS shapefiles of all maps that relate to MNES.

2. Landscape context of the MNES

Ensure that the 'Establishing the site context' of BAM 2020 (Section 3) have been fully met in the BDAR in relation to MNES.

3. EPBC Act listed threatened species and communities

The revised BDAR must:

1. Demonstrate that field-based survey effort meets BCS survey guidelines and, where available, Commonwealth survey guidelines.
2. Demonstrate supporting databases have been accessed and used (e.g. NSW BioNet Vegetation Classification, NSW BioNet Threatened Biodiversity Data Collection, NSW BioNet Atlas, Commonwealth Species Profile and Threats Database search results).
3. Demonstrate published peer-reviewed literature has been accessed and used.
4. Demonstrate local data has been accessed and used (if relevant).
5. Demonstrate all EPBC Act-listed threatened species and communities have been appropriately mapped in accordance with the relevant Commonwealth listing advice.
6. Demonstrate important populations and critical habitat as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans have been considered.
7. Provide a list of all EPBC Act listed threatened species and communities that occur on the subject land, or in the vicinity (including species that are 'ecosystem credits' in BAM).
8. Include a discussion, with data and analysis where any species and communities identified by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) referral documents have been ruled out as occurring on or near the subject site.

4. Avoidance, minimisation, mitigation and management

The revised BDAR must:

1. Demonstrate all feasible alternatives and efforts to avoid and minimise impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) has occurred including an analysis of alternative:
    a. designs and engineering solutions
    b. modes or technologies
    c. routes and locations of facilities
    d. sites within the subject site

e. the identification of any other site constraints in determining the location and design of the proposal (such as bushfire protection requirements, flood planning levels, servicing constraints, etc).

2. Include a discussion and justification of all feasible measures to avoid, mitigate and/or manage impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including:
    a. techniques, timing, frequency and responsibility
    b. identify measures for which there is risk of failure
    c. evaluate the risk and consequence of any residual impacts
    d. any adaptive management strategy proposed to monitor and respond to impacts.

5. Impact assessment

The revised BDAR must:

1. Identify the residual adverse impacts likely to occur to each EPBC Act listed threatened species and/or community after the proposed avoidance and mitigation measures are taken into account.
2. Justify and provide evidence for the predicted level of impact, with reference to the Commonwealth's 'Significant Impact Guidelines 1.1 - Matters of National Environmental Significance'[2] and DPIE's 'Guidance to Assist a Decision- Maker to Determine a Serious and Irreversible Impact'[3].
3. Provide a summary table with the following information:

Name of EPBC Act listed entity	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting? (significant or not)

4. Provide data and justification where any EPBC Act-listed threatened species or communities to be considered in the BDAR are considered to be at low risk of impact during the assessment.

6. Offsets

The revised BDAR must:

1. Identify any MNES that have not been offset using the BAM.
2. Provide details of how impacts requiring offset correlate to the MNES impacts.
3. Provide details on the PCTs that require offsetting and the number and type of ecosystem credits required for impacts to MNES.

[2] https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance#:~:text=This%20Significant%20impact%20guidelines%20provide,and%20Biodiversity%20Conservation%20Act%201999.

[3] https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/guidance-decision-makers-determine-serious-irreversible-impact-190511.pdf

4. Provide details of threatened species requiring offset and the number of species credits required for impacts to MNES.
5. Demonstrate the correct uses the BAM (and BAM calculator) to identify the number and class of biodiversity credits that need to be offset to achieve a standard of 'no net loss' of biodiversity.
6. Provide any details of ecological rehabilitation and/or biodiversity conservation actions proposed for offsetting.
7. Identify any other offsetting approach proposed, such as land-based offsets, retiring credits by payment into the Biodiversity Conservation Fund and/or through supplementary measures.
8. Provide a summary table with the following information:

Threatened Species / Community listed under EPBC Act	PCTs associated with the ecosystem credit species / ecological community (if applicable)	Area of Impact (ha)	Credits Required	Offsetting Approach	Reference (EIS/BDAR)
TOTAL					

7. Other considerations

The revised BDAR must:

1. Consider all relevant Commonwealth guidelines and policy statements that are appliable to the action and listed threatened species and/or communities, including but not limited to:
    a. International environmental obligations
    b. Recovery Plans
    c. Approved Conservation Advice
    d. Threat Abatement Plans
2. Include an assessment for each EPBC Act listed threatened species and/or community, that has been adequately informed by applicable Commonwealth guidelines and/or policy statements. For example, the interaction between the proposed action and important populations or critical habitat identified in policy documents and/or the interaction between the proposed action and threatening processes or recommended conservation actions outlined in Commonwealth policies and plans.