

Date : 4/04/2019 1:33:41 PM

From : "WELLS Melissa"

To : "MERRICK Jamie" , "ELLWOOD Dean"

Cc : "HALLIDAY Genevieve" , "MCCOSKER Juliana"

Subject : BTFMP update

Attachment : RE: re. questions on review of EPR;BTFMP letter April 2019.docx;EA Permit 20190131_EPML01470513_Adani Mining Pty Ltd_Carmichael Coal Mine.pdf;FW: BTFMP submissions;image001.png;image003.png;

Hi Jamie and Dean,

Just by way of update on the BTFMP I can provide the following:

- 15 March 2019 Adani's response to the independent expert review was received by DES (attached);
- 21 March 2019 DES met with Adani to discuss BAAM report;
- 26 March 2019 teleconference between DES, Adani and BAAM (Adrian Caneris);
- 26 March 2019 DES sent questions to Adani for clarification on the BAAM report (attached);
- 2 April 2019 Adani responded to DES questions (attached);
- A scheduled teleconference on the 4 April cancelled by Adani and re-scheduled for 8 April 2019 (TBC);

s.73 - non-responsive

Regards,
Melissa.



Melissa Wells
Executive Director
Coal and Central Qld Compliance
Department of Environment and Science

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PO Box 3028, Emerald QLD 4720

Date : 2/04/2019 11:12:24 AM
From : "Hamish Manzi"
To : "MCCOSKER Juliana"
Cc : "WELLS Melissa" , "Paul Fennelly"
Subject : RE: re. questions on review of EPR
Attachment : Response to DES Questions BTFMP.PDF;image001.jpg;

Good morning Juliana,

Please find attached the response to your questions from Adrian Caneris.

Apologies this has taken a little longer than expected.

In order to keep discussions progressing, can we look to arrange to meet this Thursday if that suits?

Kind regards

Hamish

Hamish Manzi

Head - Environment & Sustainability

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From: MCCOSKER Juliana [mailto:Juliana.Mccosker@des.qld.gov.au]
Sent: Tuesday, 26 March 2019 3:49 PM
To: Hamish Manzi sch4p4(6) Personal information
Cc: WELLS Melissa <Melissa.Wells@des.qld.gov.au>; Paul Fennelly sch4p4(6) Personal information
Subject: re. questions on review of EPR

Hi Hamish,

Please see below questions for Adrian:

1. Page 6 paragraph 4 'Whilst I agree with the need to establish an understanding of the population, I consider the required confidence limits and timeframe proposed a being unreasonable and impractical.' What are reasonable and practical timeframes and confidence limits?
2. Page 7 paragraph 4 'The BTFMP will ultimately inform assessment of the adequacy of the offsetting and mitigation of impacts in accordance with relevant commonwealth and state approval conditions.' Should this assessment be clearly articulated in the BTFMP?
3. Page 10 paragraph 2 'I do agree detailed population information is required to measure population declines, though note this is not a specific requirement within the EA conditions.' Given that a BTF population measurement is needed to understand how the BTF habitat is used and for the maintenance of a viable local BTF population as per l h) & breeding requirements as per l j)- could you provide recommendations of how and when the BTF population should be estimated?
4. Page 10 paragraph 5 'Although a considerable level of detail on the BTF and their habitat has been collected, I do view the structure and formation of a research panel and research plans as needed to result in systematic structure to allow robust analysis of data collected.' How should this robust analysis of data be formalised in the structure and formation of a research panel and research plans?
5. Page 11 paragraph 4 'I do agree with the EPR there could be more specific detail and commitment in respect to condition 19'. What do you think this detail and commitment should be with respect to the management action to maintain the BTF population at ten mile bore and surrounds?
6. Page 12 paragraph 4 'I recommend that the development of the BTFRP ensure inclusion of activities to inform analysis of the population size within the Project area'. How should analysis of population size be incorporated into the RP?
7. Page iTable 1 Q1 row 4 'Assessment of the population viability should be undertaken regarding the total population and is an outcome that should be achieved through the research program'. Do you mean in the project area and how should it be incorporated in research program?
8. Q3 page iii 2nd row talks about research trials for grazing. However, what are your recommendations with respect to grazing on the site to maintain the BTF habitat and BTF population? Would you support a low grazing regime in the Project area?
9. Q3 page v 4th row 'I do agree suitable monitoring protocols should be incorporated in the research plan to allow analysis of the BTF population'. Would a commitment to this end in the BTFMP be acceptable?
10. Q3 page v last row - 'I do accept that avoidance of the ten mile bore area would result in considerably less impacts on BTF and their high value habitat.' Do you mean no mining impact or avoidance of grazing?

11. Q5 page vii first row – *'I agree the research aims should be expanded to include detailed research plans to be developed to allow for population estimates.'* What is a reasonable timeframe for this to be achieved from commencement of research?
12. Q7 page vii 2nd row with respect to The monitoring and research components are treated as if they are mutually exclusive – *'I did share that view. The BTFMP outlines research aims and it is the research plans which will identify how to interrelate these activities.'* How should the research and monitoring be tied together in the BTFMP?

Ciao for now

Juliana

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02 April 2019

ADDITIONAL INFORMATION IN RESPONSE TO DES QUESTIONS ON INDEPENDENT REVIEW

I was engaged on behalf of Adani Mining Pty Ltd to read and consider the Review of the Black-throated Finch Management Plan (BTFMP) – Report to the Queensland Department of Environment and Science (DES) produced by the University of Melbourne and dated 15 February 2019 (Expert Panel Review [EPR]).

Following submission of my review, the DES sought further clarification on my report. The information/clarification sought was verbally provided via a phone conference on March 26, 2019 and subsequently provided in writing.

I have primarily considered my following responses in respect to the requirements of Conditions I6 to I10 of the environmental authority EPML01470513 (EA conditions) and regarding Conditions 5 and 6 of the Commonwealth approval EPBC 2010/5736 for the Carmichael Coal Mine and Offsite Infrastructure Project (Project).

Where appropriate, I have included additional comments towards provision of considerations of outcomes sought by the BTFMP and stated aims of the Black-throated Finch Management Plan (BTFMP) or my views towards the BTFMP achieving appropriate management. I note and believe it should be clearly stated that aspects of the issues raised, and responses provided often go beyond the scope of the EA Conditions and outcomes the BTFMP is required to or seeking to achieve. Where provided the responses are given towards an improved understanding and to be helpful to the assessment process.

The need for assessment and understanding of the extant BTF population is a recurring aspect within the questions posed by DES. The objective of the BTFMP is to determine critical ecological requirements for the BTF in accordance with the EA conditions. The proposed BTF monitoring regime is designed to provide assessment on the effectiveness of mitigation measures and to evaluate the success of proposed rehabilitation activities. In respect to assessment and understanding of the BTF population, this outcome is to be obtained by way of the concurrent research program (refer to BTFMP) and is to be further addressed, if necessary, through the annual review required by condition I7 to identify if any additional actions are required.

The list of questions from DES references sections of my initial advice letter and poses questions seeking clarification or additional information. I have provided and addressed each question independently below.

Des Q1: Page 6 paragraph 4 'Whilst I agree with the need to establish an understanding of the population, I consider the required confidence limits and timeframe proposed a being unreasonable and impractical.' What are reasonable and practical timeframes and confidence limits?

There are aspects of what is reasonable and practical in relation to understanding the population that need to be considered. The primary consideration is what is required by the EA conditions and reasonable actions required thereon. The EA conditions require baseline assessments and no specific measurement of population numbers. My reading of the EA conditions results in the view that the aim of conditions is to understand the species' resource partitioning, and not monitoring or measurement of the actual population. Otherwise, a specific request for population assessment and monitoring would be included within the imposed conditions. I understand this approach to be standard and essentially aligns with the impact offsetting requirements under the Queensland Environmental Offsets Framework, which essentially involves land-based or financial offsets. The framework does not invoke conditions specific to maintaining or measuring population numbers within offsets.

The proposed monitoring will provide valuable data on population trends in combination with proposed radio-tracking (which will enable increased assessment of flock sizes and species movement) and bird-banding (which will allow marked recapture analysis), particularly if/when combined with the required watering point monitoring.

In my view, it is the role of the appointed research team to finalise the overall design and associated methodologies of the scientific studies required to meet the imposed conditions and obtain appropriate understanding for informed management. These research plans require DES approval to add certainty to the inclusion of appropriate methodologies to inform management and reporting provisions.

The BTFMP and BTFRP are to be reviewed annually, with the input of specialists in accordance with EA condition 17, and any revisions of the survey and monitoring program must be carried out in consultation with the BTF Recovery Team and must be independently peer reviewed.

Where increased understanding of the population is required for informed management responses, this should be readily identified through this process by the research team and/or independent reviewers. Annual reporting to DES also provides additional scrutiny of how informed the research results are.

I do recommend that the design, implementation and data capture be formulated through liaison with other stakeholders to allow integration with concurrent population monitoring and management within the broader Bioregional BTFMP. This is important for long term management of BTF at the project and regional scale. It is only through analysis of research at both the project and wider landscape scales that a true BTF population understanding be established. Population studies essentially require control populations away from the Project impacts, to allow recognition of number fluctuations which are, or are not, related to the Project.

Although population information can be important for overall species management, it should be clearly understood that the objective of the BTFRP is to determine critical ecological requirements and provide these for the BTF in accordance with the EA conditions.

In respect to reasonable and practical timeframes and confidence limits, I consider BTF to be a species which is difficult to obtain an accurate population census for within the project area in isolation of external factors. The species' presence can be a combination of resident animals, itinerant and seasonal visitations, and numbers would be expected to vary depending on seasonal and environmental factors, particularly drought.

In reference to the BTFRP implementation time-line (BTFMP section 5.1), I view the indicative time-line of research activities provided in Table 7 as a reasonable time to establish the main activities and address influencing factors. With the level of information already obtained from numerous site-based assessments and the proposed activities of the research program.

I believe it is reasonable to obtain a population estimate or population density within given areas, which includes max and minimum values founded on measurements during various temporal and environmental impacts, within 4 years of approval.

DES Q.2: Page 7 paragraph 4 'The BTFMP will ultimately inform assessment of the adequacy of the offsetting and mitigation of impacts in accordance with relevant commonwealth and state approval conditions.' Should this assessment be clearly articulated in the BTFMP?

It is well beyond the scope of the BTFMP to determine whether the offset area is commensurate with the impacts. The offset requirements have been determined. The actions prescribed and associated EA conditions have been designed so that the BTFMP will ultimately inform assessment of the adequacy of management responses. The scope of the BTFMP is somewhat limited to the required tasks as defined by EA conditions. The primary aim is ensuring that the land based offsets attain suitable habitat values and associated mitigation actions are undertaken in accordance with relevant commonwealth and state approval conditions.

The research aims have been specifically developed to provide insight into the effectiveness of management responses. However, it is the offset management plan and associated reporting which should clearly articulate the adequacy of the offsetting and mitigation overall.

The proposed BTF monitoring, and the monitoring already undertaken, will provide valuable data to monitor population trends in combination with proposed tracking (which will lead to understanding of flock size and movements) and banding (which will allow marked recapture analysis). Ultimately it is the research plans which should design how the adequacy of offsetting and mitigation of impacts in accordance with relevant commonwealth and state approval conditions is accurately measured. The annual reviews will provide for additional independent 'experienced persons' to provide input towards improved methodology and/or analysis thereof.

DES Q.3: Page 10 paragraph 2 'I do agree detailed population information is required to measure population declines, though note this is not a specific requirement within the EA conditions.' Given that a BTF population measurement is needed to understand how the BTF habitat is used and for the maintenance of a viable local BTF population as per l h) & breeding requirements as per l j)- could you provide recommendations of how and when the BTF population should be estimated?

I do not view that a BTF population measurement is needed to understand how the BTF habitat is used or for the maintenance of a viable local BTF population. EA Condition I6h requires surveys/monitoring of habitat, movements and resource usage and these are well covered by the research aims within the BTFRP. EA Condition I6 j requires assessment of breeding habitat attributes to understand breeding requirements and spatial and temporal variations, not population estimates. The EA conditions do not require measurement of the BTF population by the project.

I do view that an understanding of population variations, particularly spatial and environmental variations, would provide valuable insight for BTF management. It is the realm of the appointed research team and research plans to establish how this is best undertaken.

To be clear, I do agree detailed population information is required to measure population declines, but this is not a specific requirement within the EA conditions and therefore is not a fundamental flaw in the BTFMP. What is important, is that the research undertaken is collected and collated in formats that allow for understanding of population dynamics and inclusion within the bioregional monitoring to inform understanding of the species' viability at the regional level.

In general terms, the BTFMP is required to ensure habitat values removed by the Project are appropriately replaced and there are actions undertaken towards mitigation of known threatening processes. The BTFRP is correctly designed to identify the movement patterns, habitat requirements and population dynamics, dietary requirements, home range and nesting requirements for the BTF as well as the relationship between water sources, woody habitat and food sources.

Regarding establishment of detailed population information, I note the BTFRP does include clear objectives to assess breeding (Aim 2). A measure of breeding success in order to demonstrate that similar levels of breeding are being maintained is a key fundamental element in identification of viability of a population and will enable suitable benchmarks by which the offsets and mitigation actions can be assessed.

Overall, the BTF population should be monitored through the bioregional research programs and the project should contribute to this assessment. Due to fundamental restrictions on the project's ability to access lands beyond their control, it is unreasonable to consider imposing a requirement for a regional population

DES Q.4: Page 10 paragraph 5 'Although a considerable level of detail on the BTF and their habitat has been collected, I do view the structure and formation of a research panel and research plans as needed to result in systematic structure to allow robust analysis of data collected.' How should this robust analysis of data be formalised in the structure and formation of a research panel and research plans?

This is broadly beyond the scope of the BTFMP at this stage, as it ultimately resides within the BTFRP research plan development and falls to those engaged to structure the plans and design suitable analysis. Overall, it is obvious a baseline research program requires stated research aims (provided within the BTFRP Section 4) and a clear understanding of what answers the research program is seeking to determine. Essentially, the answers are ultimately those required to address the imposed EA conditions.

The research plans need stated objectives which are fundamentally measurable. The design needs to model and define activities required to obtain the desired outcomes. Sampling and data collection need to be structured so that evaluation of data can provide appropriate measures of the stated research aims.

Of highest importance is the development of the research plans concomitantly with other BTF research and particularly with the Bioregional BTF research and management plans for inclusion and ease of result collaboration.

DES Q.5: Page 11 paragraph 4 'I do agree with the EPR there could be more specific detail and commitment in respect to condition I9'. What do you think this detail and commitment should be with respect to the management action to maintain the BTF population at ten mile bore and surrounds?

My comments in respect to more specific detail and commitment to condition I9 relate directly to BTFMP section 6.4.7 Management of Ten Mile Bore. The details provided within Section 6.4.7 of the BTFMP cover the main actions required and correctly refer to awaiting the results of the findings of the BTF Research Program in respect to maintaining the current BTF population of Ten Mile Bore and surrounds. This section provides the interim management measures which include:

- Avoiding mining-related disturbance of the area until as late as possible (see Section 6.3.1);
- Maintaining water for BTF, to be monitored through weekly water infrastructure inspections; and
- Managing grazing activities in the vicinity of Ten Mile Bore to enhance and maintain BTF habitat values.

BTFMP section 4.6.1 includes - A baseline research program will be established to determine whether Ten Mile Bore and surrounds are high value BTF habitat. During the baseline research program, the management of grazing will be based on existing pastoral management practices in accordance with land agistment agreements, pastoral holding lease conditions and associated legislation pertaining to pastoral management activities. Section 4.6.1 also includes commitment by Adani to undertake annual BTF habitat vegetation assessments (using the methodologies described within 'Carmichael Coal Mine and Rail SEIS Report for Black-throated finch On-site Monitoring Survey) at approved monitoring locations in the vicinity of Ten Mile Bore during May to maintain and where possible enhance BTF habitat within the Ten Mile Bore area.

I note that the BTF habitats in proximity to Ten Mile Bore have been subject to grazing for many years, and it is under the existing practices that BTF have been maintained in numbers to be considered a significant area.

The actions required to address I9 are well covered by the BTFRP research aims and my comments relate to BTFMP section 6.4.7 being more explicit on how these results will be utilised to maintain the current population of Ten Mile Bore. I do, however, accept that it would be presumptuous to predict how this is to be achieved without the research results to inform the appropriate/necessary management responses.

DES Q.6: Page 12 paragraph 4 'I recommend that the development of the BTFRP ensure inclusion of activities to inform analysis of the population size within the Project area'. How should analysis of population size be incorporated into the RP?

I view the actions undertaken to date, particularly the watering point monitoring, and the actions prescribed in the BTFRP as providing the basis needed for a population estimate to be established. The consistent regular monitoring of watering holes will provide sound information on the numbers present. This will be particularly more robust if several waterholes are monitored concurrently to allow assessment of BTF numbers location and time across a given area. This type of monitoring will provide some analysis of maximum numbers and density within given areas. Ideally, watering point monitoring is undertaken in combination with the proposed banding which will allow mark-recapture methods to also be analysed.

The level and extent of how these activities are to be incorporated should be left to the research team to develop as it will be influenced by the specific methods employed, number, type and repetition of the actions and various modelling and programs used to assess results.

The key point is the methods used should be developed in consultation with other researches working on the species across its range to allow for result sharing and inclusive analysis. Although I recommend that the development of the BTFRP ensure inclusion of activities to inform analysis of the population size within the Project area, such activities should also be mirrored by wider regional studies. As stated above, a true understanding of the population and number fluctuations within the project area requires comparable understanding of control populations away from the Project area to allow recognition of number fluctuations which are, or are not, related to the Project.

Ultimately, it falls to the research team, reviewers and regulators to ensure the research plans and inherent methodologies are robust and fit for purpose.

DES Q.7: Page i Table 1 Q1 row 4 'Assessment of the population viability should be undertaken regarding the total population and is an outcome that should be achieved through the research program'. Do you mean in the project area and how should it be incorporated in research program?

My comments are specific to the project area. As detailed above and within my prior advice, the project should be undertaking assessment for the project area and providing the results to those charged with the Bioregional Plan, BTF recovery team and research institutions for wider analysis. An understanding of the population viability must be done in combination of the total population at the landscape/regional scale. This is beyond the scope of the BTFMP. As stated in Page i Table 1 Q1 row 4 of my advice, *The BTFMP is a plan specific for the Project area and offset areas.*

DES Q.8: Q3 page iii 2nd row talks about research trials for grazing. However, what are your recommendations with respect to grazing on the site to maintain the BTF habitat and BTF population? Would you support a low grazing regime in the Project area?

I do not have the information or experience to provide specific recommendations on a suitable grazing regime for various areas within the project area. There is no doubt that high levels or intense grazing is a recognised threat. I do generally support a low grazing regime in those

areas recognised as being high value finch habitats and specifically around the Ten Mile Bore Area. I note that these areas traditionally have relatively low grazing regimes which is why higher habitat values have been retained.

This is a complex issue and needs data to inform identification of the best management responses for both short and long term habitat maintenance.

I do see clear value in the proposed grazing trials to inform ongoing management. For clarity, I consider that grazing exclusion may have other indirect detrimental impacts on BTF habitat values.

DES Q.9: Q3 page v 4th row 'I do agree suitable monitoring protocols should be incorporated in the research plan to allow analysis of the BTF population'. Would a commitment to this end in the BTFMP be acceptable?

A specific commitment to undertake analysis of the BTF population is not required by the EA conditions or the EPBC Act approval conditions 5 and 6. The management of the BTF population is primarily achieved through the targeted monitoring and research activities with the results feeding back through the research team to inform the management measures and to guide adaptive management responses. The monitoring will be focussed on describing spatial and temporal patterns of occurrence, while the research will focus on explaining spatial and temporal patterns and ecological relationships.

Notwithstanding the specific requirements of the applicable conditions, the BTFMP does include commitment to monitoring surveys conducted biannually for a 10 year period by suitably qualified ecologists in accordance with standard methodology to identify changes in BTF population size and movements over time. There is also commitment to undertake bird banding and employ re-sighting techniques to provide a basis for assessing movement patterns and assessment of population dynamics.

The combination of the above techniques, targeted searches and watering point monitoring facilitate detailed BTF demography. The inclusion of population analysis techniques would be developed within the research plans methodology and through analysis of results.

DES Q.10: Q3 page v last row – 'I do accept that avoidance of the ten mile bore area would result in considerably less impacts on BTF and their high value habitat.' Do you mean no mining impact or avoidance of grazing?

I specifically mean mining and it is apparent. The sentence should be read in line with the caveat that follows being "*However, the Project is approved and, to meet the approval conditions, the purpose of the BTFMP is to minimise unavoidable impacts to BTF from the Project.*"

The overall aim of the Project and EA conditions is for the habitats within the offset areas to compensate for the loss of habitat resulting of the project.

The Ten Mile Bore area holds high value BTF habitats as is clearly demonstrated by the consistency in number of birds present. Avoidance of this area by the Mine would obviously have considerable positive influence on the project's ability to meet condition 19b. However, my statement should only be read with acknowledgement and in context with the following sentences in that response.

To assist in clarity of my view, I accept that the Project is approved and the footprint includes the Ten Mile Bore area, with provision that if removed the project has established management actions (mitigation responses) to demonstrate compliance with condition I9.

DES Q.11: Q5 page vii first row – ‘I agree the research aims should be expanded to include detailed research plans to be developed to allow for population estimates.’ What is a reasonable timeframe for this to be achieved from commencement of research?

I have provided response to this under DES Q.1 above. I believe four years is a reasonable time frame for a population estimate of the project area to be established.

DES Q.12: Q7 page vii 2nd row with respect to the monitoring and research components are treated as if they are mutually exclusive – ‘I did share that view. The BTFMP outlines research aims and it is the research plans which will identify how to interrelate these activities.’ How should the research and monitoring be tied together in the BTFMP?

Section 7 of the BTFMP outlines the monitoring and research programs. Although they are outlined and address exclusively, there is full intent for these to be developed with unification by the research team. There are distinct differences in the monitoring and research components in that monitoring is primarily designed towards understanding of spatial and temporal patterns of BTF occurrence and BTF habitat partitioning and values, while the research is to be focused on explaining spatial and temporal patterns and intrinsic ecological relationships of BTF and their habitat requirements.

It is ultimately the role of the research team to ensure that the research plans are designed to integrate the various monitoring and research components to facilitate full inclusion of results within analysis.

Please do not hesitate to contact me should you require any further clarification or assistance with this matter.

Yours faithfully,

ch4p4(6) Personal information

Adrian Caneris CEnvP (Ecology Specialist)
Managing Director
Biodiversity Assessment and Management Pty Ltd



Department of
Environment and Science

Our Ref: Black-throated Finch Management Plan

X April 2019

Hamish Manzi
Head of Environment and Sustainability
Adani Mining Pty Ltd
Level 25, 10 Eagle Street
Brisbane QLD 4000

Dear Mr Manzi,

The Department of Environment and Science (the department) has carefully considered all the submissions made by Adani with respect to the independent panel review of the Black-throated Finch Management Plan (BTFMP), namely the letters sent on 14 February 2019, 1 March 2019 and 15 March 2019 (being the review of the final panel report by BAAM Ecological Consultants).

The department has determined that there are outstanding matters that must be addressed in the BTFMP to the satisfaction of the department to meet the environmental authority condition requirements. These matters are detailed in Attachment A.

The department is committed to progressing this matter objectively and in a timely manner to ensure the requirements of the BTFMP are resolved as soon as possible.

Should you require any further information, please contact Juliana McCosker, Manager of Business Centre (Coal) of the department on telephone (07) 4987 9356 or by email at juliana.mccosker@des.qld.gov.au.

Yours sincerely

Melissa Wells
Executive Director
Coal and Central Queensland Compliance
Environmental Services and Regulation

Enc:

Attachment A – Departmental comments on the BTFMP version 7b

Attachment A – Departmental comments on the BTFMP version 7b

Environmental Authority Holder: Adani Mining Pty Ltd

EA: EPML01470513

Project: Carmichael Coal Mine

Document: Black-throated Finch Management Plan

EA conditions: I6 (a) to (k); I8 and I9 (a) & (b)

Document full title	Black-throated Finch Management Plan – Carmichael Coal Mine Project. Prepared for Adani Mining Pty Ltd, Version 7b, 17 December 2018
Delegate	Juliana McCosker
Reviewing officer	Kate Bennink
Date plan received	17 December 2018
Background	<p>This advice is based on the BTFMP received on 17 December 2018. Consideration was given to the following:</p> <ul style="list-style-type: none"> ○ an independent expert panel review report received by the department on 18 February 2019; ○ correspondence from an ex-BTF recovery team member; ○ internal advice from the department’s Threatened Species Operations branch; and ○ submissions made by Adani on 14 February 2019, 1 March 2019, and the Adani commissioned independent review of the final report by BAAM Ecological Consultants received on 15 March 2019.

Condition	Comments
<p>I6 The holder of this environmental authority must submit a Black-throated Finch (BTF) Species Management Plan (SMP) prepared and certified by a suitably qualified person to the administering authority for approval prior to the commencement of Project Stage 2. The holder must publish the BTF SMP on its website within 10 business days of receiving the administering authority’s</p>	<p><u>Low Grazing commitment</u> - In the area outside the 10 Mile Bore area of the mining lease, demonstrate a commitment to BTF habitat maintenance. The department requires a commitment by Adani to maintain low stocking rate until mining related impacts occur and this commitment must be clearly stated in the BTFMP. A conservative low stocking rate will maintain the perennial pasture seed sources on which the BTF population depends. As a suggestion; this could be a commitment to a stocking rate of 1 beast to 50ha and/or a similar strategic grazing regime as committed to for the offset area.</p> <p>A low grazing commitment will provide alignment to the recommendations of the draft BTF bioregional plan, the BTF recovery plan and the EPBC species conservation advice.</p>

Condition	Comments
<p>approval in writing. The approved BTF SMP must be implemented. The holder must align the SMP with any Bioregional BTF Management Plan and relevant documentation requirements under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> including the BTF Recovery Plan, conservation advice and the threat abatement plan.</p>	<p><u>Commitment to support BTF Bioregional Plan through the provision of data collected in the Research Program to inform a region wide BTF Population Viability model</u>; which in turn can inform Adani of the aspects of the species biology that may be critical for management intervention. A bioregional Population Viability model can also help predict, extrapolate benefits and impacts from project research findings to the bioregional population.</p> <ul style="list-style-type: none"> a) Population viability analysis (PVA) is a useful tool to estimate the probability of persistence of a species b) A focus of the BTF Bioregional Management Plan is the assessment of the cumulative impacts from mining and grazing on the bioregional population. It can be used to measure cumulative impacts of site-based threats on a population or alternatively the benefits of management actions. c) The PVA of a spatially structured population such as the BTF in the Desert Uplands would require the input of demographic information from sub-populations at each site and the determination of how individuals interact between sites. d) Impacts of site-based threats on the regional BTF population will depend on levels of migration (i.e movement between sites), numbers of sites and the size of sub-populations at each site.
<p>I6 The submitted BTF SMP must include: d) details of proposed impacts to BTF habitat from each Project Stage including impacts from clearing, subsidence, ecological functional changes, hydrological changes and weed and pest infestation changes; h) detailed surveys that must occur across the mining lease area and approved offset areas and must include information on BTF movements. The survey method and effort must be sufficient to accurately describe BTF home range and detail BTF resource usage patterns between seasons</p>	<p><u>BTF population monitoring</u>. In order to identify BTF population trends and responses to management actions; the BTFMP must provide a commitment to establish a robust estimate of the BTF population (with a confidence limit of +/-10%) in the Project area within two years of approval of the BTFMP. The project area being the mining leases and adjacent offset area.</p> <ul style="list-style-type: none"> a) BTF population monitoring is important in order to measure the impacts and benefits to the BTF population of management actions proposed. b) A BTF population estimate will demonstrate that there is no net loss of the BTF population as result of the project. A BTF population estimate will ensure population gains/maintenance in the offset area and non-mined areas can be accurately demonstrated. c) A BTF population estimate may be able to be determined from survey data already collected to date and not presented in the current BTFMP. An analysis of existing survey data and monitoring methods to date should be undertaken to determine if these results can adequately, appropriately and with sufficient statistical power estimate the BTF population in the Project Area.

Condition	Comments
<p>and years (for up to 10 years) and allow robust management actions to be developed for the <u>maintenance of a viable local BTF population</u>.</p> <p>I9 The baseline research program under I6 must:</p> <p>b) establish management actions to <u>maintain the current BTF population</u> of Ten Mile Bore and surrounds.</p>	<p>d) A BTF population estimate will allow assessment and further development of the current understanding of critical habitat, core habitat, marginal habitat and non-habitat areas in the project area by incorporating knowledge of population density and population performance with respect to the key habitat attributes that currently define these BTF habitat types.</p> <p>e) Collection of robust count and mark-resight data to support baseline density estimates (from baseline survey work completed to date) in the Project area is required as a component of the research program. Regular count and mark-resight BTF surveys must be undertaken for the life of the project.</p> <p>f) Water point monitoring needs to take into account the seasonal variation in count data at watering points.</p> <p>g) A population estimate will allow for the demonstration of the maintenance of the BTF population at Ten Mile Bore and surrounds.</p>
<p>I6 The submitted BTF SMP must include:</p> <p>c) a description of how the results of baseline research program to establish whether the BTF at the project site are sedentary, locally migratory or regionally migratory;</p> <p>d) details of proposed impacts to BTF habitat from each Project Stage including impacts from clearing, subsidence, ecological function changes, hydrological changes and weed and pest infestation changes;</p> <p>e) mitigation measures to be undertaken to avoid, mitigate and manage impact resulting from each stage of the project, including rehabilitation of habitat;</p>	<p><u>Monitoring program</u>. The BTFMP must provide the commitment that the current monitoring program will be re-designed and implemented within five years of approval to determine with high certainty (>95%) that the proposed management actions in the Project area ensure a no net loss of the BTF population in the Project area.</p> <p>a) Present <u>quantitative measurement of all impacts</u> on the BTF population from all stages of the project and detail effective, measurable management and mitigation options.</p> <p>b) The <u>performance criteria</u> must include quantitative measurements of the proposed impacts on the BTF population and habitat within the project area.</p> <p>c) The <u>adaptive management triggers</u> must be supported by powerful statistical analysis that demonstrates when significant changes in BTF population, threats and habitat condition are reached.</p> <p>d) <u>BTF population trigger response</u> - In order to monitor the direct and indirect impacts from construction and operation on the BTF population in the Project and in order to evaluate the effectiveness of the management and mitigation measures, monitoring must be directly linked to changes in BTF population sizes as well as changes in BTF habitat condition. An appropriate BTF population trigger response needs to be coupled to each management action.</p> <p>e) <u>Management actions</u> must be definitively stated, not limited by the caveat of 'where possible'.</p>

Condition	Comments
	<ul style="list-style-type: none"> f) <u>Corrective actions</u>: The corrective actions need to be definitively stated rather than limited by caveat of 'may include'. g) Detail exactly how the research program will inform monitoring to determine whether the management of habitat and impact management is on track to deliver benefits to the BTF population and BTF habitat. h) Include a <u>rehabilitation mitigation measure</u> that the research will establish the plant species that provide critical food resources to BTF during seasons of seed shortages. Mitigation will include rehabilitation planning to commence a propagation program of these plant species and the development of management knowledge to ensure that revegetation of BTF habitat using these critical species will be successful.
<p>I6 The submitted BTF SMP must include: e) mitigation measures to be undertaken to avoid, mitigate and manage impact resulting from each stage of the project, including rehabilitation of habitat;</p>	<p><u>Impacts from Fragmentation</u>. As the MLs (70514 and 70515) from the China Stone Coal Project come down into the Moray Downs property and link to ML70506, there is a resulting a lack of connectivity of BTF habitat in the northern part of the offset area. A commitment is required that Adani address this connectivity issue in one of three ways:</p> <ul style="list-style-type: none"> a) must provide a commitment of no development in this mining lease, or b) include ML70506 in the offset area, or c) a part of this mining lease area is included in the offset area to ensure connectivity across the northern part of the offset area. <p>This commitment will provide assurance to the department that connectivity of BTF populations is secured across habitat in northern part of the Moray Downs West Offset Area.</p>
<p>I6 The submitted BTF SMP must include: a) a baseline research program on the specific nesting and feeding requirements of the species that will be undertaken prior to and during Project Stage 1; b) a baseline research program to establish whether the BTF at the project site are sedentary, locally migratory or regionally migratory;</p>	<p><u>Research Program</u> must provide the commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition and maintaining and increasing BTF population within the project area with completion of the research program <u>prior to significant impact to BTF habitat from the project</u>.</p> <ul style="list-style-type: none"> a) The BTFMP must provide a commitment that the research will be undertaken by personnel with experience in analysis, design and interpretation of survey and research data. A high level of expertise such as post-doctoral experience is critical in order to ensure that the research delivers scientifically robust results in a timely manner that informs effective management actions. b) Research Program - Aim 1 - <u>BTF movement ecology, including an assessment of home range across seasons and dispersal</u>. Detail that the bias of tracking to more likely record

Condition	Comments
<p>c) a description of how the results of baseline research program are to be used to determine any changes of classification of and/or impact on BTF habitat;</p> <p>g) detailed botanical assessment that must occur at all BTF sighting locations in the project area to record habitat values at those locations;</p> <p>j) specific surveys that must be undertaken during the BTF breeding season and include nest location and assessment of the habitat attributes associated with the breeding locations. The survey method and effort must be sufficient to accurately describe the BTF breeding requirements with consideration to spatial and temporal variation of resources for up to 10 years.</p> <p>k) survey and monitoring must be undertaken by experienced ecologists.</p> <p>I9 The baseline research program under I6 must:</p> <p>b) establish management actions to maintain the current BTF population of Ten Mile Bore and surrounds.</p>	<p>sedentariness and short distance movement over long distance will be effectively addressed in the methodology design. Provide detail of the effort proposed to meet this aim.</p> <p>c) <u>Research Program - Aim 2: Determine the foraging and breeding habitat requirements and the relationship with vegetation structure and composition and water. and Aim 3: Determine the dietary requirements for BTF in the Project Area</u></p> <ol style="list-style-type: none"> i. The methodology must include collection of data on BTF reproductive rates and mortality rates. How these rates vary over years, and between habitats, and the factors that influence breeding success. This information is necessary to establish the breeding requirements of the BTF. ii. An outcome of this research should determine population substructures including age structure and critical areas to manage BTF populations and habitat in different seasons. iii. Research must include an assessment of seed availability and their responses to management. Research focus must the assessment of seed availability throughout the year and the factors that affect it, especially at any critical periods of seed scarcity. iv. The research program must provide the commitment to identify which plant species are most critical for the provision of seeds throughout the year. Research must include the measurement of the availability of seed resources across months, years and habitat (and in response to variation in grazing and fire regimes), what factors affect seed availability at critical times and what are the critical seed sources at critical bottleneck periods. This research must define and demonstrate how management will enhance the abundance of these plant species and their seed production especially in critical bottleneck periods. v. Therefore, seed phenology, temporal continuity and shortfall and the relationship of these distribution factors to grazing and fire must also be determined. Determine how vegetation dynamics is affected by environmental and edaphic factors such as climate and which environmental and edaphic factors affect seed quality, quantity and spatial distribution, local variation in distribution and interspecific competition.

Condition	Comments
	<p>d) <u>Research Aim 4: Identify management strategies for BTF habitat in the Project area regarding fire, grazing and water.</u></p> <ul style="list-style-type: none"> i. Test whether livestock exclusion from some water sources can provide benefit to BTF using established water monitoring survey methods to investigate whether or not livestock exclusion to water benefits BTF populations. ii. The research must attain an understanding of spatial and temporal variation in floristic composition and how management actions limit or promote BTF food availability. iii. A key threat to the habitat condition in the BTF habitat is the spread of exotic perennial pasture species such as buffel grass that competes with native perennial pasture that are seed sources for BTF. Pasture management needs to ensure that the current native perennial pasture composition is maintained or improved and therefore the research focus must aim at determining effective management that will reduce the likelihood exotic non-native perennial pasture species spreading in the Project area. The effectiveness of pulse grazing of buffel grass source infestations is a possible area of research. Conversely, when and for how long the grazing pressure needs to be lowered to reduce the risk of buffel grass infestations establishing or increasing is another avenue to research.
<p>I9 The baseline research program under I6 must: b) establish management actions to maintain the current BTF population of Ten Mile Bore and surrounds.</p>	<p><u>Ten Mile Bore Area management</u> – From the BTF survey data to date, the Ten Mile Bore area continues to yield the majority of the BTF sightings over the 9 years of surveys and therefore appears to support a large proportion of the Project Area’s BTF population. It is recommended that Adani make the commitment to undertake only strategic grazing as per Moray Downs West offset area (p74 of current BTFMP) in the environs of Ten Mile Bore area and to determine any other areas within the Project area that support important populations as a component of the research program. Important population locations must be defined within one year of approval. These areas should be determined as those areas that support a disproportionate share of the Project area’s BTF population (e.g. >20%).</p>

Attachment A – Departmental comments on the BTFMP version 7b

Environmental Authority Holder: Adani Mining Pty Ltd

EA: EPML01470513

Project: Carmichael Coal Mine

Document: Black-throated Finch Management Plan

EA conditions: I6 (a) to (k); I8 and I9 (a) & (b)

Document full title	Black-throated Finch Management Plan – Carmichael Coal Mine Project. Prepared for Adani Mining Pty Ltd, Version 7b, 17 December 2018
Delegate	Juliana McCosker
Reviewing officer	Kate Bennink
Received date	17 December 2018
Background	<p>This review was completed on the BTFMP (version 7b) received on 17 December 2018.</p> <p>In completing the review, consideration was given to the following:</p> <ul style="list-style-type: none">○ an independent expert panel review report received by the department on 18 February 2019;○ correspondence from an ex-BTF recovery team member;○ internal advice from the department's Threatened Species Operations branch; and○ submissions made by Adani on 14 February 2019, 1 March 2019, and the Adani commissioned independent review of the final report by BAAM Ecological Consultants received on 15 March 2019 and clarification received on 2 April 2019.

Condition	Issue	Requirement
<p>I6 The holder of this environmental authority must submit a Black-throated Finch (BTF) Species Management Plan (SMP) prepared and certified by a suitably qualified person to the administering authority for approval prior to the commencement of Project Stage 2.</p> <p>The holder must publish the BTF SMP on its website within 10 business days of receiving the administering authority's approval in writing. The approved BTF SMP must be implemented.</p> <p><u>The holder must align the SMP with any Bioregional BTF Management Plan and relevant documentation requirements under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> including the BTF Recovery Plan, conservation advice and the threat abatement plan.</u></p>	<p>1. The BTFMP submitted on 17 December 2019 does not align with BTF Recovery Plan, the draft Bioregional BTF Management Plan and the relevant documentation requirements under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) including the BTF Recovery Plan, conservation advice and the threat abatement plan, with respect to addressing the impacts from overgrazing on BTF habitat.</p> <p>The draft Bioregional BTF Management Plan recommends '<i>a reduction in stocking rates that results in an increase in grass cover and the proportion of native grass species will benefit the BTF and the provision of research program data collection</i>'.</p> <p>A conservative low stocking rate will maintain the perennial pasture seed sources on which the BTF population depends.</p> <p>2. The Coordinator-General's (CG) evaluation report details that the BTF Bioregional Management Plan is to maximise the ongoing protection and long-term conservation of the EPBC Act listed species and habitat in the Desert Uplands bioregion.</p> <p>Recommendation 4(b)(iii) by the CG requires the collation of baseline and ongoing survey data recorded by proponents.</p> <p>The submitted BTFMP does not provide a commitment to provide data collected from surveys or research under the research program in order to maximise the ongoing protection and long-term conservation of BTF species and habitat in the Desert Uplands bioregion.</p>	<p>1. In the area outside the Ten Mile Bore area of the mining lease, Adani must demonstrate a commitment to BTF habitat maintenance to satisfy the EA condition requiring alignment with the BTF Bioregional Management Plan, the BTF Recovery Plan and the EPBC Act species conservation advice.</p> <p>The department requires a commitment by Adani to maintain low stocking rates until mining related impacts occur and this commitment should be clearly stated in the BTFMP.</p> <p>As a suggestion, this could be a commitment to a stocking rate of 1 beast to 50ha and/or a similar strategic grazing regime as committed to for the Moray Downs West offset area (p74).</p> <p>2. Adani must demonstrate a commitment to support the BTF Bioregional Plan through the provision of data collected in the Research Program to inform a region-wide BTF Population Viability model to satisfy the EA condition requiring alignment with the BTF Bioregional Management Plan, as well as CG condition 4(b)(iii).</p> <p>A regional Population Viability model can in turn inform Adani of the aspects of the species biology that may be critical for management intervention. A bioregional Population Viability model can also help predict, extrapolate benefits and impacts from project research findings to the bioregional population.</p> <ol style="list-style-type: none"> Population viability analysis (PVA) is a useful tool to estimate the probability of persistence of a species. A focus of the BTF Bioregional Management Plan is the assessment of the cumulative impacts from mining and grazing on the bioregional population. It can be used to measure cumulative impacts of site-based threats on a population or alternatively the benefits of management actions. The PVA of a spatially structured population such as the BTF in the Desert Uplands would require the input of demographic information from sub-populations at each site and the determination of how individuals interact between sites. Impacts of site-based threats on the regional BTF population will depend on levels of migration (i.e movement between sites), numbers of sites and the size of sub-populations at each site.

Condition	Issue	Requirement
<p>I6 The submitted BTF SMP must include: b) a description of how the results of baseline research program to establish whether the BTF at the project site are sedentary, locally migratory or regionally migratory;</p> <p>c) a description of how the results of baseline research program are to be used to determine any changes of classification of and/or impact on BTF habitat;</p> <p>d) details of <u>proposed impacts to BTF habitat</u> from each Project Stage including impacts from clearing, subsidence, ecological function changes, hydrological changes and weed and pest infestation changes;</p> <p>e) mitigation measures to be undertaken to avoid, mitigate and <u>manage impact resulting from each stage</u> of the project, including rehabilitation of habitat;</p> <p>h) detailed surveys that must occur across the mining lease area and approved offset areas and must include information on BTF movements. The survey method and effort must be sufficient to accurately describe BTF home range and <u>detail BTF resource usage patterns between seasons and years (for up to 10 years)</u> and allow robust management actions to be developed for the <u>maintenance of a viable local BTF population</u>;</p> <p>I9 The baseline research program under I6 must: b) establish management actions to <u>maintain the current BTF population</u> of Ten Mile Bore and surrounds.</p>	<p>The submitted BTFMP does not provide an estimation of the local BTF population within the project area. Without a baseline estimate of the BTF population before mining activities commences, the department is not satisfied that the BTFMP be able to demonstrate successful management and maintenance of BTF populations or habitat.</p> <ol style="list-style-type: none"> Specifically, without a population estimate, the department is not satisfied that the impacts to BTF habitat and the mitigation measures to avoid, mitigate or manage impacts to BTF habitat will be effective. Secondly, without a baseline population estimate, the department is not satisfied that the monitoring will be able to identify BTF population trends and responses to management actions. The department is not satisfied that the monitoring and surveys proposed in the BTFMP will be able to demonstrate that the viability of a local BTF population is <u>maintained</u> within the Project Area in a sufficiently scientific and robust manner. Additionally, without a baseline population estimate and robust on-going monitoring of the BTF population of Ten Mile Bore and surrounds, the monitoring detailed in the BTFMP will not be able to <u>demonstrate the maintenance</u> of a viable local BTF population at Ten Mile Bore and surrounds. Without the determination of the BTF population estimate in the project area and the location of the BTF populations, the establishment of the BTF movement patterns is not possible as required by condition I6b. 	<p>Adani must make a commitment to establish a robust estimate of the BTF population in the Project area to satisfy the EA conditions. The Project area being the mining leases and adjacent offset area.</p> <p>The department suggests the commitment should include a confidence limit of +/-10%, and be completed within two years of approval of the BTFMP.</p> <p>Furthermore, Adani must make a commitment to more accurately quantify the BTF habitat with respect to actual occupancy by BTF populations to demonstrate achievement of the EA conditions. Specifically conditions I6c and I6d, in order to better quantify the impacts, and condition I6e, to measure the effectiveness of the management and mitigation measures.'</p> <p>It is also necessary to understand the scale of proposed impacts and proposed mitigation measures by identifying important population locations. The department recommends that this should be completed within one year of approval of the BTFMP to further inform monitoring. The department considers that important population locations should be determined as those areas that support a disproportionate share of the Project area's BTF population (e.g. >20%).</p> <p>A population estimate is required in order to demonstrate that viable local BTF populations are maintained as required by condition I6h and maintenance of the current BTF population of Ten Mile Bore and surrounds as required by condition I9.</p> <p>Adani must make a commitment to ongoing BTF population monitoring for the life of the project to satisfy the EA conditions requiring demonstration of maintenance of the population.</p> <p>Consistent with and further to the above:</p> <ol style="list-style-type: none"> BTF population monitoring is important in order to measure the impacts and benefits to the BTF population of management actions proposed. A BTF population estimate will demonstrate that there is no net loss of the BTF population as result of the project. A BTF population estimate will ensure population gains/maintenance in the offset area and non-mined areas can be accurately demonstrated.

Condition	Issue	Requirement
		<ul style="list-style-type: none"> c) A BTF population estimate may be able to be determined from survey data already collected to date and not presented in the current BTFMP. An analysis of existing survey data and monitoring methods to date should be undertaken to determine if these results can adequately, appropriately and with sufficient statistical power estimate the BTF population in the Project Area. d) A BTF population estimate will allow assessment and further development of the current understanding of critical habitat, core habitat, marginal habitat and non-habitat areas in the project area by incorporating knowledge of population density and population performance with respect to the key habitat attributes that currently define these BTF habitat types. e) Collection of robust count and mark-resight data to support baseline density estimates (from baseline survey work completed to date) in the Project area is presented in the BTFMP as a component of the research program. However, regular count and mark-resight BTF surveys is recommended to be undertaken for the life of the project. f) A population estimate will allow for the demonstration of the maintenance of the BTF population at Ten Mile Bore and surrounds.
<p>16</p> <p>The submitted BTF SMP must include:</p> <p>d) details of proposed impacts to BTF habitat from each Project Stage including impacts from clearing, subsidence, ecological function changes, hydrological changes and weed and pest infestation changes;</p> <p>e) mitigation measures to be undertaken to avoid, mitigate and manage impact resulting from each stage of the project, including rehabilitation of habitat;</p>	<p>The intent of the BTFMP as determined by the May 2014 CG evaluation report, states on p80 that:</p> <p><i>the BTF Species Management Plan must include:</i></p> <ul style="list-style-type: none"> • <i>details of <u>specific impact to BTF and habitat from each project stage</u>, including impacts from clearing, subsidence, mine dewatering, ecological function changes, hydrological changes and weed and pest infestation changes.</i> <p>A robust monitoring program is necessary to ensure that the actual BTF habitat is accurately defined by BTF usage and value to BTF populations, and impacts to BTF habitat are accurately defined as required by 16d. This information is necessary to accurately define BTF habitat to ensure success of the management actions and mitigation measures for conditions 16e.</p>	<p>Adani must provide a commitment that the current monitoring program will be re-designed and implemented within five years of approval to determine with high certainty (>95%) that the proposed management actions in the Project area, and ensure a no net loss of the BTF population in the Project area</p> <p>In the revision of the BTFMP, Adani must:</p> <ul style="list-style-type: none"> a) Present <u>quantitative measurement of all impacts</u> on the BTF population from all stages of the project and detail effective, measurable management and mitigation options. b) The <u>performance criteria</u> must include quantitative measurements of the proposed impacts on the BTF population and habitat within the project area. c) The <u>adaptive management triggers</u> must be supported by powerful statistical analysis that demonstrates when significant changes in BTF population, threats and habitat condition are reached.

Condition	Issue	Requirement
	<p>The monitoring program in the BTFMP is not satisfactory as it not statistically robust for the life of the project.</p> <p>The management objectives, performance criteria, adaptive management triggers and corrective actions detailed in tables 8, 9 and 10 of the BTFMP do not provide</p> <ul style="list-style-type: none"> i. sufficient quantification of the each impact on BTF and habitat ii. adaptive management triggers are not supported by statistical analysis necessary to determine significant changes in BTF population, BTF habitat and threats. iii. Lacks details of how the research program will enhance the management objectives. iv. The rehabilitation management objective does not include detail of which plant species will used in the rehabilitation of BTF habitat once the area is no longer necessary for mining operations. 	<ul style="list-style-type: none"> d) <u>BTF population trigger response</u> - In order to monitor the direct and indirect impacts from construction and operation on the BTF population in the Project and in order to evaluate the effectiveness of the management and mitigation measures, monitoring must be directly linked to changes in BTF population sizes as well as changes in BTF habitat condition. An appropriate BTF population trigger response needs to be coupled to each management action. e) <u>Management actions</u> must be definitively stated, not limited by the caveat of 'where possible'. f) <u>Corrective actions</u>: The corrective actions must be definitively stated rather than limited by caveat of 'may include'. g) Detail exactly how the research program will inform monitoring to determine whether the management of habitat and impact management is on track to deliver benefits to the BTF population and BTF habitat. h) Include a <u>rehabilitation mitigation measure</u> that the research program will establish the plant species that provide critical food resources to BTF during seasons of seed shortages. Mitigation must include rehabilitation planning to commence a propagation program of these plant species and the development of management knowledge to ensure that revegetation of BTF habitat using these critical species will be successful.

Condition	Issue	Requirement
<p>I6 The submitted BTF SMP must include: e) mitigation measures to be undertaken to avoid, mitigate and manage impact resulting from each stage of the project, including rehabilitation of habitat;</p>	<p>Fragmentation is recognised as an impact that requires mitigation, however the key fragmentation in the north of the Project area is not adequately addressed.</p> <p>The performance criteria in Table 8 'Minimise habitat fragmentation' does not provide detail of how habitat on the north-eastern side of the offset area will remain connected to the western side.</p>	<p>Adani must make a commitment to maintain connectivity east-west across the offset area in the northern part of Moray Downs West, in order to satisfy the EA condition requiring mitigation of impacts.</p> <p>The MLs (70514 and 70515) from the China Stone Coal Project come down into the Moray Downs property and link to Adani's ML70506, resulting in a lack of connectivity of BTF habitat in the northern part of the offset area.</p> <p>The department recommends that this fragmentation issue could be addressed in one of three ways:</p> <ul style="list-style-type: none"> a) Adani must provide a commitment of no development in ML70506, or b) include ML70506 in the offset area, or c) a part of ML70506 is included in the offset area to ensure connectivity across the northern part of the offset area. <p>This commitment will provide assurance to the department that connectivity of BTF populations is maintained across habitat in northern part of the Moray Downs West Offset Area.</p>
<p>I6 The submitted BTF SMP must include: a) a baseline research program on the specific nesting and feeding requirements of the species that will be undertaken prior to and during Project Stage 1; b) a baseline research program to establish whether the BTF at the project site are sedentary, locally migratory or regionally migratory; h) detailed surveys that must occur across the mining lease area and approved offset areas and must include information on BTF movements. The survey method and effort must be sufficient to accurately describe BTF home range and <u>detail BTF resource usage patterns between seasons and years (for up to 10 years)</u> and allow robust management</p>	<p>The research program currently contains numerous insufficiencies, and fails to address several EA conditions. The inclusion of additional details is required to provide certainty that critical seed sources together with development of an understanding of how climatic, edaphic and management actions affect critical seed sources will be achieved from the Research Program.</p> <p>With respect to condition I6a, the Research Program omits to include research requirements to determine the environmental and edaphic factors that affect the availability of critical seed sources for BTF and the identification of seed sources and availability during bottleneck periods such as at the end of the dry season and early wet season.</p> <p>With respect to condition I8, the Research Program lacks inclusion of research requirements to determine how climatic and edaphic factors affect the distribution and availability of critical seed sources. Without an understanding of how climatic and edaphic factors affect</p>	<p><u>Research Program</u> - Adani must provide a commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition and maintaining, and/or increasing the BTF population within the project area with completion of the research program prior to significant impact to BTF habitat from the project.</p> <p>Adani must update the Research Program by addressing the following recommendations in the Research Aims:</p> <ul style="list-style-type: none"> a) With respect to condition I6k, the BTFMP must provide a commitment that the research will be undertaken by personnel with experience in analysis, design and interpretation of survey and research data. A high level of expertise such as post-doctoral experience is critical in order to ensure that the research delivers scientifically robust results in a timely manner that informs effective management actions. b) <u>Research Program - Aim 1 - BTF movement ecology, including an assessment of home range across seasons and dispersal.</u> <ul style="list-style-type: none"> i. Provide detail of the effort proposed to meet this aim in order to satisfy conditions I6h. Detail that the bias of tracking to more likely record sedentariness and short

Condition	Issue	Requirement
<p>actions to be developed for the <u>maintenance of a viable local BTF population</u>;</p> <p>j) specific surveys that must be undertaken during the BTF breeding season and include nest location and assessment of the habitat attributes associated with the breeding locations. The survey method and effort must be sufficient to accurately describe the BTF breeding requirements with consideration to spatial and temporal variation of resources for up to 10 years.</p> <p>k) survey and monitoring must be undertaken by experienced ecologists.</p> <p>l8 The baseline research program must fund a research project to determine the relationship between water sources, woody habitat and the BTF food sources within the mining lease area and approved offset areas to determine the inter-relationships among these factors.</p>	<p>the distribution of critical seed sources, research into the effects of relationship of grazing and the interrelationship of water sources, woody habitat and BTF food sources would have significant limitations.</p> <p>Research Aim 1 does not provide a clear quantification of the effort that will be used to describe the BTF home range and BTF resource usage patterns between seasons and years as required by conditions l6b and l6h.</p> <p>Research Aim 2 does not provide a clear quantification of the effort that will be used to describe BTF breeding requirements with consideration to spatial and temporal variation of resources as required by condition l6j.</p> <p>Given the complex research that is required, the current description of the ecologists who will be undertaking the surveying and monitoring is insufficient to satisfy condition l6k and provide the department with confidence that the research outcomes will be achieved in a timely manner to inform management actions.</p>	<p>distance movement over long distance will be effectively addressed in the methodology design.</p> <p>ii. Water point monitoring needs must take into account the seasonal variation in count data at watering points to satisfy condition l6b.</p> <p>c) <u>Research Program - Aim 2: Determine the foraging and breeding habitat requirements and the relationship with vegetation structure and composition and water, and Aim 3: Determine the dietary requirements for BTF in the Project Area</u></p> <p>i. Provide detail of the efforts proposed to meet these aims in order to satisfy condition l6j.</p> <p>ii. The methodology must include collection of data on BTF reproductive rates and mortality rates. How these rates vary over years, and between habitats, and the factors that influence breeding success. This information is necessary to establish the breeding requirements of the BTF to satisfy conditions l6a and l6j.</p> <p>iii. An outcome of this research should determine population substructures including age structure and critical areas to manage BTF populations and habitat in different seasons to satisfy conditions l6h and l8.</p> <p>iv. Research must include an assessment of seed availability and their responses to management to satisfy condition l6j. Research focus must be the assessment of seed availability throughout the year and the factors that affect it, especially at any critical periods of seed scarcity.</p> <p>v. The research program must provide the commitment to identify which plant species are most critical for the provision of seeds throughout the year to satisfy condition l6a and l8. Research must include the measurement of the availability of seed resources across months, years and habitat (and in response to variation in grazing and fire regimes), what factors affect seed availability at critical times and what are the critical seed sources at critical bottleneck periods. This research must define and demonstrate how management will enhance the abundance of these plant species and their seed production especially in critical bottleneck periods.</p>

Condition	Issue	Requirement
		<ul style="list-style-type: none"> <li data-bbox="1429 229 2092 475">vi. Furthermore, to satisfy condition I8, seed phenology, temporal continuity and shortfall and the relationship of these distribution factors to grazing must also be determined. Determine how vegetation dynamics is affected by environmental and edaphic factors such as climate, and which environmental and edaphic factors affect seed quality, quantity and spatial distribution, local variation in distribution and interspecific competition to satisfy condition I6a. <li data-bbox="1352 504 2092 1279">d) <u>Research Aim 4: Identify management strategies for BTF habitat in the Project area regarding fire, grazing and water.</u> <ul style="list-style-type: none"> <li data-bbox="1435 561 2092 721">i. In order to achieve the above aim and satisfy condition I8, Adani should test whether livestock exclusion from some water sources can provide benefit to BTF using established water monitoring survey methods to investigate whether or not livestock exclusion to water benefits BTF populations. <li data-bbox="1435 727 2092 833">ii. The research must attain an understanding of spatial and temporal variation in floristic composition and how management actions limit or promote BTF food availability to satisfy condition I8. <li data-bbox="1435 839 2092 1279">iii. A key threat to the habitat condition in the BTF habitat is the spread of exotic perennial pasture species such as buffel grass that competes with native perennial pasture that are seed sources for BTF. To satisfy condition I8, the department recommends that pasture management needs to ensure that the current native perennial pasture composition is maintained or improved. Therefore, the research focus should aim to determine effective management that will reduce the likelihood exotic non-native perennial pasture species spreading in the Project area. The effectiveness of pulse grazing of buffel grass source infestations is a possible area of research. Conversely, when and for how long the grazing pressure needs to be lowered to reduce the risk of buffel grass infestations establishing or increasing is another avenue to research.

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Condition	Issue	Requirement
<p>19 The baseline research program under I6 must: b) establish management actions to <u>maintain the current BTF population</u> of Ten Mile Bore and surrounds.</p>	<p><u>Ten Mile Bore Area management</u> – From the BTF survey data to date, the Ten Mile Bore area continues to yield the majority of the BTF sightings over the 9 years of surveys and therefore appears to support a large proportion of the Project Area’s BTF population.</p> <p>The submitted BTFMP does not provide sufficient detail of a suitable grazing regime that will maintain the current BTF population of Ten Mile Bore and surrounds.</p> <p>If the current grazing regime does not maintain the BTF population then the baseline research will not determine management actions to maintain the BTF population into the future.</p> <p>No commitment to a low grazing regime of Ten Mile Bore and surrounds is provided as recommended in the draft Bioregional BTF Management Plan, BTF recovery plan and conservation advice.</p>	<p>Adani must make commitment about a low grazing regime to satisfy EA conditions that require the maintenance of the BTF population of Ten Mile Bore and surrounds.</p> <p>The department requires Adani make a commitment about undertaking only strategic grazing, such as or similar to the Moray Downs West offset area (p74), in the environs of Ten Mile Bore area.</p> <p>This recommendation ensures the maintenance of the BTF habitat at Ten Mile Bore that supports the current BTF populations of Ten Mile Bore and surrounds.</p>

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Date : 15/03/2019 3:56:55 PM

From : "MERRICK Jamie"

To : "WELLS Melissa"

Cc : "ELLWOOD Dean"

Subject : FW: BTFMP submissions

Attachment : Attachment A - Letter Adani to DES 14.02.2019.pdf; Attachment B - Advice Report_ Expert Panel Review BTFMP Final.pdf; Attachment C - Letter Adani to DES 01.03.2019.pdf; Director-General re BTFMP - 20190315.pdf; image339208.jpg;

From: Lucas Dow, [redacted] (6) Personal information

Sent: Friday, 15 March 2019 3:49 PM

To: MERRICK Jamie

Subject: BTFMP submissions

Jamie,

Please find attached our detailed response to the Wintle Report.

Regards,

Lucas

Lucas Dow

CEO - Adani Mining

E [redacted] (6) Personal information

P office: +61 7 3223 4800 | direct: [redacted] (6) Personal info mobile: [redacted] (6) Personal info

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14 February 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science

By email: jamie.merrick@des.qld.gov.au

Dear Mr Merrick

Draft Report for review of Black Throated Finch Management Plan (BTFMP)

1. I refer to the letter from Melissa Wells dated 12 February 2019 enclosing a copy of the draft report prepared by Professor Brendan Wintle and others (**Report**), and inviting comments by 5pm on 14 February 2019.
2. We note the offer of additional time to provide comments on the Report. Given the importance of the Department's decision on the BTFMP, please identify what additional time is proposed.
3. Further, it would assist Adani if the Department clarifies what use will be made of any comments provided to the Department. For instance, please identify who will be provided with a copy of any comments and for what purpose.
4. It is not possible to provide detailed commentary at this stage, but we do provide the following high-level comments, which relate to both procedural and substantive issues with the Report. The purpose of setting out these concerns now is that they are **not**, in our view, amenable to rectification through a revised draft by the authors of the Report and are matters that ought to be properly considered by the Department:
 - (a) As the Department has previously been advised, Adani remains greatly concerned about the nature and process of the external review with particular concern relating to the independence of Professor Wintle and the experts involved in preparing the Report. Adani has previously provided the Department with detailed evidence of the anti-coal and anti-Adani bias held by Professor Wintle and his associates and teams. It is unfortunate that this anti-coal and anti-Adani bias has manifested itself in the Report.
 - (b) Having regard to the detailed consultation that has occurred between Adani and the Department in preparing the BTFMP, shortcomings in the Report will be readily apparent to the Department. Some limited examples of this include:

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- i. the Report states several times that loss of all or part of the Project area is likely to lead to extinction of the BTF. This conclusion is not consistent with the science relied on by both State and Federal Governments, who concluded that the project would not have a significant impact on the extinction of the BTF. The Report makes unqualified and unsupported statements on the impacts of the project, not based on science, not based on the impact assessments, not based on agency review, not based on the experts that have prepared these reports, but rather, based on the Report authors' own opinions and those of well-known anti-coal and anti-Adani activists referenced in the Report;
- ii. the Report criticises the BTFMP for not providing a population estimate. The Environmental Authority conditions do not require a population estimate to be provided. One of the aims of the BTF Research Program is to collect data to facilitate better population estimates;
- iii. the Report recommends zero grazing in the BTF habitat area. This contradicts advice provided by the Department's specialists previously that grazing is likely to be an important tool to keep buffalo grass at low levels. The Report does not consider the impact removing grazing will have on fire management. The Report fails to acknowledge that grazing currently occurs in the existing BTF habitat area;
- iv. the Report criticises the offset policy the BTFMP adopts. This offset policy is consistent with the Queensland Government policy for offsets and the approvals issued for the project; and
- v. as an overarching theme, the Report is suggesting the project should not proceed whilst there are knowledge gaps in relation to the BTF. Such an approach is not consistent with the principles of adaptive management outlined in the BTFMP and provided for in the approval conditions. The BTFMP and resultant Research Program provide a basis for filling knowledge gaps and taking a cautious, science-based approach to management of the species during implementation. The BTFMP will be subject to annual reporting, expert reviews and ongoing evaluation of many of the issues raised by the reviewers. Approval of the BTFMP is just the first step in the process. The Research Program project plans also require approval by the Department.

This is not a comprehensive list, but is intended to demonstrate the misinformed and conflicting findings of the Report.

5. Adani and the Department have worked cooperatively for over 18 months on seven drafts of the BTFMP, and prior to this, with the Department since 2010 through the impact assessment process and resulting studies. To set that robust process aside in favour of the findings and recommendations of the Report would be of great concern, in particular having regard to:

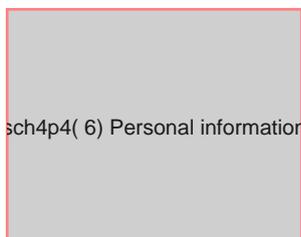


- (a) flaws in technical and scientific assessments and findings, evidenced by the Report's content and recommendations; and
- (b) the lack of independence of panel members sufficient, in Adani's view, to give rise to a reasonable apprehension of bias.

On this basis please clarify how the Department intends to use the Report.

- 6. We ask that you respond to us by 4pm 15 February 2019 addressing each of the matters raised in this correspondence.

Yours sincerely



Lucas Dow
Chief Executive Officer

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15, March 2019

INDEPENDENT REVIEW OF THE EXPERT PANEL REVIEW OF THE BLACK- THROATED FINCH MANAGEMENT PLAN

I have been engaged on behalf of Adani Mining Pty Ltd (Company) to read and consider the following documents:

- a. Black-throated Finch Management Plan – Carmichael Coal Mine and Offsite Infrastructure produced by Eco Logical Australia (version 7b, 17 December 2018).
- b. Review of the Black-throated Finch Management Plan (BTFMP) – Report to the Queensland Department of Environment and Science produced by the University of Melbourne and dated 15 February 2019 (Expert Panel Review [EPR]).
- c. Conditions I6 to I10 of environmental authority EPML01470513 (EA Conditions).
- d. Conditions 5 and 6 of approval EPBC 2010/5736.
- e. Correspondence between the Company and Department of Environment and Science (DES) as provided.

I confirm my instructions were to provide my expert opinion in relation to the EPR and associated conclusions in respect to the BTFMP. I declare that I have not been involved in the development of the BTFMP or hold any personal or professional allegiance or association with the authors.

The EPR was commissioned by the DES to provide an independent assessment of the BTFMP. I understand the BTFMP reviewed by the expert panel was the Black-throated Finch Management Plan – Carmichael Coal Mine and Offsite Infrastructure produced by Eco Logical Australia (version 7b, 17 December 2018).¹

There were seven specific questions set by DES within a Terms of Reference (ToR) document framing the EPR.

On review of the ToR and associated EPR responses, there is an increased expectation that the BTFMP will have obtained, and be informed by, detailed information on the Black-throated Finch (BTF) population and their habitat partitioning within and beyond the Project area, above that required by the EA conditions and EPBC conditions. In my view, DES and the EPR should be assessing the BTFMP in line with the requirements of the EA conditions and not utilising this process as an opportunity to further assess impacts and assert additional provisions. My review

¹ I note the EPR (page 6 Context and background) references the BTFMP as (GHD 2018), whereas I understand the BTFMP to be compiled by Eco Logical Australia (2018). I accept this is a typographical error, and the EPR is not a review of the GHD management plan prepared to support the environmental impact assessment process

has considered the EPR report in respect to the requirements of Conditions I6 to I10 of the environmental authority EPML01470513 (EA conditions) and regarding Conditions 5 and 6 of the Commonwealth approval EPBC 2010/5736.

The EPR provides frequent comments regarding the need for the BTFMP to assess the impacts of the Project and to ensure *offset measures are commensurate with the impacts*. Assessment of impacts and offset requirements has been undertaken by way of the EIS process, Land Court appeal (Land Court of Queensland Proceedings no. MRA428-14, EPA429-14, MRA430-14, EPA431-14, MRA432-14 and EPA433-01) and EPBC referral.

The BTFMP, and focus of the EPR thereon, should not be to ascertain if the proposed actions of the Project are acceptable; rather, the requirement of the BTFMP is to establish the framework and prescribe actions required to meet the Conditions I6 to I10 of the EA Conditions. In general terms, the BTFMP should be establishing the essential actions to understand and mitigate the recognised impacts of the approved Project on BTF.

The EA Conditions and the BTFMP both acknowledge there is a requirement for additional information regarding the BTF population to fully understand the impacts of the Project, both within the Project area and the Desert Uplands region. This information is to be obtained by way of the concurrent research program (refer to BTFMP Appendix C) and will be further addressed, if necessary, through the annual review required by condition I7 to identify if any additional actions are required.

Appendix D of the BTFMP provides a summary of how compliance with all relevant BTF approval conditions and Project commitments has been achieved. This includes a section showing how compliance has been achieved in the development of the BTF Research Program. I understand the BTFMP has been developed in consultation with both the federal and state governments providing comments on prior draft versions and where requested changes and additions have been duly adopted into the current version.

The EPR provides an executive summary, key findings and (as requested by the ToR) recommendations to DES regarding a science-based response to the BTFMP. I have primarily focused my response to these sections of the EPR with additional, specific responses to the relevant ToR questions and EPR responses provided in a tabulated format as **Annexure 1**.

Please note: Italicised text in this advice is text taken from the EPR for ease of reference.

EPR EXECUTIVE SUMMARY

The EPR executive summary (P4) states - *In its current form, the BTFMP does not meet the content requirements of an acceptable plan to manage an endangered species and that to provide appropriate assurance on the viability of the Black-throated finch population in the Project area and surrounding areas the BTFMP requires substantial elaboration and enhancement.*

The acceptability of the BTFMP needs to be considered with regard to the EA conditions and approved Project process. At this stage the BTFMP only seeks to outline the research aims and provide the framework to facilitate the required outcomes. The EPR statement above implies this is a failing of the BTFMP, which is misleading in respect to the detail required at this stage

of the BTFMP. The extent of detail sought to is to be developed in subsequent phases as outlined by the BTFMP.

The EPR executive summary also states *“The plan does not clearly contextualise and evaluate the likely impact on Black-throated finch (southern subspecies; hereafter BTF) of the proposed loss of habitat and disturbances from mining. It provides no estimate of the total population size of BTF in the Project area nor expresses this as a proportion of the entire BTF population. The loss of all or part of the Project area population is likely to have a significant impact on the extinction risk for this subspecies, yet, this risk is not quantified in any way in the BTFMP. Because of these omissions, it is not possible to reliably assess whether the proposed management, mitigation, and offset measures are commensurate with the impacts.*

The EPR executive summary further provides the following:

To ensure the project will not drive the BTF to extinction, in the region or globally, it will be necessary to re-shape the BTFMP to ensure:

- (i) a monitoring program is designed and implemented that is powerful enough to learn whether the planned conservation actions within the Project area and the offset area bring increases to BTF populations commensurate with anticipated losses through destruction of the known habitat,*
- (ii) monitoring and research can demonstrate explicitly and quantitatively the responses (population increase or decrease) of the BTF arising from the management, mitigation actions and offsets, and that these are adequate to compensate for anticipated BTF population losses of further mining in the high-quality habitat, and*
- (iii) independent scrutiny is established to oversee and approve all aspects of the monitoring and research design and implementation, the analysis and interpretation of monitoring and research results, and establishment of appropriate triggers that will ensure destruction of BTF habitat does not proceed unless sufficient confidence that mitigation and offset will bring increases to BTF populations commensurate with anticipated losses, to the satisfaction of regulators and independent scrutiny.*

These enhancements should not be treated as options that may be undertaken at some date in the future: they need to be established as the basis for management prior to the commencement of impacts.

I disagree with the above statements in relation to the applicable considerations of the ToR, and even more so regarding the actual requirements of the EA Conditions. The EPR should be restricted to a review of EA condition compliance. My reading of the above statements is that the EPR has approached this review as an opportunity for a condition review and to provide advice to DES on condition refinement.

The statement - *To ensure the project will not drive the BTF to extinction, in the region or globally* appears emotive and does not include appropriate consideration of the context that the species was recognised as endangered prior to the Project being conceived and range reduction and localised extinctions have already occurred. As stated in the Context and background section of the EPR (p6) - *It has declined severely since European settlement of Australia and now occurs in two main populations, a coastal population near Townsville and an inland population in central eastern Queensland. The decline was continuing in 2010 (Garnett et al. 2011) and actions taken since then are not likely to have arrested that decline.* It is apparent

that this species was, and continues to be, in decline and to purport that the Project alone may drive the BTF to extinction is an exaggeration placing unsubstantiated and provocative emphasis on the actual situation.

The Project would have a significant impact on BTF habitat without appropriate mitigation, and this could certainly contribute to the ongoing decline. However, I do not consider that a balanced independent view could or should imply that the Project could be solely responsible for driving the species to extinction. I note that it is through the actions associated with the Project that the importance of the local BTF population is now known and it is only through the Project that any noteworthy specific management actions and ongoing research is being funded for the Project area and beyond.

The BTFMP provides the framework and details required to achieve points i-iii above. The BTFMP prescribes appropriate actions and outcomes required to provide the information on BTF and their habitats for successful management. The BTF Research Program (BTFRP) (Appendix C of the BTFMP) provides a clear framework and outlines specific research aims and associated actions. The proposed research methods (section 4 BTFRP) will result in the Project obtaining the information required to address points i-ii and there is independent review to provide scrutiny of actions.

With respect to *These enhancements should not be treated as options*, the BTFRP clearly defines these actions as imperious to the outcomes sought. I do not see how they can be viewed by a reader of the BTFMP as optional. The BTFRP provides the framework for the proposed work and requires establishment, design, planning and implementation of research activities and ongoing refinement of the research plan with engagement of BTF specialists. The finalised research project plans are to be submitted to DES for approval providing additional regulator assessment of the actions.

I note the EA conditions do not require the enhancements *to be established as the basis for management prior to the commencement of impacts*. I do consider that the timely establishment of the research team and research plan development is important and the BTFMP clearly establishes that the research team will be appointed on commencement of Project stage 2, with suitably qualified and experienced persons (as defined by the EA) providing advice to inform the project plans for each stated aim. Clearing of important habitat (the northern third (i.e. between Four Mile Bore and Ten Mile Bore) and the southern quarter (south from Carmichael Bore) of the Project Area), has been programmed to occur as late as possible during the operational phase of the Project. The BTFMP has been established to ensure appropriate actions are undertaken to identify key research actions and analysis thereof prior to any significant habitat loss.

The research project plans will focus on the statistical design of surveys, refinement of monitoring site locations and timing and duration of field activities, and research plans are subject to approval by DES. This is a fundamental step in the development of the BTF management responses and the BTFRP has outlined sufficient details on actions required.

The EPR raises concerns and makes statements about the unacceptability of the lack of evidence in support of proposed management and mitigation actions. As stated above, both the EA conditions and BTFMP acknowledge the need for additional information and research to

inform the ongoing management of BTF. The management and monitoring measures proposed are to be independently reviewed and amended as required.

The adaptive management framework is clearly outlined in the BTFMP and provides for the incorporation of research results to further improve BTF management actions. I have not identified any specific, unacceptable assumptions within the BTFMP or BTFRP. The proposed appointment of a research team and ongoing liaison with the BTF recovery team and annual review provides sufficient mechanisms for ongoing appraisal of the BTFMP and all associated actions.

Of relevance to the above, and overall monitoring considerations, I note that Condition 6(b) of the EPBC Act approval requires a monitoring program to be implemented upon approval of the BTFMP to inform assessments of the effectiveness of mitigation measures. The level of disturbance of the Project activities on BTF habitat will also be measured and the success of rehabilitation activities within the Project and offset areas through the actions outlined by the BTFMP and BTFRP. There are also separate management plans for the offset areas which will also contribute to assessment of mitigation actions.

I understand that, during the EIS process, Adani provided commitments to collaborate with research institutions for aspects of the monitoring program and such collaborations are important in achieving best practice methodologies and result analysis. I note there is also a stated intent to engage with research institutions in development of the BTFRP.

The objective of the BTFRP is to determine critical ecological requirements for the BTF in accordance with the conditions of approval for the mine development. In particular, the research will aim to identify the movement patterns, habitat requirements and population dynamics, dietary requirements, home range and nesting requirements for the BTF as well as the relationship between water sources, woody habitat and food sources.

The proposed monitoring regime is required to be used to provide feedback on the effectiveness of mitigation measures and to evaluate the success of proposed rehabilitation activities.

Monitoring of the BTF and their habitats has already commenced as part of the ongoing site-based assessments to inform the baseline research program. Initial monitoring will continue for a minimum period of 10 years as required in the EA conditions and actions taken and results are to be independently reviewed annually. A major review of the monitoring results will also be completed after 10 years. This will result in the development of a long-term monitoring method that will be implemented for the life of the Project, which in turn will ensure compliance with EPBC Act approval conditions that require monitoring for the life of the Project.

EPR RECOMMENDATIONS

The EPR includes, as requested by the ToR, recommendations to DES regarding a science-based response to the BTFMP (p27). This section commences with the following statements:

In its current form, the BTFMP does not meet the content requirements of an acceptable plan to manage an endangered species. There is insufficient information currently available for this species in general, and in this area specifically, to assess impacts of the development upon the viability of the southern BTF, or to ensure that the proposed management and mitigation actions

will be successful. The population size in the Project Area is not known and cannot be calculated from the methods so far employed or the data provided; the capability of the Offset area to support a compensatory increase in population is unknown.

That *the BTFMP does not meet the content requirements of an acceptable plan to manage an endangered species* is a precursory view of the intended outcomes of the BTFMP and BTFRP. The BTFMP aims to outline the key actions and responsibilities of the Project and is the initiation of the overall development of a management framework to establish a comprehensive plan. Upon the engagement of suitably experienced professionals to finalise the design of the research plan and prescribe the actions (which require DES approval) for ongoing scientific studies through detailed project plans to implement research programs, the required management actions will be further established.

The proposition that *-There is insufficient information currently available for this species in general, and in this area specifically, to assess impacts of the development upon the viability of the southern BTF,* is beyond the scope of the BTFMP. The assessment of impacts has been undertaken through the EIS and subsequent Land court appeal. Project approvals are in place with relevant offsetting actions identified. I do not view the role of the BTFMP or an appropriate aim of the EPR to reassess impacts. The BTFMP has been prepared to address the EA Conditions I6 to I9 and EPBC Condition 6.

One of the repeated concerns of the EPR and statements included in the recommendations relates to the need for a BTF population estimate. The third Paragraph of the recommendation section states *- Notwithstanding results presented in the BTFMP from many years of survey, the BTFMP is unable to provide a robust estimate of the BTF population in the Project area. Without such an estimate, it is almost impossible to assess the absolute and relative quantity of any impact or commensurability arising from any management benefit. The design and implementation of the Research Program should be revised to ensure that the census design (complemented with mark-recapture studies) is sufficient to establish a population estimate for the Project area with confidence limits of no more than +/-10%. This estimate should be derived within 1 year of the research program.*

Whilst I agree with the need to establish an understanding of the population, I consider the required confidence limits and timeframe proposed as being unreasonable and impractical. Whilst monitoring is important for an understanding of the Project area's BTF population, there are undoubtedly seasonal and temporal fluctuations as a result of weather and environmental influences. While informed management, through increased understanding of population and population dynamics, will be essential for management responses into the future, this will require recurrent monitoring over numerous seasons and measurement of the wider population to obtain the level of detail required.

The EA conditions do not specifically require a population estimate and the scope of the BTFRP is limited to the population/s of BTF occurring primarily on the Project area (i.e. the mining lease and Moray Downs West offset area). There is intent for the proposed research to incorporate immediately adjacent properties; however, this is subject to landowner consents. The research plan focuses on the management and conservation of the BTF population in the context of the Project. The aim of the Research Program is to support management actions that will assist in preventing BTF population declines through maintenance of habitat values and in conjunction with other actions required for the management of the offset areas (e.g. predator control).

The information collected by the proposed research to estimate the home range and movements of BTF in the Project Area will result in an informed understanding of the local population and this information should be utilised in other research projects to ultimately result in a population estimate for the local landscape. I consider that the overall BTF population census falls to the Queensland Government Bio-regional BTF Management Plan as required under the Coordinator-General's report about the Project, which I understand is currently being developed by DES.

It is important for the Project and overall regional management that there is a research program which focuses on accurate population estimates and also assesses control population impacts to assist in recognition of number fluctuations which are or are not related to the Project.

I note that ongoing assessment has continued after completion of the EIS and Project approvals on the BTF habitat partitioning and habitat classifications. The subsequent BTF surveys have included further studies of vegetation structure and composition at known BTF breeding and foraging records. Observations and data collected during these surveys have assisted ongoing identification of important habitat features including key grass species and vegetation structural characteristics. The existing data and future research activities will build upon this knowledge to provide a greater understanding of important habitat values.

In relation to the EPR statement that *The population size in the Project Area is not known and cannot be calculated from the methods so far employed or the data provided; the capability of the Offset area to support a compensatory increase in population is unknown*, it is not within the scope of the ToR or the BTFMP to determine whether the offset area is commensurate with the impacts. The BTFMP will ultimately inform assessment of the adequacy of the offsetting and mitigation of impacts in accordance with relevant commonwealth and state approval conditions. The prior and proposed monitoring will provide valuable data to monitor population trends in combination with proposed tracking (which will lead to understanding of flock size and movements) and banding (which will allow marked recapture analysis).

The research described in the BTFMP to inform appropriate management aimed at enhancing BTF habitat quality and abundance is not sufficiently well described, or strategically conceptualized, and is likely to take many years to provide the necessary information and cost considerably more than has been budgeted. I consider the above statement does not acknowledge the overall aim of the BTFMP and inherent actions. A detailed description of the research is not a requirement of the EA Conditions at this stage because that detail will be provided by the research panel as part of the BTFRP. This is acknowledged and outlined in the BTFMP.

There is no doubt it will take time and several repeated seasons of assessment to obtain the necessary information. I do not see how the authors have stated *cost considerably more than has been budgeted* when there is no specific budget provided. The BTFRP notes (section 1.4) "The BTF Research Program will be funded by Adani as part of its operating budget for the mine. In determining priorities for funding, Adani will take advice from technical specialists on the BTF research team, the independent reviewer, the BTF Recovery Team and DES."

The EPR recommendations provide specific areas for enhancement of the BTFMP. These include; population estimate, monitoring, population viability analyses and modelling, grazing management, dust impacts, seed availability and its responses to management, rehabilitation,

BTF home range and dispersal, important populations and locations and triggers and remedial response. It is my view the BTFMP provides coverage of these issues and how suitable actions will be undertaken under the guidance of a research panel and under approval of DES.

I note, the closing statement of the recommendations includes - *Enhancements to the BTFMP described in this section need to be established immediately as the basis for management prior to the commencement of impacts.* I do not view this statement as within the scope of the ToR or as being applicable to the approval of the BTFMP. In fact, approval of the BTFMP will facilitate the expedience of some of these actions being commenced.

COMMENTS ON GENERAL STATEMENTS AND OVERALL INFERENCES OF THE EPR RESPONSES

I note the TOR Question 1 asks. "Does the BTFMP as submitted identify and address all the impacts with respect to the proposed loss and disturbance of BTF (Black Throated Finch) habitat (and) the impact on BTF populations?"

The EPR response (p10) to this question includes the following statements - *No, the BTFMP does not clearly contextualise and evaluate the likely impact on BTF of the proposed loss and disturbance.* It is my view the BTFMP is not required to achieve this outcome from the outset, only to prescribe the actions required and facilitate this outcome. There has been considerable work conducted on the actual habitat values and feeding resources present (e.g. refer to BTFMP Appendix E - Summary of baseline research on BTF nesting and foraging habitat in the Project area by E2M) and of the actual impacts (refer to BTFMP tables 1-13 for summaries). I consider the BTFMP is well informed as to where valuable BTF habitats are found and the identification of high value habitats has been done conservatively and is likely the BTFMP presents an overestimation of the extant BTF habitats.

The EPR repeatedly raises concerns about matters beyond the scope of the BTFMP. For example, in response to Q1 the EPR states - *The cumulative effects of multiple development impacts in the Galilee Basin must not be ignored as it is crucial context for understanding the long-term viability of the species in and around the Project Area and offset area.* A cumulative impact assessment is well outside the required scope of the BTFMP. The scope and objective of the BTFMP is to manage and mitigate BTF populations within and immediately surrounding the Project Area. Should there be other approvals which also impact on BTF and their habitats these projects should also be undertaking similar mitigation responses and research contributing to and informing the overall management responses across the Galilee Basin and Desert Uplands through incorporation of findings within the Bio-regional BTF Management Plan being undertaken by DES.

Adani has been, and has given assurances to continue, working with other stakeholders of the Galilee Basin towards development of a Bioregional BTF Management Plan. Findings of the BTFMP and BTFMP will be reported through the annual reporting process and will inform improvements in BTF survey methods and management of BTF and their habitat. The information derived should then be used to inform the development and implementation of the broader Bioregional BTF Management Plan. This approach will facilitate future management of BTF at the regional scale.

Also, in response to Q1 of the ToR the EPR states - *The potential future influence of climate change and how these influences might interact with ecological processes and threats to BTF*

'on the ground' in the Carmichael Mine area is currently not considered. Whilst I accept climate change is predicted to have detrimental influence on the BTF population, the extent of such influences and potential for climate changes is outside of the BTFMP scope and beyond the control of the Project. It is not irrelevant to the long-term management of BTF, but it is not a failure of the BTFMP. I note for completeness that climate change is not identified as a threat in the Project approvals or by the national recovery plan for the BTF southern subspecies. The adaptive management framework and annual review would be reasonably expected to identify relevant actions required as part of ongoing research and management.

In response to Q1 of the ToR the EPR states - *Habitat destruction through mining and other development will result in the localised, direct loss of BTF and their habitat. The fragmentation that results sequentially from clearing will reduce landscape connectivity and most likely lead to the ongoing loss of small, isolated groups of finches over time.* The BTF is a relatively vagile species known to move several kilometres. While there will be a loss of habitat within the Project area and these actions could result in the direct loss of individuals in respect to unfledged birds within the clearing area, I do not agree the progressive sequential clearing of the Project will result in isolated groups of finches. BTF will be displaced and this may have significant ramifications on those birds, but they will not become isolated.

The EPR (key findings p8) notes that *While there is a significant effort evident in survey reports since 2012, the work is not currently coalesced in a consistent way to support an evidence-based plan. In particular, the census, dispersion and habitat data collected are not of the form that can support an understanding of the abundance and movement patterns of the species over the proposed Project and offset areas. Consequently, a clear understanding of the habitat requirements of the subspecies (and possible seasonal variation in habitat use) is not presented in the BTFMP, nor is there an understanding of the number of individuals likely to be lost as a direct or indirect result of project development. In the absence of reliable estimates of the population size of BTF in the Project area, reliable assessment of impacts and anticipated benefits of management options, and overall assessment of BTF population viability cannot be assessed.*

The EPR has not fully acknowledged, or under-values, the level of detail provided within the BTFMP and existing data (not incorporated at this stage) in respect to the ongoing worth of the information already collected towards the BTF management planning. There is a need for detailed methodologies to achieve an overall population assessment to define the BTF population within the Project area and this is accounted for through the research program provided as Appendix C of the BTFMP. Of particular relevance is Figure 2 of Appendix C, which outlines the appointment of the research team and development of project plans.

On commencement of Project Stage 2, which requires the approval of the BTFMP, Adani will commence appointing a research team and will finalise appointments within 3 months of commencing Project Stage 2 activities. The first step of implementation by the research team will involve development of a detailed project plan for each aim of the Research Program (refer to Section 4). The project plans are to be consistent with the objectives, method, environmental variables, resources and timing of research actions described (refer to Section 4.3 to 4.6 of the research Plan). Expert advice will inform the project plans for each aim, with a focus on the statistical design of surveys, refinement of monitoring site locations and timing and duration of field activities. Project plans for each research aim will be completed within 6 months of Project

Stage 2 activities and will be provided to DES for comment and approval, prior to implementation.

I do not consider it is necessary for the BTFMP to be able to '*...expresses this as a proportion of the entire BTF population*', which is a requirement well beyond a reasonable imposition on a single project, and such definitions should be established through combined research results. I note that the conditions also include Adani contributing financially to research projects and the approval conditions I6 to I10 of EA conditions do not require such an outcome. In fact, the EA conditions speak only of a baseline research (I6a-c) to establish specific nesting and feeding requirements during stage 1, a baseline research program to establish if BTF are sedentary, locally migratory or regionally migratory and a description of how the baseline research are to be used to determine any changes of classification. I do agree detailed population information is required to measure population declines, though note this is not a specific requirement within the EA conditions. The EA conditions do require detailed measurement of habitats and habitat loss.

ADEQUACY OF THE BTFMP

The BTFMP addresses the approval conditions specific to the Carmichael Coal Mine and associated infrastructure relating to BTF. There are various Commonwealth and Queensland approval conditions that require Adani to prepare a BTF Management Plan. These conditions require the BTFMP to describe how potential impacts of the Project on BTF and BTF habitat will be mitigated and monitored. The BTFMP states (Section 3.2) that the report addresses the requirements of these conditions.

Of specific relevance to considerations on the adequacy of the BTFMP for DES is Adani meeting the conditions, specifically those conditions relating to BTF, of the granted EA for the Carmichael Coal Mine. The relevant EA conditions require a BTF species management plan (condition I6), and an independent qualified person to review the plan annually to identify any required amendments. Where any amendments are sought for the survey and monitoring this must be done in consultation with the BTF recovery team, and the baseline research to fund a research project to determine the relationship between water sources and BTF habitat and feeding resources within the Project and offset area (condition I8). The research must also further establish if the Ten Mile Bore and surrounds are high value habitat for BTF and establish management actions to maintain the Ten Mile Bore population (condition I9).

Overall, the BTFMP incorporates the results of a considerable amount of assessment by a variety of ecologists from various ecological consulting companies over approximately 8 years and is further informed by scientific literature review.

The BTF assessments commence with field surveys in 2010 conducted by GHD Pty Ltd, where the species was first identified as being present in the Project area. Subsequently, there have been numerous surveys, monitoring assessments and associated reports seeking to define the BTF population, its habitat partitioning and preferences, key habitat parameters and known breeding habitats in and around the Project area. Although a considerable level of detail on the BTF and their habitats has been collected, I do view the structure of the BTFRP and formation of a research panel and research plans as needed to result in systematic structure to allow robust analysis of data collected.

There is a requirement (condition I6(h)) for detailed surveys across the mining lease and offset areas. This condition seeks sufficient survey effort to accurately define home ranges, BTF resource usage patterns between seasons and years and allow for development of robust management actions for the maintenance of a viable population. I do place specific note on the intended outcome for the BTFMP to capture the information required to allow for development of robust management actions. There is not a requirement to have these actions completed prior to the approval of a BTFMP but for the BTFMP to facilitate this outcome. It is not the case as stated by the EPR that *they need to be established as the basis for management prior to the commencement of impacts*. The sooner this information is obtained the better the management responses can be appropriately adapted and implemented in a timely manner. I do view the level of information currently known as relatively well informed and sufficient to have informed the research aims and approaches proposed.

I also note that BTFMP (section 2.1.1) confirms that the early stages of the Project development (pits E&D) do not remove any high value BTF habitats and the only records of the species in this location is the very northern extent of Pit D (refer to BTFMP figures 3&4). BTF are most regular and most abundant in the northern third and the southern quarter of the Project Area (refer to Figure 4, p27 of BTFMP). The area around Ten Mile Bore (CWAT01B; in the north-west of the mining lease area) is specifically identified by EA condition I9.

Clearing of important habitat located in the northern third (i.e. between Four Mile Bore and Ten Mile Bore) and the southern quarter (south from Carmichael Bore) of the Project Area, will occur as late as possible during the operational phase. The BTFMP identifies the rationale behind this staged approach is:

- The existing breeding population of BTF within the Project Area will be protected for as long as possible, allowing for ongoing recovery and redistribution of the population;
- Clearing disturbed areas first will allow birds to remain in areas of good habitat rather than be directed into the mid-sections of the Project Area, where habitats are less favourable; and
- Staging will allow time for BTF habitat in the surrounding offset areas to improve such that birds may be attracted to these areas prior to clearing impacts occurring and / or have areas of suitable habitat to move into during construction.

Commencement of operations in this location provides ample margin for the proposed research to be conducted and results assessed ahead of any recognised 'significant' impacts to BTF habitat. Section 6.4.7 of the BTFMP broadly outlines management intent for the Ten Mile Bore. I do agree with the EPR there could be more specific detail and commitment in respect to condition I9.

It will be important for the research plans to include specific quantitative assessment for identification of BTF usage and habitat in key locations such as Ten Mile Bore to inform site-based management planning and rehabilitation to ensure adequate protection. There will be specific need to identify quantitative criteria for defining the Ten Mile Bore population to be able to demonstrate compliance with EA condition I9b.

SUMMARY AND CONCLUSIONS

The EPR process should be restricted to a review of condition compliance, not a condition review and expansion. I appreciate the intent of the EPR responses seeking to identify and have imposed additional actions above those required by the EA Conditions and EPBC approval. However, many of the responses go well beyond the requirements of the BTFMP, or where applicable are addressed by the BTFMP or will be by the BTFRP outcomes.

The EPR provides information and recommendations that could be considered and utilised to contribute to the research plan development and ongoing management considerations.

Although not specifically required by the EA conditions, the identification of any trends associated with natural seasonal and environmental influences (e.g. drought, fire), would provide important veracity to the overall BTF research outcomes and assessment of management actions. I note that the baseline monitoring has already collected considerable information to inform understanding of the extant population.

I recommend that the development of the BTFRP ensure inclusion of activities to inform analysis of the population size within the Project area. There are already activities and actions within the stated research aims, which include methods such as the banding proposed for research aim 1, that provides for analysis of marked birds/population records. Whilst the BTFMP should adopt monitoring protocols towards establishing understanding of the population, such activities should also be conducted by wider regional studies and include control populations away from the Project impacts. This will greatly assist in recognition of number fluctuations which are, or are not, related to the Project.

I view the BTFMP as being fit for purpose. In accordance with EPBC conditions (6d to f) and EA condition 16e, measures will be implemented to mitigate and manage impacts to BTF during the Project. The BTFMP provides the framework by which the monitoring will quantify impacts resulting from mining activities and provide feedback on the effectiveness of mitigation measures. The monitoring will include consideration of the impacts from subsidence, and groundwater draw down on BTF habitat values and water availability (see, BTFMP section 7.1.2). There are clear habitat management goals set in Section 6.

The BTFMP and EA condition 19 recognise the Ten Mile Bore area supports a notably large population of BTF and associated suitable habitat. I consider that future iterations of the BTFMP and research plans need to include specific assessment of the BTF population in this location and provide details of management commitments to maintain the Ten Mile Bore BTF population. To be clear, I do not view the EA conditions as requiring the BTF population remain in this specific location. The requirement is to maintain the population associated with the area. Nevertheless, the Ten Mile Bore, associated habitats and extant BTF population will need to remain until the research program can demonstrate the population is being otherwise maintained.

Many of the concerns expressed by the EPR will be addressed through the development of the research plans. I do not view the BTFMP, as presented, as required to provide full details of the proposed research program design or specify how action implementation will be sufficient to increase knowledge gaps and enact effective management responses. This is a critical component for the research plans, which are to be developed upon approval of the BTFMP.

Adani is working with other stakeholders of the Galilee Basin to develop a Bioregional BTF Management Plan. Information derived from the Adani BTF Research Plan will inform the development and implementation of the broader Bioregional BTF Management Plan. This approach will facilitate future management of BTF at the regional scale, and it is not the role of the BTFMP to achieve that outcome alone.

At this stage the BTFMP seeks to define actions for site-management planning including identification and rehabilitation to ensure protection and optimisation of BTF habitat. It is through the proposed research plans that the specific quantitative criteria will be fully developed and approved by DES. It will be important for the research plans to extend to identification of and defining whether any subpopulations or locations in the Project Area are critically important (e.g. if loss of such subpopulations or locations will likely reduce the viability of the overall population in the Project Area).

One of the key components of the BTFMP is the requirement for an appropriately qualified independent person to conduct an annual review with any findings and recommendations included in the annual report. The independent review is to assess the BTFMP against the requirements of the EA Conditions.

Any proposed changes or revisions of the BTFMP or research program must be carried out in consultation with the BTF recovery team. Any revisions must be independently peer reviewed with complete regard to EA condition I6.

Overall, I view the BTFMP as having been compiled in line with and meeting the imposed EA conditions. The plan is responsive, contemporary and suitable for the required purpose. The BTFMP has been approved by the Department of Environment and Energy. I have not identified any reason which would justify DES to not endorse the BTFMP version 7b. It is better to have a single plan approved by both levels of government than separate versions of the same plan. The adaptive management approach provides for ongoing adaption and adoption of recognised areas for improvement.

Please do not hesitate to contact me should you require any further clarification or assistance with this matter.

Yours faithfully,

ch4p4(6) Personal informatio

Adrian Caneris CEnvP (Ecology Specialist)
Managing Director
Biodiversity Assessment and Management Pty Ltd

Table 1. Comments on Responses and Findings of the EPR to ToR Questions

EPR Statements	Comments on statements provided
<p>Q1. Does the Black-throated Finch Management Plan (BTFMP) as submitted identify and address all the impacts with respect to the proposed loss and disturbance of Black-throated Finch habitat, the impact on Black-throated finch populations.</p>	
<p><i>The BTFMP does not clearly contextualise and evaluate the likely impact on BTF of the proposed loss and disturbance.</i></p>	<p>This has been undertaken by way of the EIS process and the BTFMP provides the framework for refinement of such measures.</p>
<p><i>The most robust estimate available for the total population size of the subspecies was about 1400 mature individuals in 2010 (Garnett et al. 2011). Due to survey inconsistency and incompleteness, the BTFMP provides no estimate of the total population size of BTF in the Project Area nor expresses this as a proportion of the entire BTF population.</i></p>	<p>I am unsure as to why the EPR references this estimate as it is well outdated and was not informed by the detection of the population within the Carmichael Mine and surrounds.</p> <p>I do not see the BTFMP role as having to express what proportion of the overall population is in the area due to this requiring an understanding of the entire population, and this is unknown and beyond a reasonable imposition on the Project. The applicable assessment and research will contribute meaningful information towards this outcome by others.</p> <p>The BTFMP is not specifically required to determine the population of BTF within the Project Area. Further, this is a very difficult undertaking due to several influencing factors including access limitations to relevant lands, seasonal variations, the dynamic nature of the local BTF, and the birds' movements across the landscape.</p> <p>I view the need to ensure an ongoing and consistent monitoring methodology aimed at establishing reliable data on typical numbers and fluctuations as part of the development of the research plan monitoring survey design.</p>
<p><i>Habitat destruction through mining and other development will result in the localised, direct loss of BTF and their habitat. The fragmentation that results sequentially from clearing will reduce landscape connectivity and most likely lead to the ongoing loss of small, isolated groups of finches over time.</i></p>	<p>There is no disputing there will be habitat loss. I do not agree it will necessarily result in direct loss of BTF. In respect to fragmentation, there will be a reduction in landscape connectivity though I do not see any evidence to support the proposition that this will most likely lead to the ongoing loss of small, isolated groups of finches over time.</p> <p>This species is relatively vagile and I do not view any likelihood of populations becoming isolated from adjoining lands.</p>
<p><i>.. the loss of all or part of the Project Area population is likely to have a significant impact on the extinction risk for this subspecies. However, this risk is not quantified in any way, for example by using population viability analysis methods, in the BTFMP or supporting documents.</i></p>	<p>The species is already identified as being at risk of extinction and the Project area is but a small part of the overall range. There is no disputing the importance of the Project providing suitable management and mitigation responses by way of the BTFMP.</p> <p>Assessment of the population viability should be undertaken regarding the total population and is an outcome that should be achieved through the research program. The BTFMP is a plan specific for the Project area and offset areas.</p>
<p><i>... impacts are noted in the BTFMP, they are not quantified nor adequately addressed.</i></p>	<p>Section 4.6 of the BTFMP describes the expected direct and indirect impacts from the Project in detail including specific quantities of BTF habitat that is expected to be cleared and impacted through subsidence and the number of dams that will be lost. Ongoing assessments will refine the actual areas and associated values further.</p>
<p><i>The habitat utilisation studies presented do not reliably identify key features of the habitat that explain the presence or absence of finches, let alone their abundance. Hence, estimates of the amount and quality</i></p>	<p>The habitat quality mapping is the result of the considerable repeated surveys undertaken through the initial assessment, EIS and ongoing monitoring within the Project area.</p> <p>The habitat classifications provided align with the methods prescribed in the Commonwealth Significant impact guidelines for BTF. There have been numerous assessments of habitat values in locations of known sightings. Information has been collected on vegetation</p>

EPR Statements	Comments on statements provided
<i>of habitat that will be lost are unreliable</i>	structure and feeding resources composition at known BTF breeding and foraging records. Observations and data collected during these surveys have identified important habitat features. The BTFMP includes a detailed summary of baseline research on BTF nesting and foraging habitat in the Project area including key grass species. Ongoing assessments and future research will refine understanding of critical habitat characteristics for BTF.
<i>The potential future influence of climate change and how these influences might interact with ecological processes and threats to BTF 'on the ground' in the Carmichael Mine area is currently not considered.</i>	Climate change may have a detrimental impact on BTF management during the life of the Project. However, the potential for and actual impact of climate change is well outside of the BTFMP scope, other than the existing provisions which include the adaptive management responses. I also note that the relevant EA and EPBC approval conditions and the BTF National Recovery Plan do not list climate change as a recognised threatening process for BTF.
Q2. Are the proposed management and mitigation measures as detailed in the BTFMP commensurate with the impacts?	
Overall comment – I do not see how this question has been framed to assess the suitability of the BTFMP against the EA Conditions. The assessment of commensurate mitigation was considered in the EIS and Land Court proceedings. The role of the BTFMP is to provide the framework and facilitate management and research to establish mitigation outcomes already identified as resulting in appropriate offsetting of the impacts.	
<i>The BTFMP does not appropriately contextualise and quantify the total and relative BTF population losses due to this development, so commensurability cannot be reliably assessed.</i>	The BTFMP is not required to contextualise and quantify the total and relative BTF population losses. It is required to meet the EA conditions and prescribe appropriate management actions, some of which would ultimately provide this information. It is not possible to contextualise and quantify the total and relative BTF population losses as a total population onsite or meta populations of the desert uplands is unknown. It is an unreasonable and impractical suggestion. Also achieving the suggested outcome is beyond the ability of the proponent due to access issues across the landscape. I also note that the EPR states - <i>As methods for detecting meaningful levels of change have proved problematic with BTF and other tropical finches, this needs to be a top priority for research.</i>
<i>Avoiding the direct destruction of nests only delays the habitat loss for a short period, and there is no evidence that allowing nests to fledge ahead of habitat destruction mitigates the population loss.</i>	There is certainly more benefit in attempting to allow nests to fledge rather than remove during active breeding. Are the authors suggesting that an area known to be used for breeding should never be disturbed?
<i>Although it is not the specific scope of the BTFMP, the main offsite mitigation and management measures involve putative habitat enhancement in the offset area.</i>	I do not view the substantial actions proposed for the offset areas as putative habitat enhancement. There are specific conditions on the offset area and separate management plans towards achieving the required actions. There are also actions to reduce predators and ongoing threatening processes above just habitat enhancement. I view it as reasonable to view the proposed management actions in the offset plan towards enhancement of habitat values and reduction of known threats and threatening processes will provide a notable benefit to the species.
<i>Hence, it is certain that the BTFMP will not deliver an outcome of commensurate increase in BTFs in the Project Area and highly unlikely that such a commensurate increase will be delivered in the offset area. The benefits required for commensurability must be</i>	I understand that the EIS and approval process is the main avenue to decide on whether a commensurate increase can or will be achieved. It is certainly beyond the scope of the BTFMP and not sought by the EA conditions. I also do not see where it is within the scope of the ToR for the EPR to determine whether the offset area is commensurate for proposed impacts. I do note there is far more BTF records within the MLAs, however, this is primarily a result of survey effort being considerably

EPR Statements	Comments on statements provided
<i>demonstrated with certainty by the proponent before impacts should be allowed to proceed.</i>	more substantial in the impact area. BTF have been observed within portions of the offset areas. Targeted baseline surveys will be completed as part of the Offset Area Management Plan and this will in turn provide a better indication of habitat and habitat partitioning.
<i>Assumptions about the benefits of adding watering points to offset areas should be quantitatively proven in the Project and Offset Areas as a matter of urgency</i>	I cannot understand how the EPR can have concern about provision of additional watering points for BTF in the Project and offset areas. This is a known benefit and likely one of the key elements in why the species is persisting to the degree they are in the Project area. Other than potential for increased provision of water to pest animals and cattle, which can both be controlled, this would only add to habitat values. There are currently large areas of woodland dominated by <i>Eucalyptus melanophloia</i> occurring within the offset area where no artificial watering points have been retained/maintained. These areas hold comparable habitats and feeding resources, including known grass forage species. There is no disputing the species' need for access to watering points and the provision of watering points to areas of suitable habitat within the offset areas can be reasonably viewed as a priority actions of benefit to BTF.
<i>Furthermore, notwithstanding the fact that the Recovery Plan for this species and the 2011 Bird Action Plan (Garnett et al. 2011) both list pastoralism/grazing as a main threat and driver of decline – as does the BTF Bioregional Management Plan – the BTFMP indicates that livestock grazing is likely to be maintained in the Project Area ('the management of grazing within non-mined areas will be based on existing pastoral management practices') (s. 6.4.1).</i>	Whilst I do agree pastoralism/grazing is well recognised as a threat and driver of BTF decline, these views need to be considered in light of the 'do-nothing' scenario. Firstly, with no Carmichael Mine Project, these lands would certainly be reverted back to large scale grazing properties with no management planning or funding. Secondly, grazing can be a very valuable tool in limiting fire. It should be noted that the species is present under <i>the management of grazing within ... existing pastoral management practices</i> . Sections 4.6 and 7.2.1 of the BTFMP outlines proposed grazing regimes/ trials which will consist of various cattle stocking densities and wet season resting. These trials will be assessed in terms of the ground layer composition and structure with reference to areas of known high value BTF habitat in the Project Area.
<i>The BTFMP also makes the unsubstantiated claim that 'grazing will be used to decrease the abundance and presence of weeds, including Buffel Grass' (s. 6.4.1).</i>	I do not view the BTFMP as making an unsubstantiated claim that 'grazing will be used to decrease the abundance and presence of weeds, including Buffel Grass'. There is no doubt that with complete removal of cattle from some management zones, weeds and buffel grass will proliferate.
<i>The direct implications for the BTFMP are its research, management and monitoring programs must be upgraded significantly so that they have the power to identify whether management of habitat in the Project Area and offset areas are on track to deliver the benefits necessary to offset planned impacts on the BTF, and that such results from enhanced management are demonstrated with positive responses by BTF.</i>	I agree there is an ongoing need to update the BTFMP or BTF Research Plan to incorporate provisions to identify whether management of BTF habitat in the Project Area and offset areas are on track to deliver the benefits necessary to offset planned impacts on the BTF habitat. I do not agree that the BTFMP can be revised so as to ensure results from enhanced management are demonstrated with positive responses by BTF. There are too many variables in the population outside of the control of the Project to allow such assurances. The Project can only provide management action to improve habitat values and reduce threats. It may be that this species continues to decline regardless of any actions taken.
Q3. Within the scope of the Environmental Authority conditions (16, 18 and 19), are there any significant omissions that should be addressed in the BTFMP?	
Overall comment – Several of the EPR statements have not been restricted to those matters within the scope of EA Conditions I6, I8 and I9. Many of the matters identified by the EPR as shortfalls are actions or outcomes which will be achieved through the implementation of the BTFMP and BTFRP and are not specifically required at this stage.	
<i>In contrast, the BTFMP provides no indication that stocking rates will be reduced or that stock exclusion</i>	Sections 4.6 and 7.2.1 outlines proposed grazing regimes/ trials which will consist of various cattle stocking densities and wet season resting. These trials will be assessed in terms of the ground layer

EPR Statements	Comments on statements provided
<p><i>fencing will be established around important habitats except where subsidence may occur following underground mining, although it is unclear whether this is to benefit the BTF or livestock. The cited section of the Bioregional Plan makes it clear that stocking rates should be reduced, or stock excluded until such time as research demonstrates which stocking rates are optimal.</i></p>	<p>composition and structure with reference to areas of known high value BTF habitat in the Project Area. The trials will aim to identify the optimal grazing strategy for maintaining good condition BTF habitat that incorporates important food resources including diversity and cover of preferred grass species as well as adequate seed output. If the annual vegetation assessment demonstrates a loss of native perennial species and cover from baseline conditions, an investigative review will be completed, and relevant corrective management actions undertaken to ensure the maintenance or enhancement of perennial pasture species. Corrective actions may include additional fencing or spelling of paddocks to control grazing, controlled grazing to reduce biomass levels, pest control (e.g. rabbits, weed eradication) and fire management. The proposed research methods for this aim are provided in Appendix C.</p>
<p><i>The budget mooted for the whole research plan - \$100,000 p.a. for ten years – is well below what would be required to determine appropriate management given the large numbers of uncertainties documented above.</i></p>	<p>This is a misunderstanding of the framework and Project commitments. The annual \$100,000 budget referred to has no relationship with the BTFMP implementation or Research Plan or funding thereof. The reference to \$100,000 contribution by Adani, is that required under the EPBC Act approval 2010/5736 to establish a pool of funds for the better protection of a range of EPBC Act Matters of National Environmental Significance (MNES) listed in that approval. The predicted costs for the proposed BTF management actions will be substantially more and ongoing for life of the Project. As stated in the BTFMP (section 1.4), The BTF Research Program will be funded by Adani as part of its operating budget for the mine. In determining priorities for funding, Adani will take advice from technical specialists on the BTF research team, the independent reviewer, the BTF Recovery Team and DES.</p>
<p><i>A number of new technologies could be employed to rapidly obtain robust estimates of BTF population densities and range movements over the Project and surrounding area</i></p>	<p>There is always improvement in ecological research and many more will come through the life of the Project. The annual review and research program have been designed to be adaptive and provides for changes in consultation with the BTF recovery team and independent expert. I can see no reason why a proven cost-effective method would not be adopted.</p>
<p><i>There is little evidence that the Research Program will be able to support a statistically powerful analysis of changes in habitat suitability resulting from impacts on habitat in the areas surrounding mining activities in both the offset site and in residual habitat remaining on the Project area. No statistical power analysis is presented</i></p>	<p>As required by and in accordance with EA Conditions I6 to I9, the current Research Plan seeks to provide a management framework for the BTF research that is required to be undertaken (refer to BTFMP Section 4.1). The successful implementation will be enhanced through further engagement and involvement of BTF specialists in the detailed design, planning and implementation of research activities. More detailed project plans for the implementation of studies to address each of the research aims will be developed following approval and selection of the researcher/s. Following monitoring and research activities being conducted statistical analysis can be undertaken. I understand that it has been agreed by the State and Federal Governments the current Research Plan intentionally only outlines a framework for the BTF research (refer to Section 4.1). The actual detailed project plans for the research aims are to be developed following approval and selection of experienced researchers.</p>
<p><i>The current plan does not provide sufficient evidence that direct impacts of habitat loss to mining and potential indirect impacts (e.g. changes in hydrology), including fire, can be</i></p>	<p>It is my view it is unreasonable to suggest the current plan needs to provide sufficient evidence that direct and indirect impacts can be managed to secure the long-term viability of the species. As stated earlier it is possible the species decline may continue regardless of the Project being enacted or if so with all management actions taken.</p>

EPR Statements	Comments on statements provided
<i>managed in such a way as to secure the long-term viability of the BTF in the Project area or Offset area.</i>	Sections 3.2 and 3.3 of the BTFMP outline the aims and objectives of the research program which are strongly linked to the management of BTF habitat. It is reasonable to ensure the Project maintains comparable/commensurate habitat and habitat values, though not be expected to maintain BTF despite other external influences beyond their control. It is important that, as stated in the aims, management of retained habitats is progressively improved based on increased knowledge obtained through the research program.
<i>There is much evidence from many other grazing studies that stock typically degrade vegetation at, and near water sources and resulting vegetation degradation may mean that finches drinking at such water sources may be more exposed to predation.</i>	This is correct, although it should also be noted that it is likely that, without the artificial watering sources provided for grazing only, it is reasonable to predict the BTF population currently present would have reduced numbers or range in the location due to their dependence on permanent water. I do agree watering points to be placed within the offset areas need careful consideration and potential management implications can be readily dealt through design excluding cattle or through fencing. Section 7.2.1 details grazing trials. These trials will be assessed in terms of the ground layer composition and structure with reference to areas of known high value BTF habitat in the Project Area. The trials will aim to identify the optimal grazing strategy for maintaining good condition BTF habitat that incorporates important food resources including diversity and cover of preferred grass species as well as adequate seed output.
<i>There is almost nothing in the BTFMP that documents a Research Program on resource use: what seeds constitute the bulk of the diet in what seasons, and the extent to which these seed resources may be limiting and vary spatially, temporally and in response to management and temporal variation in local climate.</i>	A requirement of 17 is that survey method and effort must be sufficient to detail BTF resource usage patterns between seasons and years (for up to 10 years) and allow robust management actions to be developed for the maintenance of a viable local BTF population. This is to be independently reviewed annually and if required recommended changes to the BTFMP made. In addition, Aim 3 of the Research Plan (Section 4.5) is to specifically identify the dietary requirements of the BTF including spatial and temporal variability. The specifics of how this is to be achieved is for the appointed researchers to define and design.
<i>But these activities do not constitute an effective or appropriate survey or monitoring program. There has been no assessment of the statistical power of the monitoring efforts (nor how much effort is required to ensure that the program is sufficiently powerful to detect meaningful change)...</i>	Determining the population of BTF within the Project Area is complex due to numerous factors including the dynamic nature of the local BTF, land access limitations to adjacent properties and the nature of the birds' behaviour. Appropriate statistical analysis of monitoring data will be undertaken to assess whether there are any significant changes in BTF observations (Section 7.1 of BTFMP). I do agree suitable monitoring protocols should be incorporated in the research plan to allow analysis of the BTF Population.
<i>The BTFMP provides little commitment to 'maintaining' the BTF population in the Ten Mile Bore area.</i>	I agree there is no specific statement committing to 'maintaining' the BTF population in the Ten Mile Bore area. To be precise, the EA Condition I9b requires –“establish management actions to maintain the current BTF population of the ten mile bore and surrounds”. It does not require the retention of the ten mile bore area. I do accept that avoidance of the ten mile bore area would result in considerably less impacts on BTF and their high value habitat. However, the Project is approved and, to meet the approval conditions, the purpose of the BTFMP is to minimise unavoidable impacts to BTF from the Project. Section 6.4.7 of the BTFMP specifically addresses, although only broadly, management of BTF in the Ten Mile Bore area. The overall aim of the Project is for the proposed offsets to compensate for the loss of habitat and the current approach is to attempt to maintain the local BTF population within offset areas.

EPR Statements	Comments on statements provided
<p>Q4. Does the BTFMP as submitted provide management and mitigation measures that are based on the best available science and conservation knowledge?</p>	
<p>Overall comment – Several of the EPR statements have not been restricted to those matters within the scope of EA Conditions I6, I8 and I9. The BTFMP only outlines research and it is the role of the proposed research plans to explicitly detail the actions to address knowledge gaps.</p>	
<p><i>...there are still key knowledge gaps that impede management and consideration of conservation options and outcomes: the absolute and relative population size in the project area (and parts of it) is not known, there is no adequate established monitoring program, very little is known about their movements, and the BTF's responses to variation in the critical habitat determinants of fire and grazing management are not established. To have any confidence that the mitigation and management measures will deliver any – let alone, optimal – benefit to this species, these knowledge gaps need to be filled.</i></p>	<p>As previously outlined, it is the role of the proposed research plans to explicitly detail the actions to address knowledge gaps. I agree these knowledge gaps impede the <i>management and consideration of conservation options and outcomes</i>. Upon approval of the BTFMP, the research plans will be developed and require DES approval. The actions identified by research plans are proposed to be implemented well before any significant impacts on BTF habitats occur.</p>
<p><i>There are more robust protocols for monitoring than those described in the BTFMP; there are well-established mechanisms for evaluating the statistical power for monitoring programs (Elzinga et al. 2003); there are established mechanisms for evaluating varying levels of population loss or gain within population viability models (Wintle et al. 2005);</i></p>	<p>The research plans are yet to be developed. It is reasonable to assume that, with the appointment of experienced researchers and requirement for approval by DES, the research plans will include suitable protocols for evaluating the results.</p>
<p>Q5. If the management and mitigation measures are not based on the best available science and conservation knowledge, from an expert's perspective what inclusions are necessary to ensure that the BTFMP is consistent with the best available science and conservation knowledge?</p>	
<p>Overall comment – As identified by the EPR, many related issues have been detailed elsewhere in this report.</p>	
<p><i>the quality and spatial representation of the survey data in the impact and offset locations are limited given the number of years over which assessments have been occurring.</i></p>	<p>The assessments to date have been to establish baseline research. I agree that with a more structured methodology the survey effort to date could have resulted in greater outcomes than has currently been achieved. However, the level of assessment undertaken to date is in advance of the actions required by the EA conditions.</p>
<p><i>It is crucial that state-of-the-art monitoring design protocols are developed and adopted so that the best possible information is provided that is most pertinent to the assessment of impact and design of optimal mitigation strategies.</i></p>	<p>The process for setting up and developing, particularly with the requirement for DES approval of research plans, will deliver appropriate monitoring design protocols. Determining the breeding habitat requirements of the BTF and the relationship with vegetation structure and composition and water is part of a key aim of the Research Program. Details of the objectives, variables to be monitored, methods, resources and timing are outlined in Section 4.4 of the Research Program.</p>
<p><i>A number of baseline research activities should be undertaken, and knowledge gaps filled before the plan can be accepted.</i></p>	<p>The BTFMP and EA conditions acknowledge there are knowledge gaps. The aim of the BTFMP is to provide facilitation to address the required actions and the BTFMP will be consistently updated as required to incorporate new learnings and methodologies.</p>

EPR Statements	Comments on statements provided
<i>(i) collection of robust count and mark-resight data to support baseline BTF density estimates at impact and offset locations,</i>	Although not specifically required by conditions, I agree the research aims should be expanded to include detailed research plans to be developed to allow for population estimates. There is already prescribed banding activities which will allow for mark-resight assessment.
Q6. Overall, from a scientific expert's perspective does the BTFMP as submitted provide an acceptable approach to plan, manage and mitigate the impacts of the proposed Carmichael Coal Mine on the Black-throated Finch populations and habitat within the project area?	
<i>The set of planning, management and mitigation actions outlined in BTFMP provides insufficient assurance that the population of BTF in the Project Area will be maintained. Many relevant details of the conservation management requirements for it are currently unknown.</i>	The BTFMP does not seek to provide assurance. The specific question is does the BTFMP as submitted provide an acceptable approach to plan, manage and mitigate the impacts of the proposed Carmichael Coal Mine on the Black-throated Finch populations and habitat. The BTFMP provides the framework to plan, manage and mitigate impacts in accordance with the relevant EA conditions. These conditions speak specifically about commensurate offsetting of habitat values and there are several other plans which are applicable to such outcomes.
<i>.... it is likely to take many years for the limited Research Program to provide sufficient evidence to ensure that optimal management is implemented; responses to predicted or unpredicted impacts are too discretionary;</i>	The BTFMP will be completed prior to impacts to BTF habitat. The adaptive management framework, independent expert review and learning outcomes from the research will inform management. Management responses are not discretionary when considered in context with the approval conditions and Project risks in failure to adequately meet imposed conditions.
<i>.. the resourcing of the Research Program is not well defined and is insufficient to ensure that the research objectives are realised.</i>	The BTFMP states (section 1.4) research is to be funded by Adani as part of its operating budget for the mine. I do not see how the EPR can arrive at a conclusion that there is insufficient budget when this is not a detailed within the BTFMP.
Q7. Please provide any additional comments on the BTFMP as submitted, which would ensure that the BTFMP better meets its objectives as stated in the Environmental Authority conditions.	
<i>There is insufficient information currently available for this species in general, and in this area specifically, to assess impacts of the development upon the viability of the southern BTF, or to ensure that the proposed management and mitigation actions will be successful.</i>	Impact assessment was undertaken by way of the EIS and the Land Court proceedings. The imposed conditions are based on the assessment of impacts and the BTFMP has been prepared in accordance with EA Conditions I6 to I9 and EPBC Condition 6. The proposed research plans will provide further establishment of the actual impacts and will provide valuable information on BTF habitat partitioning in the Project area.
<i>The monitoring and research components are treated as if they are mutually exclusive</i>	I did share that view. The BTFMP outlines research aims and it is the research plans which will identify how to interrelate these activities.
<i>The Research Program fails to consider the range of threats and issues raised under Question 1 of this review, including the dynamics of the metapopulation, the cumulative effects of development in the metapopulation area, and the interaction between the nominated stressors and between these stressors and climate change.</i>	These issues go well beyond the scope and aim of the BTFMP and are irrelevant to the DES considerations of whether or not the BTFMP appropriately addresses the EA Conditions.

1 March 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane QLD 4000

By email: jamie.merrick@des.qld.gov.au

Dear Mr Merrick

We refer to your letter of 26 February 2019.

One critical issue raised in our letter of 20 February 2019 that has remained unanswered by the Department is our question regarding the source of the Department's power to undertake the approval decision, including the process of referring the BTFMP to Professor Wintle for review, resulting in the furnishing of the relevant final report and Adani's response to that final report. We ask that you respond by identifying the relevant legislative power and relevant section or sections (i.e. the specific enactment/s or regulation/s) by close of business Monday 4 March 2019.

It seems that the Department insists that the flawed report of Professor Wintle will be before the relevant decision-maker in making the approval decision. Therefore we will provide a further detailed submission to be weighed against it. To this end, please confirm the Department agrees to extend the proposed submission period to 15 March 2019 as it pertains to the Wintle report.

We also wish to emphasise some general points regarding the proper role of environmental authority management plans in relation to the Carmichael Project. It is important to note that a comprehensive environmental impact assessment of the Carmichael Mine was completed in preparing the Carmichael Project EIS. The project was then approved by the State and Federal Governments, having regard to the impact assessment set out in the EIS. The State subsequently conditioned the project (under the environmental authority), which authorises a certain level of impact, subject to the implementation of the requisite management and monitoring regimes. Environmental authority approval conditions require the development and implementation of plans, such as the BTFMP, to ensure authorised impacts are managed, mitigated and monitored. The purpose of these management plans is not to provide an opportunity for your Department to require Adani, or any proponent, to return to the starting point of impact assessment post-approval. To do so would be to impose a level of regulatory burden that the legislature never contemplated or authorised.

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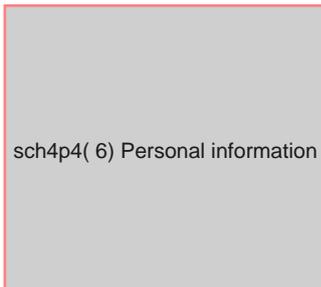
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Apart from our submissions regarding the BTFMP approval decision, we see value in continuing to engage with the Department, including through meetings, in order to progress the Carmichael Project.

We look forward to your response.

Yours sincerely



Lucas Dow
Chief Executive Officer

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15 March 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane QLD 4000
AUSTRALIA

By email: jamie.merrick@des.qld.gov.au

Dear Mr Merrick

Adani Mining Pty Ltd – BTFMP

We refer to your letter of 1 March 2019 regarding the Black-throated Finch Management Plan (**BTFMP**).

This letter and its attachments comprise Adani's submission in relation to the proposed decision to approve the BTFMP.

Background

1. On 5 June 2017, the Queensland Department of Environment and Heritage Protection (now Department of Environment and Science, herein DES) granted Adani Mining Environmental Authority EPML01470513 (**EA**).
2. In Schedule I of the EA titled Offsets and Biodiversity, conditions I6 to I10 relate to the Black-throated Finch Species Management Plan (**BTFMP**) at the Mine. This is located at page 30 of the EA.
3. Over the course of the following 17 months, Adani worked closely with the DES to develop numerous iterations of the BTFMP and meet the requirements of conditions I6 to I10. This included:
 - (a) DES providing feedback on the May 2017, November 2017 and June 2018 iterations of the draft BTFMP;
 - (b) DES providing feedback on particular extracts of the draft BTFMP through October 2018 in advance of the submission of the draft BTFMP in November 2018;
 - (c) Adani and DES consulting on the wording of particular elements of the draft BTFMP throughout the period February 2018 to September 2018. This consultation included DES providing recommendations for amended wording to particular provisions, and where this could not be readily

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agreed, arranging teleconferences and meetings / workshops to discuss these particular issues, including:

- (i) grazing management: Adani submitted revised wording on the proposed grazing management provision on 13 February 2018, and there was ongoing correspondence with DES until 8 March 2018, at which time it was recognised that a meeting would be required to discuss this particular provision. The wording of this provision continued to be considered by both Adani and DES until June 2018;
 - (ii) vegetation monitoring: Adani submitted revised wording on the proposed vegetation monitoring provision on 20 March 2018, and there was ongoing correspondence with DES until 11 April 2018;
 - (iii) black-throated finch habitat analysis and research plan: Adani submitted revised wording on the research plan on 28 August 2018 and there was ongoing correspondence about this until 8 October 2018;
- (d) Adani and DES attending several workshops and meetings (as frequently as monthly), between the period November 2016 and November 2018 to discuss the project generally, and the BTFMP specifically. These workshops and meetings included:
- (i) *21 November 2016*: the purpose of the workshop was to "Review current understanding of black-throated finch management plans, research programs and surveys, and establish agreed process for meeting conditions". This workshop included discussion between Adani and DES on the EA condition, the draft BTFMP, the draft research plan and the agreed process to progress the BTFMP;
 - (ii) *21 May 2017 and 15 June 2017*: discussion on the timing of feedback by both the Commonwealth Government Department of Environment and Energy (DOEE) and DES and that this was to be provided shortly;
 - (iii) *17 August 2017 and 27 September 2017*: Adani providing information to the black-throated finch recovery team and responding to further requests from the team;
 - (iv) *20 February 2018*: discussion regarding the resubmitted plan by Adani, and that the plan would require further revision based on feedback that was to be provided, including in relation to grazing management;
 - (v) *23 April 2018 and 29 May 2018*: DES confirming that it would be sending the draft BTFMP to the delegate for approval once one outstanding issue had been resolved;

- (vi) *28 June 2018:* Adani confirming it would resubmit the draft BTFMP to DES and DOEE the following day for approval;
 - (vii) *26 July 2018:* Adani providing clarification on points that had been identified by DES and DOEE, and DES confirming that the material was awaiting approval and
 - (viii) *27 November 2018:* at this final workshop, Juliana McCosker (Director, Business Centre Coal, Coal and Central Queensland Compliance, Environmental Services and Regulation) advised that there were not any issues with the BTFMP, and signoff by the delegate should achieve a similar timeframe to that taken by the delegate for DOEE.
4. On 2 November 2018, Adani submitted the BTFMP to DES.
 5. On 18 December 2018, Juliana McCosker sent a letter to Adani acknowledging receipt of the BTFMP provided on 2 November, and advised that:

"...the department has engaged the National Director of the National Environment Science Program's Threatened Species Recovery Hub to lead an independent scientific panel review of the BTFMP.

The independent scientific panel review of the BTFMP will ensure that the department's decision on the BTFMP is consistent with the very best threatened species and conservation science, and that the final decision on the BTFMP is beyond reproach in terms of its objectivity... "
 6. On that day, Adani was provided with a document titled "Terms of Reference: Expert Review of the submitted Black Throated Finch Management Plan" (TOR).
 7. The decision to refer the BTFMP was made by DES without notice or consultation to Adani. Further, the process sought to be now invoked by DES is not contemplated by the EA.

Draft Report of Hub regarding BTFMP

8. On 12 February 2019, Hamish Manzi, Head of Environment and Sustainability at Adani Mining Pty Ltd, was sent a letter from Melissa Wells (Executive Director, Coal and Central Queensland Compliance, Environmental Services and Regulation). This letter enclosed a draft report titled "Panel Review of the Black-throated Finch Management Plan (BTFMP), Draft report to Queensland Department of Environment and Science, 11 February 2019" (Draft Report).
9. The above letter provided Adani with less than two days to consider and respond to the Draft Report.
10. On 14 February 2019, I, Chief Executive Office of Adani Mining, wrote to Jamie Merrick, Director General of DES. Adani expressed the view that it remains greatly concerned about the nature and process of the external review of the BTFMP and sought clarification from DES as to how the Draft Report was intended to be used.

11. In order not to delay the process of DES making the decision to approve the BTFMP (**Approval Decision**), Adani made high-level comments regarding the Draft Report and asked to be given an opportunity to consider and comment upon the final version (**Final Report**). We ask that you consider our correspondence of 14 February 2019 as the issues in relation to the Draft Report clearly remain evident (**Attachment A**).
12. In further correspondence, DES provided Adani with a copy of the Final Report and allowed Adani until 15 March 2019 to make any submissions in relation to the Approval Decision.

Shortcomings of the Final Report

13. We have engaged BAAM Ecological Consultants (**BAAM**) to conduct a review of the Final Report. The analysis and findings of that review are contained in the report, which is **Attachment B**.
14. Our primary position is that the Final Report should be given no weight in the exercise of your discretion to approve the BTFMP. This is because:
 - (a) the engagement of an external panel to review the BTFMP was never contemplated by the EA and there is no legislative basis for this process to be undertaken;
 - (b) the TOR are deeply flawed as they raise matters beyond the scope of the EA and the relevant conditions ; and
 - (c) the Final Report misapprehends the function and purpose of the BTFMP and is, in our submission, an attempt re-enliven issues that are properly dealt with at the project approval stage (which, as you know has already occurred). Specifically:
 - (i) the Final Report frequently suggests that the BTFMP should include an assessment the impacts of the project, and demonstrate that management, mitigation and offset measures are commensurate with the impacts ;
 - (ii) however, that is the role of the environmental impact statement (EIS) which was produced by Adani during the project approvals process and considered by the DES in granting the EA; and
 - (iii) now that the EA has been granted, the approvals process is complete and it is neither appropriate nor necessary to revisit those matters.
15. The second and third points are supported by the findings of the BAAM review, which we ask you to carefully consider.
16. Further to the third point, we note our letter to Mr Merrick of 1 March 2019 (**Attachment C**) and ask that you consider that.

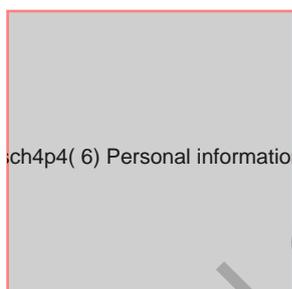
17. It is our submission, consistent to the BAAM report, that the BTFMP is sufficiently robust and ought to be approved because:

- (a) it is based on a wealth of scientific literature and relies on the results of a substantial body of assessment performed by various ecologists;
- (b) there is sufficient data available now to inform properly adapted management responses;
- (c) the BTFMP will be reviewed annually and can account for the any results to be assessed ahead of any 'significant' impacts to the BTF habitat; and
- (d) the BTFMP is fit for purpose and meets the conditions imposed by the EA.

Conclusion

18. Having regard to the views expressed in the BAAM report, there is no warrant to alter the current BTFMP, which adequately addresses Adani's obligation under the relevant EA conditions. The Final Report misapprehends the function and purpose of the BTFMP and ought not be relied upon by the DES to justify amendments to the BTFMP.

Yours sincerely



Lucas Dow
Chief Executive Officer

Attachment A
Attachment B
Attachment C

Letter Adani to DES 14.02.2019.pdf
Advice Report_Expert Panel Review BTFMP Final.pdf
Letter Adani to DES 01.03.2019.pdf

Date : 22/05/2019 5:18:26 PM

From : "WELLS Melissa"

To : "Elizabeth Fellows"

Cc : "Justin Carpenter" , "ELLWOOD Dean" , "MERRICK Jamie"

Subject : FW: BTFMP

Attachment : BTFMP DES feedback response v5 21May19.pdf;image001.jpg;image002.png;image004.png;

Hi Liz as requested.

Kind regards,
Melissa.



Melissa Wells
Executive Director
Coal and Central Qld Compliance
Department of Environment and Science

P 07 4987 9343

99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

From: Hamish Manzi [sch4p4(6) Personal information]
Sent: Tuesday, 21 May 2019 2:04 PM
To: WELLS Melissa
Cc: MCCOSKER Juliana; Melinda Bergmann; Paul Fennelly
Subject: BTFMP

Dear Melissa,

In advance of this Thursday's discussion, please see attached Adani's response to the DES Comments on the BTFMP Version 7b.

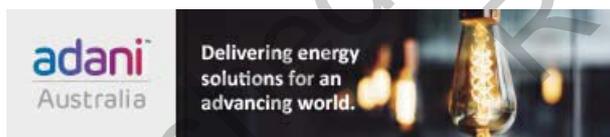
Kind regards,

Hamish

Hamish Manzi

Head - Environment & Sustainability

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In the interests of being pragmatic and seeing how we may be in a position to work with the Department looking forward, we attach responses to each of the reasons that DES provided to Adani in your decision issued on the 2nd of May 2019 regarding our Black-throated Finch Management Plan Version 7b (Plan v.7b).

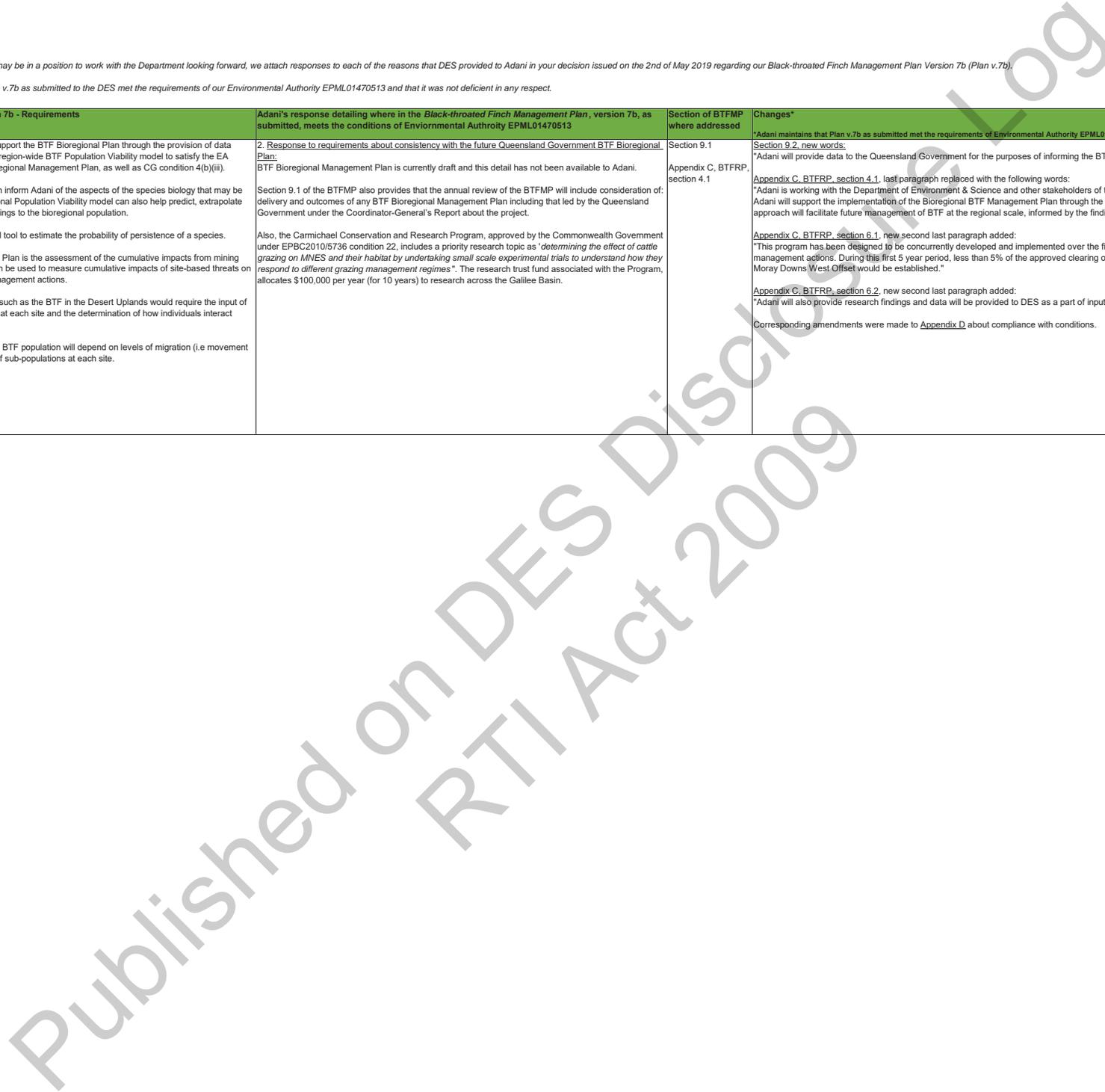
In providing these responses, Adani maintains that Plan v.7b as submitted to the DES met the requirements of our Environmental Authority EPML01470513 and that it was not deficient in any respect.

Issue #	Departmental comments on BTFMP version 7b - Requirements	Adani's response detailing where in the Black-throated Finch Management Plan, version 7b, as submitted, meets the conditions of Environmental Authority EPML01470513	Section of BTFMP where addressed	Changes*
1	<p>1. In the area outside the Ten Mile Bore area of the mining lease, Adani must demonstrate a commitment to BTF habitat maintenance to satisfy the EA condition requiring alignment with the BTF Bioregional Management Plan, the BTF Recovery Plan and the EPBC Act species conservation advice.</p> <p>The department requires a commitment by Adani to maintain low stocking rates until mining related impacts occur and this commitment should be clearly stated in the BTFMP.</p> <p>As a suggestion, this could be a commitment to a stocking rate of 1 beast to 50ha and/or a similar strategic grazing regime as committed to for the Moray Downs West offset area (p74).</p>	<p>1. <u>Response to requirements about grazing at Ten Mile Bore:</u> Existing grazing management activities at Ten Mile Bore have provided the recognised high value BTF habitats. The BTFMP, when considered in combination with the approved project, is consistent with and does not conflict with the Black-throated Finch (BTF) Recovery Plan.</p> <p>Section 4.6.4 of the Black-throated Finch Management Plan (BTFMP) states that 'A management objective under this plan is to use strategic and sustainable grazing to manipulate the grass layer and manage fire by reducing fuel loads and therefore fire intensity. However, the objective is to also ensure grazing itself does not become a threat'.</p> <p>Furthermore, the BTF Research Plan (BTFRP) includes objectives to 'Determine the effect of cattle grazing on BTF habitat by undertaking small scale experimental trials to understand how absent, low and high cattle stocking densities and different strategies effect ground cover and grass composition (positively or negatively) and to 'Use the information gained in these experimental trials to guide management actions that will maintain or enhance BTF habitat across the Project area, and in key, high priority BTF populations and locations (e.g. Ten Mile Bore and surrounds)'.</p> <p>The BTFMP, section 6.4.7 undertakes to manage grazing activities in the vicinity of Ten Mile Bore to enhance and maintain BTF habitat value. The undertaking to maintain and enhance based on the findings of the research plan provides the commitment sought.</p> <p>Section 6.4.7 also includes management of BTF habitat in the vicinity of Ten Mile Bore will be informed by the findings of the BTF Research Program (Appendix C). Until such time as findings of the Research Program are available (3 to 5 years from approval of the plan), management activities at Ten Mile Bore will continue to be implemented.</p> <p>Adani considers that any sudden change in management should be based on research which has identified, and prioritised, actions required. It is important that the management of this area is undertaken with regard to weeds/fire/seeding season and not an uninformed stocking rate which has been given for a different area for different objectives.</p> <p>There is strong stated commitment by Adani to complete annual BTF habitat vegetation assessments at approved monitoring locations in the vicinity of Ten Mile Bore during May to maintain and where possible enhance BTF habitat within the Ten Mile Bore area. Vegetation assessments will use methodologies described within 'Carmichael Coal Mine and Rail Supplementary Environmental Impact Statement Report for Black-throated finch On-site Monitoring Survey 2' dated February 2014 to assess ground cover and ground composition based on Queensland BioCondition Framework and the Queensland Herbarium flora survey methods.</p>	<p>Table 9 (#4)</p> <p>Sections 4.6.4, 6.4.1, 6.4.7 and 7.2.1</p> <p>Appendix C, BTFRP, section 4.6</p> <p>Appendix D</p>	<p>*Adani maintains that Plan v.7b as submitted met the requirements of Environmental Authority EPML01470513 and that it was not deficient in any respect</p> <p><u>Table 9 (#4), Management actions, amended to state:</u> "The management of grazing within non-mined areas will be based on existing sustainable pastoral management practices under land agistment agreements, pastoral holding lease conditions and associated legislation and apply to agistes (see Section 6.4.1 for further detail).</p> <p>Management actions will seek to maintain and where possible enhance BTF habitats and populations (e.g. pest control, water source, grazing and fire management) for factors in Adani's control in unmined parts of the Mine Area, as well as in offset areas. Factors outside Adani's control include drought, fires started by lightning, pests from neighbouring properties, flood, natural disasters and diseases.</p> <p>Grazing in the vicinity of the Ten Mile Bore area (3 km radius of the bore), will be managed within a range of 8 to 25 hectares per beast."</p> <p><u>Table 9 (#4), new monitoring activity:</u> "Maintain a register of cattle numbers per paddock"</p> <p><u>Table 9 (#4), new trigger for adaptive management and corrective actions:</u> "Stocking rate of more than 1 beast per 8 ha in the Ten Mile Bore area"</p> <p><u>Table 9 (#4), new corrective action:</u> "Reduction, or removal, of cattle in the Ten Mile Bore area"</p> <p><u>Section 6.4.1 additional paragraphs:</u> "A low impact grazing regime takes into consideration a number of management practices such as stocking rates, pasture resting or spelling, fire management, fencing, weed management and watering point management (Hunt et al, 2014; DAF, 2017). Grazing will be used in the Project Area as a controlled management tool to manage threats to BTF habitat. Grazing will be used to decrease the abundance and presence of weeds, including Buffel Grass and other exotic pasture grasses, and control fuel loads so as to reduce the risk of an uncontrolled fire. Managing the stocking rate across the Moray Downs Property is one measure of managing the potential impact of grazing on BTF Habitat. Stocking rates are dynamic and typically adjusted seasonally and in response to other factors such as climatic conditions. Stocking rates for beef cattle in Central Queensland are typically in the order of 1 beast / 6 hectares (DAF, 2016). A long term trial in the Upper Burdekin Catchment established a light stocking rate of 1 beast / 8 hectares and a heavy stocking rate of 1 beast / 4 hectares (O' Reagain et al. 2005). In considering these stocking rates, Adani proposes a stocking rate for non-mined areas of the Mining Lease is proposed at no more than an annual average of 1 beast / 8 hectares, subject to the ongoing monitoring of land condition through bio-condition survey. Table 8 describes the corrective actions associated with potential grazing impacts including the changing of stocking rates and other practices such as spelling."</p> <p><u>Section 7.2.1, new paragraphs added:</u> "Grazing management activities on Moray Downs have coincided with areas of high value BTF habitats. Grazing management changes will be based on management, monitoring and research to understand the dynamics between a number of land activities and threats which will be concurrently managed. It is important that the management of this area is undertaken with regard to weeds, fire, seeding and seasons. Feedback on this BTFMP included consideration of stocking rates associated with a low impact grazing regime. As detailed in section 6.4.1 above, Adani has utilised a number of Queensland Government and Industry sources to inform a stocking rate. This includes the Queensland Government publication 'Understanding the economics of grazing management practices and systems for improving water quality run-off from grazing lands in the Burdekin and Fitzroy Catchments' (DAF, 2016) Through the delivery of the research program, a greater understanding of the impact and influence of stocking rates on habitat quality will be realised and then be implemented through management actions."</p> <p>Corresponding amendments have been made to <u>Section 10</u> to reflect the new commitments made.</p> <p><u>Appendix C, Section 4.6.1 of the BTFRP</u> has been amended to include the following words: "Adani will establish a low impact grazing regime in the vicinity of Ten Mile Bore for the purpose of ensuring the BTF habitat in this vicinity can continue to support a viable population of BTF. A low impact grazing regime takes into consideration a number of management practices such as stocking rates, pasture resting or spelling, fire management, fencing, weed management and watering point management (Hunt et al, 2014; Department of Agriculture and Fisheries, 2017). In establishing a low impact grazing regime for the vicinity of Ten Mile Bore (that is, within a 3 km radius), Adani proposes a light stocking rate of between 8 and 25 hectares per beast. Investigation and research into how optimal grazing regimes including pasture resting and spelling is described in this section, and the change to stocking rates will be considered in the design of research programs to meet this aim."</p> <p>Corresponding amendments were made to <u>Appendix D</u> about compliance with conditions.</p>

In the interests of being pragmatic and seeing how we may be in a position to work with the Department looking forward, we attach responses to each of the reasons that DES provided to Adani in your decision issued on the 2nd of May 2019 regarding our Black-throated Finch Management Plan Version 7b (Plan v.7b).

In providing these responses, Adani maintains that Plan v.7b as submitted to the DES met the requirements of our Environmental Authority EPML01470513 and that it was not deficient in any respect.

Issue #	Departmental comments on BTFMP version 7b - Requirements	Adani's response detailing where in the Black-throated Finch Management Plan, version 7b, as submitted, meets the conditions of Environmental Authority EPML01470513	Section of BTFMP where addressed	Changes*
2	<p>2. Adani must demonstrate a commitment to support the BTF Bioregional Plan through the provision of data collected in the Research Program to inform a region-wide BTF Population Viability model to satisfy the EA condition requiring alignment with the BTF Bioregional Management Plan, as well as CG condition 4(b)(iii).</p> <p>A regional Population Viability model can in turn inform Adani of the aspects of the species biology that may be critical for management intervention. A bioregional Population Viability model can also help predict, extrapolate benefits and impacts from project research findings to the bioregional population.</p> <p>a. Population viability analysis (PVA) is a useful tool to estimate the probability of persistence of a species.</p> <p>b. A focus of the BTF Bioregional Management Plan is the assessment of the cumulative impacts from mining and grazing on the bioregional population. It can be used to measure cumulative impacts of site-based threats on a population or alternatively the benefits of management actions.</p> <p>c. The PVA of a spatially structured population such as the BTF in the Desert Uplands would require the input of demographic information from sub-populations at each site and the determination of how individuals interact between sites.</p> <p>d. Impacts of site-based threats on the regional BTF population will depend on levels of migration (i.e movement between sites), numbers of sites and the size of sub-populations at each site.</p>	<p>2. <u>Response to requirements about consistency with the future Queensland Government BTF Bioregional Plan:</u> BTF Bioregional Management Plan is currently draft and this detail has not been available to Adani.</p> <p>Section 9.1 of the BTFMP also provides that the annual review of the BTFMP will include consideration of: delivery and outcomes of any BTF Bioregional Management Plan including that led by the Queensland Government under the Coordinator-General's Report about the project.</p> <p>Also, the Carmichael Conservation and Research Program, approved by the Commonwealth Government under EPBC2010/5736 condition 22, includes a priority research topic as <i>"determining the effect of cattle grazing on MVES and their habitat by undertaking small scale experimental trials to understand how they respond to different grazing management regimes"</i>. The research trust fund associated with the Program, allocates \$100,000 per year (for 10 years) to research across the Galilee Basin.</p>	<p>Section 9.1</p> <p>Appendix C, BTFMP, section 4.1</p>	<p>*Adani maintains that Plan v.7b as submitted met the requirements of Environmental Authority EPML01470513 and that it was not deficient in any respect</p> <p><u>Section 9.2, new words:</u> "Adani will provide data to the Queensland Government for the purposes of informing the BTF Bioregional Management Plan."</p> <p><u>Appendix C, BTFMP, section 4.1,</u> last paragraph replaced with the following words: "Adani is working with the Department of Environment & Science and other stakeholders of the Galilee Basin to develop a Bioregional BTF Management Plan. Adani will support the implementation of the Bioregional BTF Management Plan through the provision of data from the Adani BTF Research Plan. This approach will facilitate future management of BTF at the regional scale, informed by the findings of Research Program activities."</p> <p><u>Appendix C, BTFMP, section 6.1,</u> new second last paragraph added: "This program has been designed to be concurrently developed and implemented over the first five years of the project, alongside monitoring and management actions. During this first 5 year period, less than 5% of the approved clearing of BTF habitat for the project is planned to have occurred, and the Moray Downs West Offset would be established."</p> <p><u>Appendix C, BTFMP, section 6.2,</u> new second last paragraph added: "Adani will also provide research findings and data will be provided to DES as a part of inputs to the BTF Bioregional Management Plan."</p> <p>Corresponding amendments were made to <u>Appendix D</u> about compliance with conditions.</p>



In the interests of being pragmatic and seeing how we may be in a position to work with the Department looking forward, we attach responses to each of the reasons that DES provided to Adani in your decision issued on the 2nd of May 2019 regarding our Black-throated Finch Management Plan Version 7b (Plan v.7b).

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3	<p>Adani must make a commitment to establish a robust estimate of the BTF population in the Project area to satisfy the EA conditions. The Project area being the mining leases and adjacent offset area.</p> <p>The department suggests the commitment should include a confidence limit of +1-10%, and be completed within two years of approval of the BTFMP.</p> <p>Furthermore, Adani must make a commitment to more accurately quantify the BTF habitat with respect to actual occupancy by BTF populations to demonstrate achievement of the EA conditions. Specifically conditions 16c and 16d, in order to better quantify the impacts, and condition 16e, to measure the effectiveness of the management and mitigation measures.</p> <p>It is also necessary to understand the scale of proposed impacts and proposed mitigation measures by identifying important population locations. The department recommends that this should be completed within one year of approval of the BTFMP to further inform monitoring.</p> <p>The department considers that important population locations should be determined as those areas that support a disproportionate share of the Project area's BTF population (e.g. >20%).</p> <p>A population estimate is required in order to demonstrate that viable local BTF populations are maintained as required by condition 16h and maintenance of the current BTF population of Ten Mile Bore and surrounds as required by condition 19.</p> <p>Adani must make a commitment to ongoing BTF population monitoring for the life of the project to satisfy the EA conditions requiring demonstration of maintenance of the population.</p> <p>Consistent with and further to the above:</p> <p>a) BTF population monitoring is important in order to measure the impacts and benefits to the BTF population of management actions proposed.</p> <p>b) BTF population estimate will demonstrate that there is no net loss of the BTF population as result of the project. A BTF population estimate will ensure population gains / maintenance in the offset area and non-mined areas can be accurately demonstrated.</p> <p>c) A BTF population estimate may be able to be determined from survey data already collected to date and not presented in the current BTFMP. An analysis of existing survey data and monitoring methods to date should be undertaken to determine if these results can adequately, appropriately and with sufficient statistical power estimate the BTF population in the Project Area.</p> <p>d) A BTF population estimate will allow assessment and further development of the current understanding of critical habitat, core habitat, marginal habitat and non-habitat areas in the project area by incorporating knowledge of population density and population performance with respect to the key habitat attributes that currently define these BTF habitat types.</p> <p>e) Collection of robust count and mark-resight data to support baseline density estimates (from baseline survey work completed to date) in the Project area is presented in the BTFMP as a component of the research program. However, regular count and mark-resight BTF surveys is recommended to be undertaken for the life of the project.</p> <p>f) A population estimate will allow for the demonstration of the maintenance of the BTF population at Ten Mile Bore and surrounds.</p>	<p>The Environmental Impact Statement process, carried out under Commonwealth and Queensland Government legislation under the Bilateral Agreement, requires habitat protection and maintenance. At no stage has the project been assessed based on the number of birds. This requirement is at odds with the Queensland Government's offset policy and how other species offsets have been applied and managed.</p> <p>The Environmental Authority (EA) conditions do not specifically require a population estimate as a proxy for ongoing measurement of impacts. An offset plan is the mechanism to mitigate impacts, and the Project Area definition under the Environmental Authority (EA) does not include offset areas.</p> <p>The BTFMP focus is on BTF management during the approved project activities. The EA conditions require management of the BTF and habitat, but does not state a requirement for Adani to make a commitment to ongoing BTF population monitoring for the life of the project across the project area.</p> <p>In respect to a population estimate, any actual confidence level would be derived from the various methods employed and consideration of variation of results between different survey methods, times and biotic influences thereon. The statement that a confidence level of +/- 10% should be included and the estimate completed within 2 years of BTFMP approval is somewhat naive and does not appreciate the complexities of BTF and the local landscapes. At best a population estimate could be established within that period but that would not accurately define the population during various peak and low seasonal changes.</p> <p>For such a mobile species, the external factors influencing population are outside of Adani's control and hence any population estimate would be at best a wide range, not a single figure. Section 4.5 of the BTFMP states that 'Aggregate BTF totals have ranged from 84 to 1,145 with an average of 480'. Survey methods and effort have changed over the course of the project in response to new information and the land court outcomes. The aggregate totals are also likely to include duplicate records of some individuals so therefore a population estimate based on the current data is not considered to be appropriate.</p> <p>Section 7.1 of the BTFMP states that monitoring will be implemented for the life of the project, therefore this requirement has been met. Mark and recapture is not currently considered to be appropriate for monitoring given the intensive and intrusive nature of this method. The BTFMP states that a review of monitoring measures will be undertaken after ten years.</p>	<p>Sections 4.1, 4.2, 4.3, Table 3, 4.5, 7.1</p>	<p>*Adani maintains that Plan v.7b as submitted met the requirements of Environmental Authority EPML01470513 and that it was not deficient in any respect</p> <p>Section 7.1, new words:</p> <p>"Adani's monitoring and research activities will be used to characterise a population estimate for the local BTF observed at the project area. This will be developed at year 2 and year 5.</p> <p>Development of the population estimate over this time frame will allow:</p> <ul style="list-style-type: none"> Existing survey and monitoring data to be used to form a population estimate for Ten Mile Bore specifically, and the project area more broadly; Repeated survey and monitoring data to be collected and inform the population range; Implementation of research program studies with respect to population dynamics and other research priorities; The implementation of the DES Bioregional BTF Management Plan to better inform and understand regional BTF presence, population and threats; Concurrent on-ground actions to manage potential impacts and threats to the BTF; and Further understanding of species wide threats and impacts to the BTF population; <p>Monitoring will occur for the life of the project (as per the commitment in Section 7.1) and this will include methods for estimating and informing ongoing population estimates.</p> <p>Further refinement of the BTF Habitat values will be undertaken over the life of the project. The purpose of which is to inform the habitat classification model developed during the EIS process. Refining the importance of habitat structure, food availability and proximity to permanent water will allow for greater understanding of how the BTF are using a range of habitat sources."</p> <p>Corresponding amendments have been made to Section 10 to reflect the new commitments made.</p> <p>Appendix C, BTFRP section 4.2: first paragraph, first dot point, third sub-dot point, omitted the word "coarse", so the dot point now reads "population estimates and any spatial and temporal variation in numbers".</p> <p>Appendix C, BTFRP section 4.3: table 3, row "Environmental variables to be monitored", omitted the word "improved" so the dot point now reads "Population estimates, including key locations such as Ten Mile Bore".</p>
4	<p>Adani must provide a commitment that the current monitoring program will be re-designed and implemented within five years of approval to determine with high certainty (>95%) that the proposed management actions in the Project area, and ensure a no net loss of the BTF population in the Project area</p>	<p>Response to requirements about 'no net loss':</p> <p>The requirements do not reflect the EA conditions. The BTFMP currently contains predicted impacts, performance criteria, triggers and adaptive management measures that have been developed in consultation with the Queensland Government Department of Environment and Science (DES) as required by the EA.</p> <p>The EA conditions require baseline assessments and no specific measurement of population numbers across the project area. The EA conditions require an understanding of the species' resource partitioning, and not monitoring or measurement of the actual population. The EA conditions and general approach is standard, and aligns with the impact offsetting requirements under the Queensland Environmental Offsets Framework, which essentially involves land-based (habitat) offsets.</p> <p>Where possible, impacts to BTF have been quantified. However, it not possible to accurately predict indirect impacts and some direct impacts (such as mortality or injury to BTF) that may, or may not, occur. The BTFMP aims to avoid and minimise these impacts and appropriate adaptive management measures and corrective actions have been included.</p> <p>A requirement to ensure no net loss of the BTF population in the project area cannot be met. Firstly, the project area includes the approved project footprint and, secondly, because there are numerous external influences (e.g. drought, fire) which result in population decline, beyond Adani's control. The BTF was in decline prior to Adani's approved project. The project, and associated approval conditions, has been developed to require the maintenance and management of habitat. The EA conditions do not require performance criteria to include quantitative measurements of the proposed impacts on the BTF population.</p> <p>Impacts are anticipated to be in the order of 200 ha of low to moderate value habitat, and no more than 500 ha. Concurrently, offset area developed to ensure no net loss, and no net concurrent loss. Adani's BTF research program will cover the initial 5 years of development, during which, impacts to BTF habitat</p>	<p>Sections 4.5 and 4.6</p>	<p>New words added to section 1.2:</p> <p>"This BTF Management Plan will be implemented alongside the Offset Area Management Plan in the approved Offset Areas to ensure there is no net loss of BTF Habitat as a result of approved impacts associated with the project. Additionally, the BTF Management Plan will be implemented in non-mined areas of the mining lease to provide further habitat protection and management.</p> <p>The BTF Research Program has been designed to be concurrently developed and implemented over the first five years of the project, alongside monitoring and management actions. During this first 5 year period, less than 5% of the approved clearing of BTF habitat clearing for the project is planned to have occurred, and the Moray Downs West Offset would be established.</p> <p>Together, the monitoring, management, research and offset actions will ensure the successful maintenance of BTF Habitat to support an ongoing and viable population of BTF."</p>

In the interests of being pragmatic and seeing how we may be in a position to work with the Department looking forward, we attach responses to each of the reasons that DES provided to Adani in your decision issued on the 2nd of May 2019 regarding our Black-throated Finch Management Plan Version 7b (Plan v.7b).

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		<p>will not be significant in the context of the fully approved mining. Section 6.1 of the BTFMP states "The results of the research will be applied under this adaptive management framework and the BTF Management Plan will be updated in consultation between Adani, Commonwealth and Queensland Governments and researchers".</p>		<p>*Adani maintains that Plan v.7b as submitted met the requirements of Environmental Authority EPML01470513 and that it was not deficient in any respect</p>
		<p><u>Response to requirements about monitoring:</u> While it is agreed that a robust monitoring program is critical for monitoring the BTF population and BTF habitat conditions, the EA does not include any requirement for the monitoring proposed in the BTFMP to be based upon existing statistical analysis. Statistical analysis of monitoring data will be undertaken to determine population estimates, seasonal population fluctuations and any impacts from mining activities. As stated in Section 7.1.1 of the BTFMP, a thorough review of the monitoring program will be undertaken after 10 years and recommendations adopted for ongoing monitoring for the life of the project.</p> <p>Components of the monitoring program have been developed based on the requirements of DES. Correspondence from 28 March 2018 from DES required specific BTF habitat monitoring methods employed in 2013 by GHD at 22 locations. The BTFMP was amended to adopt these recommendations from DES.</p> <p>The BTFMP includes annual review and reporting, as well as any revisions to be carried out in consultation with the BTF recovery team, and independently reviewed.</p>	<p>Sections 7.1 and 7.2</p>	<p>See amendments to section 7.1, as described previously.</p>
5	<p>In the revision of the BTFMP, Adani must:</p> <p>a) Present <u>quantitative measurement of all impacts</u> on the BTF population from all stages of the project and detail effective, measurable management and mitigation options.</p> <p>b) The <u>performance criteria</u> must include quantitative measurements of the proposed impacts on the BTF population and habitat within the project area.</p> <p>c) The <u>adaptive management triggers</u> must be supported by powerful statistical analysis that demonstrates when significant changes in BTF population, threats and habitat condition are reached.</p> <p>d) <u>BTF population trigger response</u> - In order to monitor the direct and indirect impacts from construction and operation on the BTF population in the Project and in order to evaluate the effectiveness of the management and mitigation measures, monitoring must be directly linked to changes in BTF population sizes as well as changes in BTF habitat condition. An appropriate BTF population trigger response needs to be coupled to each management action.</p> <p>e) <u>Management actions</u> must be definitively stated, not limited by the caveat of 'where possible'.</p> <p>f) <u>Corrective actions</u>: The corrective actions must be definitively stated rather than limited by caveat of 'may include'.</p> <p>g) Detail exactly how the research program will inform monitoring to determine whether the management of habitat and impact management is on track to deliver benefits to the BTF population and BTF habitat.</p> <p>h) Include a <u>rehabilitation mitigation measure</u> that the research program will establish the plant species that provide critical food resources to BTF during seasons of seed shortages. Mitigation must include rehabilitation planning to commence a propagation program of these plant species and the development of management knowledge to ensure that revegetation of BTF habitat using these critical species will be successful.</p>	<p><u>Response to requirements about Tables 8 to 10 about management actions:</u> DES has previously provided comments on Tables 8,9 and 10 and they have been developed based on the DES input received. The progression of the BTFMP to version 7b has been in full consultation with DES.</p> <p>The stated inadequacies of tables 8-10 are incorrect. The research program outlined, and annual revision provide appropriate mechanisms to address the stated actions. The quantification of impacts, adaptive management framework, inclusion or research results have all been covered by the BTFMP and BTFRP. Further, it is through the research on the species habitat uses and partitioning that the details of rehabilitation will be refined and included specific plants and densities.</p>	<p>Tables 8 to 10 Section 6.2</p>	<p>All references to the term "where possible" have been omitted. Language has been changed to avoiding impacts "as much as possible", for example.</p> <p>In tables 8 to 10, where corrective actions have been listed and the words "and may include" have been used, an asterisk has been added the following words have been added: "Tailored corrective actions will be implemented to best deliver the performance criteria and management objective, and aim to avoid triggering in the future. The list of corrective actions provided are a starting point, but could include additional actions."</p> <p>In section 9.1 the following words have been added: "Within 5 years of the BTFMP, Adani will revise and amend Tables 8 to 10 to include: • The presentation of predicted impacts associated with the stages of the project with respect to BTF population estimates and detail measurable management and mitigation options • Performance criteria associated with management action with respect to both BTF population estimates and habitat within the project area • Adaptive management triggers relating to BTF population estimates that are supported by statistical analysis • Monitoring that is linked to change in BTF population estimates as well as changes in BTF habitat condition. • Detail how the research program will inform ongoing monitoring to determine whether the management of habitat and impact management is on track with respect to maintaining a viable BTF population and improving and maintaining BTF habitat. • Include a rehabilitation mitigation measure leveraging the outcomes of research on the plant species that provide critical food resources to BTF during seasons of seed shortages. Mitigation will include rehabilitation planning to commence a propagation program of these plant species and the development of management knowledge to ensure that revegetation of BTF habitat using these critical species will be optimised to target successful outcomes"</p>
6	<p>Adani must make a commitment to maintain connectivity east-west across the offset area in the northern part of Moray Downs West, in order to satisfy the EA condition requiring mitigation of impacts.</p> <p>The MLs (70514 and 70515) from the China Stone Coal Project come down into the Moray Downs property and link to Adani's ML70506, resulting in a lack of connectivity of BTF habitat in the northern part of the offset area. The department recommends that this fragmentation issue could be addressed in one of three ways:</p> <p>a) Adani must provide a commitment of no development in ML70506, or</p> <p>b) include ML70506 in the offset area, or</p> <p>c) a part of ML70506 is included in the offset area to ensure connectivity across the northern part of the offset area.</p> <p>This commitment will provide assurance to the department that connectivity of BTF populations is maintained across habitat in northern part of the Moray Downs West Offset Area.</p>	<p>The Carmichael Project has been approved with full consideration of <u>connectivity</u>. The EA conditions do not mention any specific requirement to maintain connectivity.</p> <p>There is no proposed coal development within ML70506 through the EIS process or otherwise and the extant habitats are to be retained (refer to Figure 1 BTFMP) and enhanced in line with the Offset Management Plan.</p> <p>The proposed offsets and imposed conditions provide connectivity and will ultimately improve habitat values to the north of the approved project. There is clearly commitment and conditions to maintain east-west connectivity within the northern part of Moray Downs West offset area.</p> <p>Proposed impacts from other speculative mining projects are outside the control of Adani Mining Pty Ltd. Adani will not consent to a mining lease application (as required by the <i>Mineral Resources Act</i>) over the Moray Downs Pastoral Lease. Any decision to impact the Moray Downs West Offset Area would be by the Queensland Government overruling Adani's non-consent, and approved by the DES via an Environmental Authority, under the <i>Environmental Protection Act 1994</i>.</p> <p>Table 8 states that Adani will "Manage non-mined and offset areas to maintain and improve BTF habitat values. This work will be guided by results from annual vegetation assessments, annual BTF surveys and the BTF Research Program", and "Ensure the pre-disturbance condition of BTF habitat adjacent to the development is maintained".</p>	<p>Sections 1.2 and 1.3 Table 8</p>	<p><u>Section 2.3, new words:</u> "Mining activities south of the Carmichael River will trigger the requirement for Stage 2 of offset delivery. As part of the identification of suitable offsets for Stage 2, Adani will prioritise the opportunity to include ML70506 and other areas of Moray Downs not in Stage 1 as part of the Stage 2 Offsets Area."</p> <p><u>Section 6.2 and Table 8, performance criterion "minimise habitat fragmentation", management actions, new words:</u> "Connectivity between the western and eastern parts of the Moray Downs West Offset Area will be maintained through the implementation of this BTF MP across offset areas and non-mined lease areas. This includes the area of ML 70506 upon which no mining activities have been assessed or planned to occur."</p>

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7	<p>Research Program - Adani must provide a commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition and maintaining, and/or increasing the BTF population within the project area with completion of the research program prior to significant impact to BTF habitat from the project.</p>	<p>Response to requirements about research prior to significant impact: The DES requirement requires completion of the research program before any significant impact (clearing). This is not consistent with the EA Conditions or the legislative process completed to date.</p> <p>The EA conditions state the BTFMP needs to provide a baseline research program and do not require Adani to provide a commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition and maintaining, and/or increasing the BTF population within the project area with completion of the research program prior to significant impact to BTF habitat from the project.</p> <p>EA Condition 16(h) requires surveys/monitoring of habitat, movements and resource usage and these are covered by the research aims within the BTFMP. EA Condition 16 requires assessment of breeding habitat attributes to understand breeding requirements and spatial and temporal variations, not population estimates. The EA conditions do not require measurement of the BTF population by the project.</p> <p>Adani have provided commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition within the BTFMP. In addition, the offsetting requirements are based on provision of habitat. There is no requirement within the EA that Adani must increase the BTF population within the project area with completion of the research program prior to significant impact to BTF habitat from the project.</p> <p>The significant impacts have been approved through the offsetting framework of both the commonwealth and state government requirements. The BTFMP is focussed on managing the species within the approved project.</p>	<p>Section 6</p> <p>Section 9.3</p> <p>Appendix C, Section 6.1 of BTFMP</p> <p>Appendix C, Section 5.2 of BTFMP</p> <p>Appendix C, Aim 1 - Section 4.3 of BTFMP</p> <p>Appendix C, Aim 2 - Section 4.4 of BTFMP</p> <p>Appendix C, Aim 4 - Section 4.6 of BTFMP</p>	<p>*Adani maintains that Plan v.7b as submitted met the requirements of Environmental Authority EPML01470513 and that it was not deficient in any respect</p> <p>New words added to section 1.2: "This BTF Management Plan will be implemented alongside the Offset Area Management Plan in the approved Offset Areas to ensure there is not net loss of BTF Habitat as a result of approved impacts associated with the project. Additionally, the BTF Management Plan will be implemented in non-mined areas of the mining lease to provide further habitat protection and management. The BTF Research Program has been designed to be concurrently developed and implemented over the first five years of the project, alongside monitoring and management actions. During this first 5 year period, less than 5% of the approved clearing of BTF habitat clearing for the project will have occurred, and the Moray Downs West Offset would be established. Together, the monitoring, management, research and offset actions will ensure the successful maintenance of BTF Habitat to support an ongoing and viable population of BTF."</p>
8	<p>Adani must update the Research Program by addressing the following recommendations in the Research Aims: a) With respect to condition 16k, the BTFMP must provide a commitment that the research will be undertaken by personnel with experience in analysis, design and interpretation of survey and research data. A high level of expertise such as post-doctoral experience is critical in order to ensure that the research delivers scientifically robust results in a timely manner that informs effective management actions.</p>	<p>Response to requirements about qualifications of researchers: Condition 16(k) does not require post-doctoral research qualification. BTFMP Section 5.2 (Qualifications) complies with the EA condition. The research will be conducted by suitably skilled and qualified persons. This is further defined as a person who has professional qualifications (such as environmental science, biology or ecology), training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.</p>	<p>Appendix C, BTFMP, section 5.2</p>	<p>References to research possibly being carried out by supervised students have been omitted in Appendix C (BTFMP).</p>
9	<p>b) Research Program - Aim 1 - BTF movement ecology, including an assessment of home range across seasons and dispersal. i. Provide detail of the effort proposed to meet this aim in order to satisfy conditions 16h. Detail that the bias of tracking to more likely record sedentary and short distance movement over long distance will be effectively addressed in the methodology design. ii. Water point monitoring needs must take into account the seasonal variation in count data at watering points to satisfy condition 16b.</p>	<p>Response to requirements about changes to research program: The conditions of the EA do not require this level of detail. Requirements described are beyond conditions for the Research Program. The EA conditions clearly state the BTFMP needs to provide a <i>baseline research program</i> - the conditions do not require Adani to provide a commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition and maintaining, and/or increasing the BTF population within the project area with completion of the research program prior to significant impact to BTF habitat from the project.</p> <p>Adani have provided commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition within the BTFMP. In addition, the offsetting requirements are entirely based on provision of habitat. There is no requirement within the EA Conditions that Adani must increase the BTF population within the project area with completion of the research program prior to significant impact to BTF habitat from the project.</p> <p>The significant impacts have been approved through the offsetting framework of both the commonwealth and state government requirements. The BTFMP is focussed on managing the species within the approved project.</p>	<p>Section 6</p> <p>Section 9.3</p> <p>Appendix C, Section 5.2 of BTFMP</p> <p>Appendix C, Aim 1 - Section 4.3 of BTFMP</p>	<p>Appendix C, Aim 1 - Section 4.3 of BTFMP, table 3, row "Methods", additional words: "Water point monitoring will take into account the seasonal variation in count data at watering points. The survey methods will aim to address the potential for bias in tracking techniques being more likely to record sedentary and short distance movement than long distance movement. Approaches to data collection and analysis will be detailed in the relevant project plan (Section 4.1)."</p> <p>Table 3, new row between rows "Resources" and "Timing" called "Minimum survey effort". Words added: "A minimum of three survey locations will be simultaneously monitored for a period of 10 days during each field survey. A minimum of two surveys will be conducted each year. Further details will be developed in the project plan (Section 4.1)."</p>

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In providing these responses, Adani maintains that Plan v.7b as submitted to the DES met the requirements of our Environmental Authority EPML01470513 and that it was not deficient in any respect.

Issue #	Departmental comments on BTFMP version 7b - Requirements	Adani's response detailing where in the Black-throated Finch Management Plan, version 7b, as submitted, meets the conditions of Environmental Authority EPML01470513	Section of BTFMP where addressed	Changes*
	<p>c) Research Program - Aim 2: Determine the foraging and breeding habitat requirements and the relationship with vegetation structure and composition and water, and Aim 3: Determine the dietary requirements for BTF in the Project Area</p> <p>i. Provide detail of the efforts proposed to meet these aims in order to satisfy condition 16j.</p> <p>ii. The methodology must include collection of data on BTF reproductive rates and mortality rates. How these rates vary over years, and between habitats, and the factors that influence breeding success. This information is necessary to establish the breeding requirements of the BTF to satisfy conditions 16a and 16j.</p> <p>iii. An outcome of this research should determine population substructures including age structure and critical areas to manage BTF populations and habitat in different seasons to satisfy conditions 16h and 18.</p> <p>iv. Research must include an assessment of seed availability and their responses to management to satisfy condition 16j. Research focus must be the assessment of seed availability throughout the year and the factors that affect it, especially at any critical periods of seed scarcity.</p> <p>v. The research program must provide the commitment to identify which plant species are most critical for the provision of seeds throughout the year to satisfy condition 16a and 18. Research must include the measurement of the availability of seed resources across months, years and habitat (and in response to variation in grazing and fire regimes), what factors affect seed availability at critical times and what are the critical seed sources at critical bottleneck periods. This research must define and demonstrate how management will enhance the abundance of these plant species and their seed production especially in critical bottleneck periods.</p> <p>vi. Furthermore, to satisfy condition 18, seed phenology, temporal continuity and shortfall and the relationship of these distribution factors to grazing must also be determined. Determine how vegetation dynamics is affected by environmental and edaphic factors such as climate, and which environmental and edaphic factors affect seed quality, quantity and spatial distribution, local variation in distribution and interspecific competition to satisfy condition 16a.</p>	<p>As above</p>	<p>Appendix C, Aim 2 - Section 4.4 of BTFRP</p>	<p>"Adani maintains that Plan v.7b as submitted met the requirements of Environmental Authority EPML01470513 and that it was not deficient in any respect"</p> <p>Appendix C, Aim 2 - Section 4.4 of BTFRP, table 3, row "Objectives", additional words: "Determine the population substructures including age structure. Identify critical areas to manage BTF populations and habitat in different seasons."</p> <p>Table 3, row "Environmental variables to be monitored", additional words: "Age structure characteristics of vegetation in BTF habitat"</p> <p>Table 3, row "Methods" Words added: "BTF reproductive rates and mortality rates will be calculated. Analysis will be undertaken on the variation in reproductive and mortality rates among years, and among habitats, to assist in identifying the factors that influence breeding success."</p> <p>Table 3, new row between rows "Resources" and "Timing" called "Minimum survey effort". Words added: "Two field trips per year, completed for a minimum of 30 vegetation survey sites within known BTF breeding and foraging habitat, by a team of two ecologists."</p> <p>Section 4.4.1, added words: "Age structure characteristics will be recorded and inform the determination of reproductive rates and mortality rates."</p>
		<p>As above</p>	<p>Appendix C, Aim 3 - Section 4.5 of BTFRP</p>	<p>Appendix C, Aim 3 - Section 4.5 of BTFRP, new added words before table 5: "The research will define and demonstrate how management will enhance the abundance of seed producing plant species and their seed production, especially during critical bottleneck periods when seeds are scarce."</p> <p>Table 3, row "Objectives", additional words: "Identify patterns in seed availability throughout the year, and the factors affecting it, particularly during times of seed scarcity. Identify which plants species are most critical for the provision of seeds for BTF throughout the year. Identify critical sources of seeds at critical bottleneck periods when the availability of seeds is low. Determine seed phenology, temporal continuity and shortfall and the relationship of these factors to grazing. Determine how vegetation dynamics are affected by environmental and edaphic factors. Identify which environmental and edaphic factors affect seed quality, quantity and spatial distribution, local variation in distribution and interspecific competition."</p> <p>Table 3, row "Environmental variables to be monitored", added words: "Seed availability throughout the year and responses to management activities. Availability of seed resources across months, years and habitat (including the response to variation in grazing and fire regimes)."</p> <p>Table 3, row "Methods", additional words: "Surveys of seed quantity and quality across the Project Area."</p> <p>Table 3, new row between rows "Resources" and "Timing" called "Minimum survey effort". Words added: "Quarterly surveys (four per year) for a minimum of 30 survey sites within known BTF breeding and foraging habitat by a team of two ecologists, per survey."</p>
	<p>d) Research Aim 4: Identify management strategies for BTF habitat in the Project area regarding fire, grazing and water.</p> <p>i. In order to achieve the above aim and satisfy condition 18, Adani should test whether livestock exclusion from some water sources can provide benefit to BTF using established water monitoring survey methods to investigate whether or not livestock exclusion to water benefits BTF populations.</p> <p>ii. The research must attain an understanding of spatial and temporal variation in floristic composition and how management actions limit or promote BTF food availability to satisfy condition 18.</p> <p>iii. A key threat to the habitat condition in the BTF habitat is the spread of exotic perennial pasture species such as buffel grass that competes with native perennial pasture that are seed sources for BTF. To satisfy condition 18, the department recommends that pasture management needs to ensure that the current native perennial pasture composition is maintained or improved. Therefore, the research focus should aim to determine effective management that will reduce the likelihood exotic non-native perennial pasture species spreading in the Project area. The effectiveness of pulse grazing of buffel grass source infestations is a possible area of research. Conversely, when and for how long the grazing pressure needs to be lowered to reduce the risk of buffel grass infestations establishing or increasing is another avenue to research.</p>	<p>As above</p>	<p>Appendix C, Aim 4 - Section 4.6 of BTFRP</p>	<p>Appendix C, Aim 4 - Section 4.6 of BTFRP, new added words before table 6: "Research will identify the effectiveness of pulse grazing of buffel grass infestations and identify when and for how long grazing pressure needs to be managed to mitigate the negative effects of buffel grass on BTF habitat values. Additionally, this research will also seek to identify seasonal stocking rates that benefit habitat condition for BTF."</p> <p>Table 3, row "Objectives", additional words: "Determine effective management that will reduce the likelihood of exotic perennial pasture species spreading in the Project Area. Investigate whether livestock exclusion from some water sources provides benefits to BTF. Determine spatial and temporal variation in floristic composition and how management actions limit or promote BTF food availability."</p> <p>Table 3, row "Environmental variables to be monitored", additional words: "Presence and absence of BTF before and after the establishment of artificial water sources, and also in control sites, and in the presence and absence of stock."</p> <p>Table 3, new row between rows "Resources" and "Timing" called "Minimum survey effort". Words added: "Once varying management regimes in relation to fire, grazing and water are established, areas will be monitored intensively for various periods, relevant to the nature and scale of the management practice. At a minimum, 5 days of survey effort will be completed for each 'treatment' type. Further details will be provided in detailed project plans (Section 4.1)."</p>

In the interests of being pragmatic and seeing how we may be in a position to work with the Department looking forward, we attach responses to each of the reasons that DES provided to Adani in your decision issued on the 2nd of May 2019 regarding our Black-throated Finch Management Plan Version 7b (Plan v.7b).

In providing these responses, Adani maintains that Plan v.7b as submitted to the DES met the requirements of our Environmental Authority EPML01470513 and that it was not deficient in any respect.

Issue #	Departmental comments on BTFMP version 7b - Requirements	Adani's response detailing where in the Black-throated Finch Management Plan, version 7b, as submitted, meets the conditions of Environmental Authority EPML01470513	Section of BTFMP where addressed	Changes*
10	<p>Adani must make a commitment about a low grazing regime to satisfy EA conditions that require the maintenance of the BTF population of Ten Mile Bore and surrounds.</p> <p>The department requires Adani make a commitment about undertaking only strategic grazing, such as or similar to the Moray Downs West offset area (p74), in the environs of Ten Mile Bore area. This recommendation ensures the maintenance of the BTF habitat at Ten Mile Bore that supports the current BTF populations of Ten Mile Bore and surrounds.</p>	<p>Current and historical stocking rates in the Ten Mile Bore area have not impacted on BTF usage in the surrounding habitat since the inception of the project, with high numbers continually recorded in this area. Therefore the intent, as documented in Section 6.4.7 of the BTFMP, is to maintain the current management practices until the results of the research are available to guide the best management for BTF habitat in the Ten Mile Bore area and other habitat.</p> <p>Grazing trials and experiments described in Section 4.6.1 of the BTFMP will be used to determine the best sustainable grazing regime to maximise BTF habitat quality.</p>	<p>Table 9 (#4)</p> <p>Sections 4.6.4, 6.4.1, 6.4.7 and 7.2.1</p> <p>Appendix C, BTFMP, section 4.6</p> <p>Appendix D</p>	<p>*Adani maintains that Plan v.7b as submitted met the requirements of Environmental Authority EPML01470513 and that it was not deficient in any respect</p> <p>Section 6.4.7 has been replaced to state: *Condition 19b of the EA states that the BTF Research Program must establish management actions to maintain the current BTF population of Ten Mile Bore and surrounds. Management of BTF habitat in the vicinity of Ten Mile Bore will therefore be informed by the findings of the BTF Research Program (Appendix C).</p> <p>In order to comply with the requirement to maintain a viable population of BTF at Ten Mile Bore, Adani will develop a specific population estimate for this location. This estimate will be informed through existing data and the survey and monitoring program as well as outputs from the concurrent research program delivered over the first 5 years from commencement. An initial population estimate will be developed after the first two years, reviewed annually, and then revised at the conclusion of the research program (5 years).</p> <p>The purpose of the population estimate is to assist with management actions at Ten Mile Bore to maintain the BTF population of the area. This includes the control of pre-existing grazing activities to ensure they do not have an adverse impact of habitat in the vicinity of ten mile bore (described in detail in section 6.4.1).</p> <p>Adani will establish a low impact grazing regime in the vicinity of Ten Mile Bore for the purpose of ensuring the BTF Habitat in this vicinity can continue to support a viable population of BTF.</p> <p>A low impact grazing regime takes into consideration a number of management practices such as stocking rates, pasture resting or spelling, fire management, fencing, weed management and watering point management (Hunt et al, 2014; Department of Agriculture and Fisheries, 2017).</p> <p>Managing the stocking rate across the Moray Downs Property is one measure of managing the potential impact of grazing on BTF Habitat. Stocking rates are dynamic and typically adjusted seasonally and in response to other factors such as climatic conditions.</p> <p>Stocking rates for beef cattle in Central Queensland are typically in the order of 1 beast / 6 hectares (Department of Agriculture and Fisheries, 2016). A long term trial in the Upper Burdekin Catchment established a light stocking rate of 1 beast / 8 hectares and a heavy stocking rate of 1 beast / 4 hectares (O'Regain et al, 2005).</p> <p>In establishing a low impact grazing regime for the vicinity of Ten Mile Bore (that is, within a 3 km radius), Adani proposes a light stocking rate of between 8 and 25 hectares per beast.</p> <p>Monitoring of grazing regimes is described in Section 7.2.1 of the BTF MP.</p> <p>Investigation and research into how optimal grazing regimes including pasture resting and spelling is described in Section 4.6.1 of the BTF Research Program. Section 4.6.2 of the BTF Research Program provides details of how fire regimes will also be investigated with respect to how they can contribute to the management of habitat values.</p> <p>And fencing is detailed throughout the BTF Management Plan is a management action to maintain habitat quality and/or respond to new or emerging threats. Together, these management actions are designed to maintain and enhance the quality of habitat in the vicinity of Ten Mile Bore.</p> <p>Land condition will be measured through bio condition survey and through the ongoing monitoring program, augmented by research activities and outcomes. Annual reviews (detailed in Section 9.2) will also include a review of stocking rates in conjunction with other activities, not in isolation.</p> <p>Additionally, the findings of the Research Program (3 to 5 years from approval of the plan) will inform ongoing management practices to ensure the maintenance of a viable population of BTF at Ten Mile Bore. Management measures include:</p> <ul style="list-style-type: none"> • Avoiding mining-related disturbance of the area until as late as possible (see Section 6.3.1) • Maintaining water for BTF, to be monitored through weekly water infrastructure inspections • Low impact grazing regime in the vicinity of Ten Mile Bore for the purpose of enhancing and maintaining BTF habitat values; being between 8 and 25 hectares per beast. • Ensuring adequate fencing and infrastructure is maintained to achieve performance objectives relating to water availability and grazing management."

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Date : 9/04/2019 3:57:26 PM
From : "MERRICK Jamie"
To : "ELLWOOD Dean" , "WELLS Melissa" , "LAWRENCE Rob"
Subject : FW: Groundwater Dependent Ecosystem Management Plan (GDEMP)
Attachment : DG DES re GDEMP - 20190409.pdf;image163210.jpg;

FYI

From: Lucas Dow [ch4p4(6) Personal informatio]
Sent: Tuesday, 9 April 2019 3:55 PM
To: MERRICK Jamie
Cc: Paul Fennelly
Subject: Groundwater Dependent Ecosystem Management Plan (GDEMP)

Hi Jamie,
As per our meeting of yesterday please find attached our response to your correspondence.

Regards,
Lucas

Lucas Dow
CEO - Adani Mining

E [ch4p4(6) Personal informatio]
P office: +61 7 3223 4800 | direct: [6) Personal info] | mobile: [6) Personal info]
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9 April 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane QLD 4000

By email: jamie.merrick@des.qld.gov.au

Dear Jamie

Adani Mining Pty Ltd – Groundwater Dependent Ecosystem Management Plan

We refer to your correspondence of 5 April 2019 in relation to the Groundwater Dependent Ecosystems Management Plan (**GDEMP**) and also the opportunity for us to meet on 8 April 2019.

As you are aware, we have been working with both the Federal and State Departments in relation to the finalisation of this plan for more than two years. Unfortunately, despite repeated requests from Adani, the Queensland Government has been unwilling to provide commitments in relation to timing and process to finalise outstanding management plans. This lack of clarity has been evident throughout the Department's approach to finalising the Black-Throated Finch Management Plan (**BTFMP**), which is still dragging on and which has been the subject of last minute interventions, such as the highly questionable review led by Professor Wintle about which we have raised serious concerns.

In relation to the CSIRO and GeoScience Australia report, as we understand it, this was work commissioned for use by both the Federal and State Department; accordingly we find it inexplicable that the Queensland Government is now stating that it does not have access to the report. We would have thought it reasonable that the Queensland Government would have had sufficient foresight and planning to ensure the timely delivery of the report in order to enable the finalisation of the plan. Accordingly, for this to now be offered up as an excuse for continued delay is not reasonable from our perspective.

Absent the Queensland Government detailing a defined process and timing to finalise the GDEMP, the requirements are unclear and it seems the goal posts continue to shift in the same way we have experienced with finalisation of the BTFMP. More specifically, the approach undertaken by the State in assessing the BTFMP has been reflective of the State's apparent desire to create two versions of the same plan. Accordingly, we assumed a similar approach was intended for the GDEMP. Nonetheless, the GDEMP was submitted to the Department on 9 April 2019.

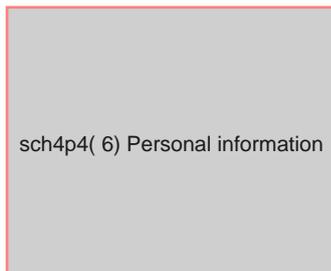
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We remain committed to working collaboratively to finalise these plans so that we can get on with the task of delivering thousands of jobs for Queenslanders.

Yours sincerely



Lucas Dow
Chief Executive Officer

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Date : 4/03/2019 6:29:50 PM
From : "WELLS Melissa"
To : "Dean.Knudson@environment.gov.au"
Cc : "ELLWOOD Dean"
Subject : FW: Request for Queensland Government's peer review of Black Throated Finch Management Plan [DLM=For-Official-Use-Only] *CONFIDENTIAL*
Attachment : BTFMP_review__15_Feb__Final__Adani.pdf;DOEE Request Review Final 4 March 2019.pdf;image001.png;image002.png;
Dean,

Please find attached correspondence and final report as per below request.

Kind regards,
Melissa.



Melissa Wells
Executive Director
Coal and Central Qld Compliance
Department of Environment and Science

P 07 4987 9343

99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

From: Dean Knudson [<mailto:Dean.Knudson@environment.gov.au>]
Sent: Wednesday, February 20, 2019 10:45 AM
To: ELLWOOD Dean <Dean.Ellwood@des.qld.gov.au>
Cc: James Tregurtha <James.Tregurtha@environment.gov.au>; s.73 - non-responsive @environment.gov.au; Declan O'Connor-Cox <Declan.O'connor-Cox@environment.gov.au>
Subject: Request for Queensland Government's peer review of Black Throated Finch Management Plan [DLM=For-Official-Use-Only]
Importance: High

Dear Dean

I understand that Queensland has received the draft peer review of the Black-throated Finch Management Plan for Adani's Carmichael Coal Mine and Rail Infrastructure Project.

As you are aware, a delegate for the Minister for the Environment approved Adani's Black-throated Finch Management Plan on 18 December 2018, considering that the Plan the Commonwealth's EPBC Act approval conditions.

I note that Queensland engaged an independent reviewer to provide advice on the plan to assist with its regulatory decisions.

As co-regulator on the Adani project, and in the spirit of the Bilateral arrangements we have with Queensland and your Administrative Access Policy, I request a copy of the review report.

This will enable my staff to identify whether there is any information relevant to the Commonwealth's EPBC Act approval conditions.

Regards,

Dean Knudson
Deputy Secretary
Environment Protection Group

Department of the Environment and Energy
John Gorton Building, King Edward Terrace, Parkes Canberra ACT 2600
Phone: 02 6274 1500
Email: dean.knudson@environment.gov.au
Think before printing



Review of the Black-throated Finch Management Plan (BTFMP)

Report to Queensland Department of Environment and Science

15 February 2019

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Independent Review Panel Members

Professor Brendan Wintle (Panel Chair)

School of Biosciences, The University of Melbourne, Victoria, 3010

Doctor Don Franklin

Research Institute for the Environment and Livelihoods, Charles Darwin University,
Northern Territory, 0909

Professor Stephen Garnett

Research Institute for the Environment and Livelihoods, Charles Darwin University,
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Centre for Biodiversity and Conservation Science, University of Queensland, Queensland,
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Fenner School of Environment and Society, The Australian National University, ACT, 2601

Professor John Woinarski

Research Institute for the Environment and Livelihoods, Charles Darwin University,
Northern Territory, 0909



Executive Summary

In its current form, the Black-throated finch Management Plan (BTFMP) does not meet the content requirements of an acceptable plan to manage an endangered species. To provide an assurance that the viability of the Black-throated finch population in the Project area and surrounding areas can be sustained, the BTFMP requires substantial elaboration and enhancement.

The plan does not clearly contextualise and evaluate the likely impact on Black-throated finch (southern subspecies; hereafter BTF) of the proposed loss of habitat and disturbances from mining. It provides no estimate of the total population size of BTF in the Project area nor expresses this as a proportion of the entire BTF population. The loss of all or part of the Project area population is likely to have a significant impact on the extinction risk for this subspecies, yet, this risk is not quantified in any way in the BTFMP. Because of these omissions, it is not possible to reliably assess whether the proposed management, mitigation, and offset measures are commensurate with the impacts.

Within the scope of the Environmental Authority conditions (I6, I8 and I9), there are significant omissions that should be addressed in the BTFMP. The BTFMP only partially aligns with the Bioregional BTF Management Plan and BTF Recovery Plan. The Research Program outlined in the BTFMP is inadequately detailed and funded to be able to address the ecological research questions it is required to answer. The Research Program in the BTFMP provides almost no consideration of BTF food resources, thus failing to meet condition I8. The BTFMP provides evidence that the Ten Mile Bore area supports a notably large population of BTF and associated suitable habitat. However, the BTFMP provides little demonstrable commitment to maintaining the BTF population in the Ten Mile Bore area.

The set of planning, management and mitigation actions outlined in BTFMP provides insufficient assurance that the population of BTF in the Project area will be maintained. Many relevant details of the conservation management requirements for the species are currently unknown. The research, monitoring and management framework and protocols are superficial and untested; as described in the BTFMP, it is likely to take many years for the Research Program to provide sufficient evidence to ensure that optimal management is implemented. The only real certainties are that the BTF will disappear from areas subject to habitat clearing and mining. The plan provides no assurance that BTF numbers will increase in other areas in a way that compensates for the certain losses resulting from clearing and mining.

Given the concerns expressed throughout this review, the Panel considers that the BTFMP, as presented, does not provide adequate assurance (i) that the research program design and implementation will be sufficient to fill current critical knowledge gaps to underpin effective management, (ii) hence, that management and mitigation actions will provide benefits to the BTF that are commensurate with the likely losses due to mining and infrastructure development, and (iii) therefore, that the viability of the BTF population in the Project area and surrounding areas can be sustained. The Panel recommends a range of expansions and additions to the BTFMP relating to the design of the Research Program, the monitoring program, livestock grazing rates, population modelling, movement ecology of the species, and site-management planning and rehabilitation.

To ensure the project will not drive the BTF to extinction, in the region or globally, it will be necessary to re-shape the BTFMP to ensure:

- (i) a monitoring program is designed and implemented that is powerful enough to learn whether the planned conservation actions within the Project area *and* the offset area bring increases to BTF populations commensurate with anticipated losses through destruction of the known habitat,
- (ii) monitoring and research can demonstrate explicitly and quantitatively the responses (population increase or decrease) of the BTF arising from the management, mitigation actions and offsets, and that these are adequate to compensate for anticipated BTF population losses of further mining in the high-quality habitat, and
- (iii) independent scrutiny is established to oversee and approve all aspects of the monitoring and research design and implementation, the analysis and interpretation of monitoring and research results, and establishment of appropriate triggers that will ensure destruction of BTF habitat does not proceed unless sufficient confidence that mitigation and offset will



bring increases to BTF populations commensurate with anticipated losses, to the satisfaction of regulators and independent scrutiny.

These enhancements should not be treated as options that may be undertaken at some date in the future: they need to be established as the basis for management prior to the commencement of impacts.

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Context and background

The southern or white-rumped subspecies of Black-throated Finch *Poephila cincta cincta* (BTF) is listed as Endangered nationally under the *Environment Protection and Biodiversity Conservation Act 1999* and Endangered in Queensland under the *Nature Conservation Act 1992*. It has declined severely since European settlement of Australia and now occurs in two main populations, a coastal population near Townsville and an inland population in central eastern Queensland. The decline was continuing in 2010 (Garnett *et al.* 2011) and actions taken since then that are not likely to have arrested that decline.

The western (inland) population of BTF that is the subject of the BTFMP is the larger of the two remaining populations of the BTF. Therefore, the conservation of the species in the area targeted for mining is critical to its long-term persistence. The BTFMP must therefore be able to articulate a clear and robust plan for ensuring the subspecies' persistence in the region.

This review was commissioned by the Queensland Department of Environment and Science to provide an independent assessment of the 2018 Black-throated Finch Management Plan (BTFMP) (GHD 2018), which describes aspects of the conservation of this Endangered bird subspecies in relation to potential impacts arising from the Carmichael Mine project, and its management at the Project site. The eight specific questions framing this review were set by the Queensland Department of Environment and Science in a Terms of Reference document provided in Appendix 1.

An approved BTFMP is required as a condition under the Environmental Authority EPML01470513 (*Approval*), granted by the Queensland Government in 2017. The scope of the BTFMP (Appendix 2) states that: *"The BTF Management Plan details the management actions and monitoring requirements for the Carmichael Mine to minimise and mitigate impacts prior to and during construction. Management and monitoring actions apply to mining-related activities across the Project area, including those conducted on ML70505, ML70506 and ML70441. Conceptually, the adaptive management approach to be implemented applies to areas that will be disturbed by mining activities, areas of mining leases where no mining impacts are proposed, and offset areas where BTF habitat will be improved (Figure 1)"* and *"The Research Program will primarily focus on studies that will provide results and information that facilitate improving suitable BTF habitat within the Moray Downs West offset area as well as habitat within ML70506 where no impacts from mining are proposed"*.

These statements in the scope of the BTFMP indicate that the plan for managing the offset area, and the degree to which that management will provide improvements to BTF conservation status commensurate with the impacts arising in the Project Area, are relevant matters for consideration in this review of the BTFMP.

The BTFMP scope also notes: *"However, in relation to the management of offset areas, it should be noted that a detailed Offset Area Management Plan: Moray Downs West (OAMP; C02 2017), has been developed with specific management actions to achieve offsets for a range of environmental values, including BTF. While the BTF management plan includes some reference to management of the offset area, reference should be made to the OAMP for details of specific management actions."* While we do not comment specifically on the quality of the OAMP, the measures proposed in the OAMP to improve finch habitat are discussed here in so much as they rely on outcomes of the research and monitoring activities under the BTFMP.



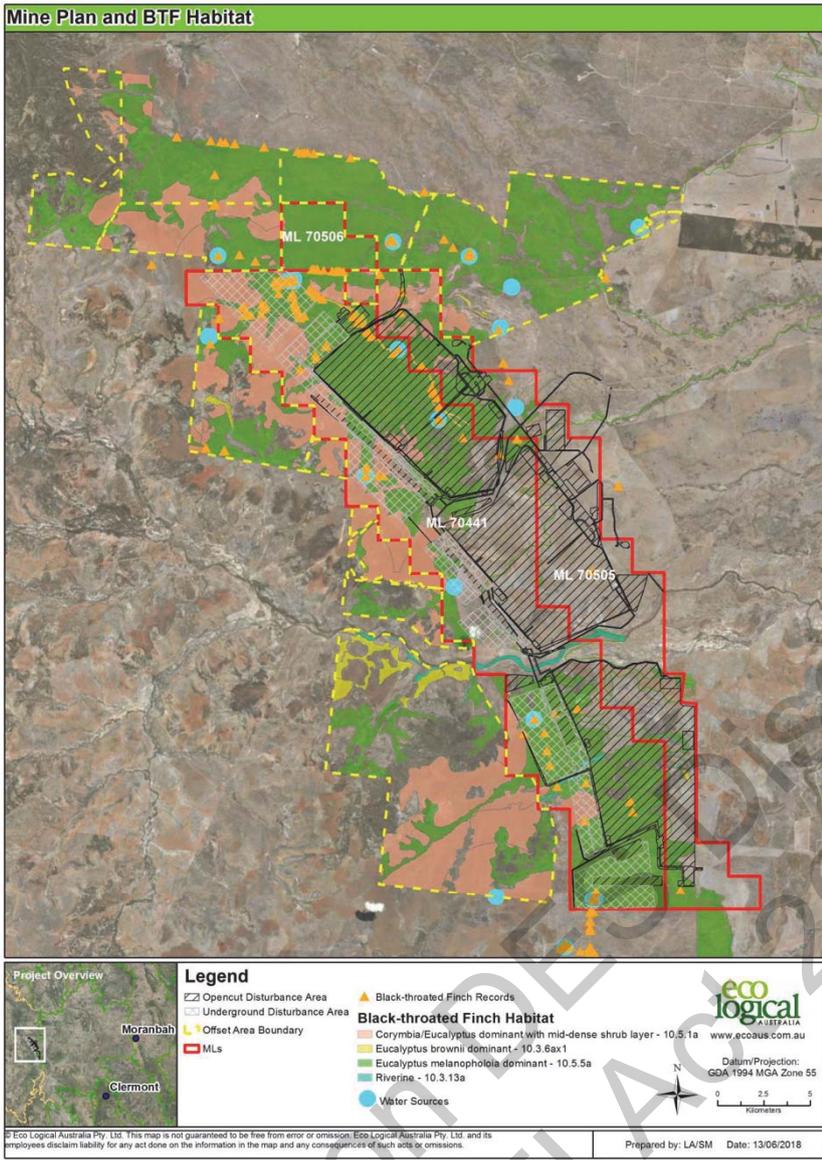


Figure 1. The project location showing BTF habitat (taken from Fig 3 of the BTFMP). The black shaded areas are the proposed open cut mine (16,640.24 ha) and the grey hatched area is the underground mining area (subsidence area: 7786.76 ha). The areas in dashed yellow are the offset area. The best habitats for the BTF are thought to be those shaded in pink and green.



Key Findings of the Review

Overall, the BTFMP presents the results of a large collective effort of ecologists and others over a period of approximately 9 years, starting with field surveys in 2010 conducted by GHD Pty. Ltd. In this time, several surveys and reports have set out to describe the distribution of the BTF and its breeding habitats in and around the Project area.

While there is a significant effort evident in survey reports since 2012, the work is not currently coalesced in a consistent way to support an evidence-based plan. In particular, the census, dispersion and habitat data collected are not of the form that can support an understanding of the abundance and movement patterns of the species over the proposed Project and offset areas. Consequently, a clear understanding of the habitat requirements of the subspecies (and possible seasonal variation in habitat use) is not presented in the BTFMP, nor is there an understanding of the number of individuals likely to be lost as a direct or indirect result of project development. In the absence of reliable estimates of the population size of BTF in the Project area, reliable assessment of impacts and anticipated benefits of management options, and overall assessment of BTF population viability cannot be assessed.

There remain critical knowledge gaps about the most appropriate way to manage BTF habitat that are detailed below in response to Q1. In the absence of a quantitative estimate of the impact of mining activities on the population of the BTF, compelling evidence is lacking that these impacts can be mitigated or offset through management of the Project area or the offset area (OAMP). Therefore, commensurability between the impact and the mitigation and offset actions cannot be assured.

On-site mitigation and offset benefits rely on the use of grazing and fire regimes to improve BTF habitat quality and populations. However, the report states that, 'The optimal grazing and fire regimes required to maintain or improve habitat quality for the BTF are yet to be determined': BTFMP p. 20). This sparse evidence base means that the security of the BTF cannot yet be guaranteed. It is therefore crucial that the key knowledge gaps are addressed as a matter of urgency so that planning for minimizing impacts on the BTF can be conducted with better information and greater certainty about outcomes can be achieved.

Most relevant background documentation recognises that grazing has been one of the drivers of decline in the BTF, with the draft Bioregional BTF Management Plan noting explicitly that: 'until it is better understood how grazing pressure needs to be managed to improve BTF habitat, it is assumed that a reduction in stocking rates that results in increased grass cover and the proportion of native grass species will benefit the BTF. This may require fencing of habitat' (p. 11). However, the BTFMP provides no commitment to a reduction in stocking density or exclusion from the areas managed to provide benefit to BTF commensurate with the impacts of habitat loss through mining development. By default, grazing should be completely excluded in all areas used by the BTF until it can be demonstrated that some grazing is beneficial.

The data presented (Fig 1) indicate that there are relatively few records of BTF in the offset area, but many BTFs in the Project Area. In order to conclude that the offset and on-site mitigation measures are commensurate with impacts within the mining footprint, it must be assumed that (i) the low numbers of birds in the offset area is due to sub-optimal habitat (or impacts of other threats); (ii) managers know how to turn sub-optimal habitat into optimal habitat (and how to control all other threats effectively); (iii) managers can and do turn sub-optimal habitat into optimal habitat within five years (and can control all other threats effectively) and retain that management over many years; and (iv) BTFs will respond with marked and sustained population increase to this putatively optimal management. Many of these assumptions are untenable. Hence, it is certain that the BTFMP will not deliver an outcome of commensurate increase in BTFs within the Project Area, and it is highly unlikely that a commensurate increase in BTFs will be achieved in the offset area. This has relevance to the BTFMP because it indicates a need to incorporate triggers in the BTFMP for revising all operation plans that link directly to the outcomes of BTF monitoring and research in the first five years.

A key role of the BTFMP is to set out monitoring and research plans that will support management to ensure the persistence of the BTF across the Project Area and offset.

The current and proposed monitoring program – which should be a foundation for the management of the BTF in the area – relies on methods that do not enable direct quantification of impacts in terms of the BTF population size. The description of the monitoring program so far, and the plan for future monitoring does not include the necessary consideration of statistical power to detect meaningful change, in either the Project Area or the offset site.



The research plan as proposed does not give assurance that it will provide the necessary and timely evidence base to adequately inform management, to measure population trajectories of BTF across the Project area as a whole or determine the viability of local and regional populations under impact and mitigation scenarios. A revised research program must directly address key questions about the long-term viability of the BTF across the Project area and offset site, including an evidence-based estimate of the benefits of the provision of water on the offset sites, the availability of seed under grazing and fire management regimes, the current and future connectivity between subpopulations, and the dispersal ecology of the finch.

The level of resourcing outlined in the BTFMP that is dedicated to closing key knowledge gaps is too low relative to the magnitude of uncertainty impacting on the plan.

We have identified a number of knowledge gaps that must be filled before a robust, evidence-based plan could be produced that would give certainty to the Queensland Government and the public that the Carmichael Mine Project will not drive the species to local extinction and contribute to a significantly increased risk of its global extinction.

In light of the significant uncertainty surrounding the likelihood of mitigation and offset management actions achieving no-net-loss of BTFs, we make specific recommendations about how the early phases of mining, research, and monitoring might be scheduled and conditioned such that the loss of the BTF population from the local area can be averted with an acceptable degree of confidence.



Answers to TOR questions

Note that many of the questions posed are inter-related, so our set of responses includes some repetition.

Q1. Does the BTFMP as submitted identify and address all the impacts with respect to the proposed loss and disturbance of BTF (Black Throated Finch) habitat (and) the impact on BTF populations?

No, the BTFMP does not clearly contextualise and evaluate the likely impact on BTF (southern subspecies; hereafter BTF) of the proposed loss and disturbance. The most robust estimate available for the total population size of the subspecies was about 1400 mature individuals in 2010 (Garnett *et al.* 2011). Due to inconsistency in survey methods and incompleteness in survey effort, the BTFMP provides no estimate of the total population size of BTF in the Project Area nor expresses this as a proportion of the entire BTF population. Nonetheless, the Carmichael Project area is located within the largest of the two extant populations of BTF, and the surveys reported in the Plan confirm that a large number of BTFs are present and breeding there, with some surveys returning very high counts of birds: average tallies of 480 birds, with one aggregate tally of 1145 birds (BTFMP, p. 25). Notwithstanding concerns about the reliability of density estimates arising from surveys, the loss of all or part of the Project Area population is likely to significantly elevate the risk of extinction risk of this subspecies. However, this risk is not quantified in any way in the BTFMP or supporting documents, for example by using population viability analysis methods.

Habitat destruction through mining and other development will result in the localised, direct loss of BTF and their habitat. The fragmentation that results sequentially from clearing will reduce landscape connectivity and most likely lead to the ongoing loss of small, isolated groups of finches over time. The quality of habitat in uncleared vegetation in the Project area is likely to decrease, due to a combination of development-related impacts, including dust, noise and light; and decreases in the availability and quality of some natural water sources, which are a critical resource for BTF populations. The development is also likely to cause some impacts from changes in grazing and fire management, and possible changes in the distribution of other species that interact with the BTF (e.g. competitors, predators). While most of these impacts are noted in the BTFMP, they are not quantified nor adequately addressed.

Most individual components of the overall impact on the species are listed in the BTFMP (Table 8 and 9, pgs 47-58); although we note that the immediate impacts of grazing on the yields of seed (the food resource of BTF) are not explicitly described. The way in which some of these threats (and their interactions) affect BTFs are not well contextualized, explained, and understood. Since the population size is unknown, and the severity of the threats (and their interactions) are not quantified, the expected individual and combined impacts are not quantified in terms of expected proportional loss of BTF populations, or as an expected drop in overall BTF population. Thus, there is no reliable way to assess whether such losses can be balanced with any, let alone comparable, increases in population at other sites (or in undeveloped sections of the Project area) due to putative, better management of, and/or translocation of individuals to, those other sites. The habitat utilisation studies presented do not reliably identify key features of the habitat that explain the presence or absence of finches, let alone their abundance. Hence, estimates of the amount and quality of habitat that will be lost are unreliable.

The threat of dust (arising from development) settling on vegetation including food sources (seed) of BTF is largely dismissed in the BTFMP, with little supporting evidence: the BTFMP asserts that it *“will generally occur relatively close to areas of disturbance and hence, plants within 50 m – 100 m of construction activities may be affected by dust”* and *“and rainfall will generally remove dust from plants”* (page 37). Dust is readily transported considerably further than 50-100m by wind, heavy vehicles and roadworks, and may accumulate on vegetation for many months especially during the dry season. One can reasonably expect that an open cut coal mine of these proportions will generate very large volumes of dust, and that deposition modelling (and impacts of such dust deposition on plant growth and phenology) should be included in the BTFMP

The potential future influence of climate change and how these influences might interact with ecological processes and threats to BTF ‘on the ground’ in the Carmichael Mine area is currently not considered. Climatic changes are likely



to manifest in the life of the Carmichael Mine, potentially interacting strongly and negatively with processes threatening the species (Brook *et al.* 2008; Şekercioğlu *et al.* 2012) such that its impacts on BTF cannot be ignored, even at the local scale.

The cumulative effects of multiple development impacts in the Galilee Basin must not be ignored as it is crucial context for understanding the long-term viability of the species in and around the Project Area and offset area. A narrow view of individual developments risks missing the broader context of ongoing habitat destruction for the BTF (Vanderduys *et al.* 2016). A regional population viability analysis can provide the appropriate context within which to consider the specific impacts of the Carmichael mine.

The methods used to define, categorise and map BTF habitat are not well described in the BTFMP or Appendix E. We have major concerns about the approach used to define, categorise and map BTF habitat. For a more detailed discussion of concerns with the habitat analyses, see response to Q4 below. Because habitat is not convincingly defined, there is significant uncertainty around calculations of how much BTF habitat will be lost through mining and infrastructure and what will be gained through conservation management in habitats within the Project and offset area.



Q2. Are the proposed management and mitigation measures as detailed in the BTFMP commensurate with the impacts?

The BTFMP does not appropriately contextualise and quantify the total and relative BTF population losses due to this development, so commensurability cannot be reliably assessed.

As a condition of Approval, the mitigation measures for the direct loss of habitat include using animal spotters to catch and translocate animals off the area to be cleared, avoiding clearing of known nests for as long as possible, avoiding clearing during the breeding season, and staging clearing (followed by rehabilitation) to allow finches to repopulate areas that were cleared earlier. The benefits of these actions have not been demonstrated with certainty: the methods for translocating this species are unproven and estimates of their benefit are unquantified in the BTFMP. However, it seems likely that if areas of 'potential habitat' are currently unoccupied by finches, then those areas are not suitable for sustaining translocated populations, and hence that translocations are unlikely to be successful. Avoiding the direct destruction of nests only delays the habitat loss for a short period, and there is no evidence that allowing nests to fledge ahead of habitat destruction mitigates the population loss. The staged clearing will occur in steps of around a decade, but it will take many decades to restore a cleared site back to open woodland with all the habitat features required by BTF – if, indeed, that restoration is achievable. Thus, it is highly unlikely that finches will be able to re-occupy the initial cleared area within the lifespan of the Project.

The BTFMP also indicates that procedures will be established to try to avoid destruction of active nests and nesting birds, but this action is highly qualified ('*Minimise impacts to BTF breeding by avoiding and buffering known nests where possible and also avoiding vegetation clearing, where possible, during the breeding period*' p. 78: emphasis added), so provides little assurance that it will reduce population loss.

Although it is not the specific scope of the BTFMP, the main offsite mitigation and management measures involve putative habitat enhancement in the offset area. However, the BTFMP provides very little information on the existing occurrence and population size of BTFs in the offset area(s). The map on p. 163 in the BTFMP suggests that there are very few records of BTFs in any of the offset sites (cf. Figure 1 at p. 9 of the BTFMP), although it is not clear whether the small number of records is because of limited search effort or the absence or scarcity of BTFs in those proposed offset areas. In order to conclude that the offset and on-site mitigation measures are commensurate with impacts within the mining footprint, it must be assumed that (i) the low numbers of birds in the offset area is due to sub-optimal habitat (or impacts of other threats); (ii) managers know how to transform sub-optimal habitat into optimal habitat (and how to control all other threats effectively); (iii) managers can and do transform sub-optimal habitat into optimal habitat within 5 or so years (and can control all other threats effectively) and retain that management over many years; and (iv) BTFs will respond with marked and sustained population increase to this putatively optimal management. Many of these assumptions are untenable. Hence, it is certain that the BTFMP will not deliver an outcome of commensurate increase in BTFs in the Project Area and highly unlikely that such a commensurate increase will be delivered in the offset area. The benefits required for commensurability must be demonstrated with certainty by the proponent before impacts should be allowed to proceed. Assumptions about the benefits of adding watering points to offset areas should be quantitatively proven in the Project and Offset Areas as a matter of urgency.

Continuity and abundance of seed availability is a major factor determining habitat suitability for this species; and this resource is influenced by fire and grazing. The BTFMP is correct that – at a landscape scale – the most suitable management for this feature is likely to involve a fine scale mosaic of patches with varying fire history, and that this will be influenced by the grazing regime.

However, as is clear from the BTFMP, there is little or no specific knowledge of what such management should entail or how it should be implemented. For example, the BTFMP notes: '*The optimal grazing and fire regimes required to maintain or improve habitat quality for the BTF are yet to be determined*' (p. 20). Instead, the BTFMP proposes a limited series of research trials that *may*, over many years, indicate what such preferred pastoral and fire management should entail. The proposed trials are not yet determined, and no details of their implementation are



given. The BTFMP only states that: *'Specific grazing trials will be proposed via the Research Program. The location and timeframe of the trials will be determined at the scoping phase of the research'* (p. 72). Furthermore, experimental and actual management of fire to benefit BTF is likely to be constrained by other operational considerations (*'However, any fire management trials will need to consider other management strategies and BTF research methods as well as safety and asset protection.'* (s. 7.2.2)), rendering it plausible that if an appropriate fire management regime that may benefit BTF is determined through research, it may well not be implemented.

Furthermore, notwithstanding the fact that the Recovery Plan for this species and the 2011 Bird Action Plan (Garnett *et al.* 2011) both list pastoralism/grazing as a main threat and driver of decline – as does the BTF Bioregional Management Plan (Department of Environment and Science 2018) – the BTFMP indicates that livestock grazing is likely to be maintained in the Project Area (*'the management of grazing within non-mined areas will be based on existing pastoral management practices'*) (s. 6.4.1). The BTFMP also makes the unsubstantiated claim that *'grazing will be used to decrease the abundance and presence of weeds, including Buffel Grass'* (s. 6.4.1).

Understanding whether offset and mitigation actions will provide benefits 'commensurate with impacts' is further complicated by the fact that no robust monitoring protocol is yet developed for the species. *'The monitoring methodology is to transition from a methodology aimed at gathering presence/absence data alone, to one gathering data that will better explain BTF movements across the landscape as well as identify any trends in population and monitor the effectiveness of management actions'* (BTFMP p. 70). However, no such program is detailed. All of the variations of previous/existing monitoring programs for the species (Research Program, pp. 14-15) have had major shortcomings. No plan for monitoring so far has attempted to estimate and report statistical power to detect population decreases or increases among species of conservation concern. That is, no existing monitoring program can provide assurance that it can measure whether any putative benefit is commensurate with the loss, and no program has been proposed that would provide such an assurance.

The monitoring described in BTFMP also lacks well-defined triggers and responses. For example, the BTFMP indicates that an adaptive management response may simply be to set a different trigger: *'Feedback from the monitoring program that indicates mitigation and management measures are not meeting targets will trigger a review of the relevant goals, performance criteria and triggers to ensure that they are adjusted in response to suit the results of the monitoring program'* (BTFMP p. 80). This would be a perverse outcome for a management plan aimed at protecting a species.

Given the pervasive uncertainty about the effectiveness of management actions aimed at improving BTF habitat and population densities in both the Project Area and the offset area, the estimate of anticipated gains in habitat quality, and the assumption that such gains will bring commensurate increases in BTF populations, appears untenable. While the focus here is on the implications for the BTFMP environmental approval conditions, it does raise serious concerns about the capacity for the offsets to deliver the benefits required to compensate for the anticipated BTF losses on the Project Area. The direct implications for the BTFMP are its research, management and monitoring programs must be upgraded significantly so that they have the power to identify whether management of habitat in the Project Area and offset areas are on track to deliver the benefits necessary to offset planned impacts on the BTF, and that such results from enhanced management are demonstrated with positive responses by BTF. (see Moray Downs West offset calculations in CO2 Australia 2016, *Biodiversity Offset Strategy, Carmichael Coal Mine and Rail Project, Adani Mining Pty Ltd.* for more information about assumptions of habitat improvements required to offset anticipated BTF habitat losses in the Project Area)

The BTFMP uses language that provides little reassurance that management will minimise avoidable detriment. Actions are often highly qualified; for example, the BTFMP indicates that procedures will be established to **try** to avoid destruction of active nests and nesting birds (*'Minimise impacts to BTF breeding by avoiding and buffering known nests where possible and also avoiding vegetation clearing, where possible, during the breeding period'* p. 78: emphasis added).



Likewise, corrective responses for clearing in BTF habitat outside the approved clearing footprint, or of habitat alteration through subsidence are also couched in non-obligatory terms (*'may include'*) (Table 8). A number of specific concerns about the triggers for action with the monitoring regime outlined in Tables 8–10 of the BTFMP include:

Topic	Page reference	Issue with Trigger
Performance criteria “Minimise the impacts of habitat alteration through subsidence”	48	What is the trigger for action? Any ponding or cracking? How does this relate to the High-Low dichotomy in Table 6 (page 32)?
Potential indirect project impact “Grazing of key habitat areas that changes the ground cover composition”	54	How will the trigger “Annual vegetation assessment demonstrates a loss of native perennial species and/or cover from baseline conditions” distinguish grazing impacts from variation in growth between years due to variation in growing conditions?”
Potential indirect project impact “Wildfire or inappropriate fire management of key habitat areas that changes ground cover composition”	56	“Dense shrub layers forming ...”. How dense is “dense”?
Potential indirect project impact “Feral animal impacts”	57	“Significant increase ...”. Meaning? And does the monitoring have the capacity to identify such increases?
Management objective “Reduce the risk of contamination of BTF habitat by chemicals, fuel, heavy metals etc.”	60	“Pollution of BTF habitat by contaminants”: are the thresholds of concern <i>any</i> level of presence of contaminants? Which contaminants are to be tested for?
Matters under EPBC Approval, condition 6, “Emissions, including dust”	62	“growth of grasses ...”. What about contamination of seed? What about birds breathing dust? And how is this to be evaluated?

Grazing is to be monitored in a series of fixed 2-ha plots most of which are in the area proposed for underground mining (BTFMP page 55 and Appendix B). How will effects of underground mining be distinguished from effects of grazing?

Mention in the BTFMP of the distance from water at which BTF will nest is confusing and potentially misleading. *Distance from water* is not the same as *distance from permanent water* but this distinction isn’t made adequately when the issue arises (BTFMP page 21 and Appendix E). There is no consideration of the flight capabilities of the species (for context, see Franklin *et al.* 2017). This has important consequences for the siting of replacement water points in and near the mine area and the creation of new water points in offset areas.



Q3. Within the scope of the Environmental Authority conditions (I6, I8 and I9), are there any significant omissions that should be addressed in the BTFMP?

Environmental Authority condition I6.

The holder must align the SMP [BTFMP] with any Bioregional BTF Management Plan and relevant documentation requirements under the EPBC Act including BTF Recovery Plan, conservation advice and the threat abatement plan.

The BTFMP partially aligns with these documents. However, the Recovery Plan for this species is now dated (2005) and is relatively superficial; and there is no Conservation Advice. The Bioregional BTF Management Plan is a draft only. Nonetheless, there appear to be some inconsistencies, most notably the Bioregional Plan recognises that:

'until it is better understood how grazing pressure needs to be managed to improve BTF habitat it is assumed that a reduction in stocking rates that results in increased grass cover and the proportion of native grass species will benefit the BTF. This may require fencing of habitat' (p. 11).

In contrast, the BTFMP provides no indication that stocking rates will be reduced or that stock enclosure fencing will be established around important habitats except where subsidence may occur following underground mining, although it is unclear whether this is to benefit the BTF or livestock. The cited section of the Bioregional Plan makes it clear that stocking rates should be reduced, or stock excluded until such time as research demonstrates which stocking rates are optimal.

The submitted BTF SMP must include –

- a) A baseline research program on the specific nesting and feeding requirements of the species that will be undertaken prior to and during project stage 1

The BTFMP outlines a research program that considers aspects of the nesting and feeding requirements of BTF. However, these are limited. This is because: (i) It is not clear whether the breeding studies will include assessments of breeding success and the factors that influence this, or of whether reproductive output is sufficient to maintain population viability. (ii) Although existing research has noted some observations of finches eating seeds of some grass and herb species, this is not substantially quantified, and there is no indication that research will measure the availability of food resources (seeds) across months, years and habitats (and in response to variation in grazing and fire regimes). Such assessment would indicate when food availability is likely to be most limiting; what factors may enhance or reduce food availability at such critical times; and what food resources are most critical at these times. Such information is necessary to understand and quantify likely impacts of the project on the BTF, to understand and quantify the benefits that mitigation actions will bring to BTF populations, and to optimise management effort and the likelihood of maintaining BTF population viability.

Satisfactory baseline data collection to support an appropriate research program would have set out to compile all of the necessary data to undertake a population viability analysis for the BTF. The lack of attempt to collect the data necessary to robustly estimate current distribution and population size, reproduction rates, mortality rates, and movement patterns, and how these vary over years and between habitats, is surprising given the gravity of decisions being made, and the time that has been available to undertake this research since it first became apparent that the mine could affect the finch.

A key shortcoming in the Research Program is that a clear description of all of the baseline data is not provided and the baseline data itself appear to be inadequate to provide the evidence required for management. Documentation of exactly where surveys were undertaken, and which surveys yielded



presence or absence data, is lacking. Based on the maps provided in the BTFMP, it appears that survey effort was inadequate to robustly characterise habitat and foraging needs or to characterise the proportion of the project and offset areas that are regularly used by the BTF. Moreover, the analyses of the habitat preferences of the species provided in Appendix E are not consistent with current best practice in habitat and distribution modelling (e.g. Elith and Leathwick 2009). This inadequate analysis propagates uncertainty through to the definitions of critical, core and marginal habitat, which in turn impact on the offset calculations.

This Term of Reference question relates to research conducted 'prior to and during' project stage 1. The research conducted to date fails to provide evidence about key population parameters, resource use and availability, and limiting factors. This leaves much uncertainty that needs to be addressed in the research undertaken 'during Project stage 1'. This is a suboptimal approach; however, it is even more so as the proposed research and monitoring program is sketchily described and appears unlikely to provide critical information necessary to inform management or to provide assurance that a viable BTF population can be maintained across the Project and offset areas. The proposed research and monitoring program needs substantial elaboration and more considered assessment of key needs and outcomes.

b) A baseline research program to establish whether the BTF at the project site are sedentary, locally migratory or regionally migratory

The BTFMP (and in more detail the Research Program within it) provides a general indication that some research will consider some aspects of BTF movement biology, including dispersal. However, no basis is provided to assess how many birds should be tracked to provide sufficient information on movements; whether an intense program of netting and tagging may have risks of adverse impacts; how to overcome the likely bias that tracking is more likely to record sedentariness and short-distance movements rather than long distance movements; whether GPS collar technology is feasible given the small size of BTF; and – most critically – how any results will be used to enhance management. This is one field of research where the utility and robustness of results will be especially contingent on the amount of effort and resources invested (e.g. in terms of the quality and quantity of telemetry equipment, the numbers of birds captured and tagged and effort made to relocate them, especially at distance; tracking efforts undertaken throughout the year, etc.). The BTFMP suggests that the magnitude of the research effort needed to address these questions is: *'something that is probably not possible with radio-tracking unless there is an enormous investment in labour to allow frequent relocation of individuals'* (p. 26), but provides no assurance that this required effort will be committed. The budget mooted for the whole research plan - \$100,000 p.a. for ten years – is well below what would be required to determine appropriate management given the large numbers of uncertainties documented above. A number of new technologies could be employed to rapidly obtain robust estimates of BTF population densities and range movements over the Project and surrounding area.

Unless movement biology of the BTF can be clarified and quantified through design and implementation of an enhanced research and monitoring program, population viability analysis will not yield definitive answers about population substructuring, critical areas to manage in different seasons, and the viability of the species under project impacts and mitigation options. It is crucial the movement biology of the species be resolved as soon as possible so that robust assessments of impacts and risks to the species can be undertaken.

c) A description of how the results of baseline research are to be used to determine any changes of classification of and/or impact on BTF habitat

The BTFMP provides a qualitative framework for the relevant monitoring and response programs (Table 8). Of concern: (i) most triggers are not explicitly quantitative (e.g., *'insufficient adjacent habitat within 500 m from clearance areas to allow refuge from impacts'*; *'prior to clearing commencing, the quality of BTF habitat to which BTF displaced by clearing could be expected to relocate, is not suitable for BTF to relocate to'*; *'a*



significant increase in the abundance of weeds or pests; *observed habitat degradation attributed to threatening pest species*; *pollution of BTF habitat by contaminants*; and *growth of grasses [...] are inhibited due to dust emissions* Table 8; emphasis added); (ii) many of the proposed corrective responses when triggers are breached are imprecise and discretionary (e.g. *the corrective actions may include [...]* Table 8; emphasis added); (iii) almost all objectives relate to actions or features or factors that are indirect components of the BTF's ecological fabric – there are no triggers set (or responses defined) for the much more critical issue of a demonstrated extent of population decline in BTF; (iv) it is impossible to tell from the limited detail provided, but it is likely that many of the monitoring activities (e.g. of densities of feral cats) are of insufficient intensity, periodicity or extent to provide confidence that triggers can be detected reliably and in a sufficiently timely manner to allow for effective response.

There is little evidence that the Research Program will be able to support a statistically powerful analysis of changes in habitat suitability resulting from impacts on habitat in the areas surrounding mining activities in both the offset site and in residual habitat remaining on the Project area. No statistical power analysis is presented (Elzinger *et al.* 2001).

d) Details of proposed impacts to BTF habitat from each project stage including impacts from clearing, subsidence, ecological function changes, hydrological changes and weed and pest infestation changes

The BTFMP provides a qualitative discussion of how these factors may influence BTF habitat, but in general this description lacks precision and is not quantitative. For example, it is not clear how large a change in weed abundance would need to be to significantly affect BTF habitat. The account of hydrological changes and subsidence that may occur as a result of any or all project stages is thinly documented and would benefit from a more quantitative risk assessment approach. Most likely, the key factor determining the ecology and population viability of BTF in this area is the abundance and continuity of seed availability: so, impacts on habitat should be contextualised explicitly and quantitatively with respect to this seed availability.

e) Mitigation measures to be undertaken to avoid, mitigate and manage impact resulting from each stage of the project, including rehabilitation of habitat

The current plan does not provide sufficient evidence that direct impacts of habitat loss to mining and potential indirect impacts (e.g. changes in hydrology), including fire, can be managed in such a way as to secure the long-term viability of the BTF in the Project area or Offset area.

Management of the offset area is described as a key mitigation measure in Tables 8, 9 and 10. Section 6.4 and subsidiary sections highlight the importance of fire, grazing, weed and predator management in the offset areas as key tools for improving habitat and offsetting habitat loss in the project area. The relationship between grazing, fire and the decline of granivores is indeed, as stated in the BTFMP, complex and should appropriately be key areas for research aimed at enhancing management and conservation actions taken for the BTF. However, the consequences of pastoralism overall are undoubtedly negative (Franklin *et al.* 2005), with heavy and broad-scale grazing strongly implicated as a key threatening process for native granivorous birds in general and this subspecies particularly. It is therefore unreasonable for the BTFMP to advocate a 'business as usual' approach to stock management: *The management of grazing within non-mined areas will be based on existing pastoral management practices* (page 54). There is a strong *a priori* case for reduced grazing intensity and, in particular, relief of grazing pressure in BTF habitat during key periods of plant growth and reproduction, and in areas in which relatively high numbers of BTF are regularly reported.

There is little in the BTFMP about habitat rehabilitation. There is no evidence presented of the extent to which suitable native plants (notably including key plants in the habitat requirements and ecology of BTF, many of which are currently unknown) are commercially available for replanting, have been trialled at the



site, or that successful rehabilitation management techniques and protocols are known and will be implemented. The response to this condition in Appendix D refers to Tables 7 and 8: Table 7 is highly qualified ('*all temporarily disturbed areas will be rehabilitated as soon as possible [...] where such activity does not compromise [other activities]*'), with procedures and timing deferred to some later time and documentation ('*[it] will be outlined in the Plan of Operations [...]*'). Table 8 provides little confidence that any subsidence due to mining can be readily remedied.

f) Monitoring of watering points that must be conducted for a minimum of six hours commencing from dawn, to accurately capture BTF utilisation of water points

The BTFMP describes some commitments to counting BTF at waterholes. However, it is not clear how frequently such monitoring will be conducted (and how frequently it needs to be conducted to have sufficient statistical power to detect significant changes in BTF numbers), nor over how many years, nor how count information from remote cameras at waterholes will be assimilated and matched to counts by observers and integrated with 2 ha plot observations. Furthermore, because finches may fly moderate to large distances to drink at waterholes, and the number of waterholes in the landscape can vary with the amount of rain in the district occurring in the time period before the counts, it is not clear how variation in count data at waterholes will be interpreted or linked to impacts or management actions. It is for this reason that the movement biology and metapopulation structure of the species must be clarified and incorporated into a formal population viability analysis.

In relation to monitoring finches at water sources, the BTFMP states that '*Since BTF have been shown to access a range of artificial water sources, including drinking at troughs visited by cattle, it would not be necessary to restrict cattle from existing troughs or watering points*' (p. 64). This assumption is untested. There is much evidence from many other grazing studies that stock typically degrade vegetation at and near water sources (the piosphere effect) (Landsberg *et al.* 1997; James *et al.* 1999) and resulting vegetation degradation may mean that finches drinking at such water sources may be more exposed to predation. The water source monitoring program offers a good opportunity to test whether livestock exclusion from some water sources can provide benefit to BTF and other native species, and this opportunity should be taken in planning this monitoring program.

g) Detailed botanical assessment that must occur at all BTF sighting locations in the Project Area to record habitat values at those locations

The BTFMP provides a description of protocols for botanical assessment at sites where BTFs are recorded, and links this to information on habitat quality and condition, and in relation to plant species whose seeds are known to be eaten by BTF. However, the research could and should go further: it should attempt to describe and measure seed availability – as this is the key resource on which the BTF depends – which is affected by fire and grazing management, and which determines habitat quality.

In the threat matrix (BTFMP Table 4) and associated discussion, the impact of grazing and fire is explicated solely in terms of changes to ground cover *composition*. This is but one of a number of ways that grazing and fire may impact BTF populations negatively (and indeed, positively if the processes are well understood for appropriate management). A more immediate negative impact may arise when inappropriate grazing or fire produce a short-term bottleneck in BTF food resources by depleting seed production during key periods of plant growth. This may occur as a result of:

- excessive grazing at a time critical to grass growth and seed development reducing seed production in that and (in the case of perennial grasses especially) potentially in some subsequent years (e.g. Crowley & Garnett 2001; Rees *et al.* 2017);
- fire suppressing (or promoting) the development of grass tussocks and thus suppressing (or promoting) seed production for one or more years (e.g. Dostine *et al.* 2001; Brys *et al.* 2005; Lewis 2007);



- fire affecting seed production or availability in annual grasses (e.g. Crowley & Garnett 1999; Weier *et al.* 2018); and
- the frequency and recency of fire may affect the nutritional quality of seeds (Weier *et al.* 2017).

These changes may occur independently of changes to ground cover composition which emerges as a longer-term response to changes in grazing and fire regimes. Therefore, the Research Program must seek not only to understand spatial and temporal variation in floristic composition, but also where and how management actions limit or promote BTF food availability.

h) Detailed survey that must occur across the mining lease area and approved offset areas and must include information on BTF movements. The survey method and effort must be sufficient to accurately describe the BTF home range and detail BTF resource usage patterns between seasons and years (for up to 10 years) and allow robust management actions to be developed for the maintenance of a viable local BTF population

This is a complex condition that encompasses the establishment of an appropriately robust and powerful survey and monitoring program, a research effort that can evaluate the extent of BTF range movements and dispersal, variation in BTF resource use through time and over space, and contextualisation of this research within a consideration of the BTF's population viability. Most of these components are not addressed, or addressed only superficially, in the BTFMP. As outlined above, the provision for \$100 000 p.a. for work on the BTF is highly inadequate relative to the level of knowledge acquisition required to manage and conserve the species in this area.

There is almost nothing in the BTFMP that documents a Research Program on resource use: what seeds constitute the bulk of the diet in what seasons, and the extent to which these seed resources may be limiting and vary spatially, temporally and in response to management and temporal variation in local climate. Research that addresses these issues has been critical for guiding optimal management of other finches in northern Australia (Dostine *et al.* 2001; Dostine and Franklin 2002; Woinarski *et al.* 2005), and such approaches would be particularly useful for BTF.

Similarly, there is nothing in the BTFMP to indicate how movement of the BTF will be understood and quantified such that movement patterns could be incorporated in a formal viability analysis for the species under impact and mitigation management scenarios.

The Research Program describes previous and ongoing episodes of survey, and counting numbers of finches at water sources, in drive-by samples, at 2-hectare plots, and by remote cameras. But these activities do not constitute an effective or appropriate survey or monitoring program. There has been no assessment of the statistical power of the monitoring efforts (nor how much effort is required to ensure that the program is sufficiently powerful to detect meaningful change), or of how to determine population size (or subpopulation size) from the various count information. Without such information, it will be impossible to evaluate how population viability is being affected by project impacts and mitigation management. The count data also does not provide any mechanism to link trends to impacts or management interventions, so it is unlikely that the currently proposed monitoring effort will be able to identify, with sufficient statistical precision and reliability, the relative benefits and detriments to BTF of alternative management options, and hence will be unable to inform the development and implementation of the most 'robust management actions'.

The requirement for 'robust management actions to be developed for the maintenance of a viable local BTF population' implies a need to understand vital ecological details about the species, including its fecundity and mortality rates (i.e. viability) under varying environmental conditions, across different habitat types and under all relevant management settings. No data collected to date can or has provided this crucial information and no data collection plan is articulated in the BTFMP that could deliver it.



i) Survey work that should incorporate the usage of call playback and identify all birds present when BTF are encountered

The BTFMP describes some previous use of call playback and indicates that this method will form part of the ongoing survey and monitoring activities, as per Approval conditions. There is no indication in the limited material provided that it adds substantially to the monitoring effectiveness.

Focus should shift to identifying the field survey and observation methods that will provide the robust time series data and knowledge necessary to understand the impacts of development activities and effectiveness of mitigation activities. Understanding population abundance and movement patterns will likely require a combination of mark-resight methods for measuring population densities and obtaining information on fecundity and survival under habitat and seasonal variation, complemented by telemetry studies to understand movement biology.

j) Specific surveys that must be undertaken during the BTF breeding season and include nest location and assessment of the habitat attributes associated with the breeding locations. The survey method and effort must be sufficient to accurately describe the BTF breeding requirements with consideration to spatial and temporal variation of resources of up to 10 years

The BTFMP provides some information on ongoing nest searches. However, it would be useful to elaborate on this aspect further, for example, by including a commitment to locate at least xx nests per year or nests of at least yy% of the breeding population. Although not explicit in the condition, this effort should involve more than simply finding nests and describing their siting. It would be useful to also report on reproductive success, with such information then feeding into population viability models.

There is some indication that BTFs are colonial breeders (e.g. BTF Research Program p. 12; but cf. Recovery Plan). It would be useful to evaluate this further, and to assess whether breeding success is influenced by colony size, as this may provide information on viability (and the factors affecting it) in small isolated subpopulations.

k) Survey and monitoring that must be undertaken by experienced ecologists

The BTFMP indicates that survey and monitoring will be undertaken by experienced field personnel. However, ecological experience in relation to survey and monitoring should also include the capacity to design, analyse and interpret monitoring information, and contextualise this within population viability assessment. The BTFMP should provide some assurance that such experience in analysis, design and interpretation of survey and monitoring data will be provided.

Environmental Authority condition I8.

The baseline research program must fund a research project to determine the relationship between water sources, woody habitat and the BTF food sources within the mining lease area and approved offset areas to determine inter-relationships among these factors.

As noted above (in response to condition I6h), the Research Program in the BTFMP provides almost no consideration of BTF food (seeds), so this condition is not met. Instead the Research Program provides some indication that plant species composition and abundance will be assessed, but this does not provide any information on seeding phenology, amount, or temporal continuity and shortfall, and the relationship of these factors to grazing and fire management, and ongoing loss of habitat.



There is currently no plan for gaining and using knowledge about the relationship between water availability, the spatial context of watering locations (proximity to intact vegetation), and the distribution and abundance of the BTF. Only by quantifying these relationships will the impacts of changing availability of water on the population viability of the species be reliably predicted.

Environmental Authority condition I9.

The baseline research program under Condition I6 must (a) establish whether Ten Mile Bore and surrounds are high value habitat for the species, and (b) establish management actions to maintain the current BTF population at Ten Mile Bore and surrounds.

The BTFMP provides evidence that the Ten Mile Bore area supports a notably large population of BTF and suitable habitat: *'Monitoring results indicate that the Project area, particularly the northern portion of Moray Downs, has consistently supported a large and relatively abundant population of BTF. This part of the Project area, referred to as Ten Mile Bore (in the north-west of the mining lease), appears especially favourable for the BTF due to the combination of large areas of grassy Eucalyptus melanophloia open-woodland and reliable water sources'* (p. 16 of Research Program). However, the BTFMP provides no description of how the significance of any particular site (such as Ten Mile Bore area) will be determined and quantified: such assessment should be made, and could be through regular censusing across seasons, mark-resighting studies, and identification of resources or locations that are critical at the most stressful times of the year. Assessment of important sites should also consider what factors make such sites important (e.g. history of light grazing, fire history, substrate variability, etc.).

If such quantitative studies determine that the Ten Mile Bore area (and/or any other site in the Project area) supports a disproportionate share (e.g. >20%) of the Project area's BTF population, or if proposed impact upon such specified sites can be predicted in Population Viability Analysis to significantly change the viability of the BTF in the entire Project area, then the BTFMP should include a commitment to appropriately manage that site and safeguard its BTF population.

The BTFMP provides little commitment to 'maintaining' the BTF population in the Ten Mile Bore area. It refers only to 'interim management' (Appendix D), with the limited consideration (at section 6.4.7) noting that *'mining-related disturbance of the area (will be avoided) until as late as possible'*. This indicates no commitment that this probably important area and population will be maintained.



Q4. Does the BTFMP as submitted provide management and mitigation measures that are based on the best available science and conservation knowledge?

As described in answer to Q2 above, a feature of the BTFMP is that there are still key knowledge gaps that impede management and consideration of conservation options and outcomes: the absolute and relative population size in the project area (and parts of it) is not known, there is no adequate established monitoring program, very little is known about their movements, and the BTF's responses to variation in the critical habitat determinants of fire and grazing management are not established. To have any confidence that the mitigation and management measures will deliver any – let alone, optimal – benefit to this species, these knowledge gaps need to be filled.

Some analyses presented in the BTFMP are sub-optimal and some crucial analyses are missing. For example, the habitat analyses use a relatively small dataset, are poorly described, and do not make use of currently accepted methods of habitat analysis and modelling (e.g. Elith and Leathwick 2009). State-of-the-art habitat modelling approaches, combined with expert opinion, should be applied to the characterisation and definition of habitat, and much stronger empirical evidence that links habitat attributes to density and population performance (e.g. breeding success) should be used to divide habitats into categories of non-habitat, marginal habitat, core habitat and critical habitat. From the way in which the temporal and geographic extent of surveys in which habitat are described in the BTFMP, it was unclear at which survey locations were the BTF not observed. Data on locations in which the BTF were not detected are as important as presence locations when modelling, defining and ranking habitat value. Assuming that habitat suitability was defined largely by BTF observations, there is a strong possibility that other areas and habitats might be critical during occasional resource bottlenecks, something which would be hard to detect and quantify through surveys alone, but which has major implications. In short, the BTFMP does not provide a clear basis for not regarding the entire Project area as BTF habitat. The approach to defining categories of habitat has implications for quantification of habitat to be lost and offset needs.

Moreover, there is no attempt at a quantitative population viability analysis to analyse the risks to the species of the project or the benefits arising from conservation management in the Project and offset areas. Population viability analysis (Wintle et al. 2005), coupled with quantitative risk assessment (Burgman 2005), is routinely used for important biodiversity policy issues such as this one, where the potential costs of poor decisions are high, both in terms of lost biodiversity or lost commercial opportunities. Approaches exist for modelling changes anticipated under impact and in offset areas under conservation management (e.g. Bekessy *et al.* 2009), but none have been used in the BTFMP.

Mitigation measures within the Project area remain largely untried and may deliver few benefits. Commensurability more generally relies on the provision of an offset area that will be managed such that improvement in habitat condition and finch abundance will offset losses in habitat and population size incurred on the mining lease. Provision of watering points, predator control and putatively improved grazing and fire management are key components in this plan for undeveloped parts of the Project area and for the Offset areas. However, almost no data are presented on how such actions will actually increase finch habitat and abundance, and over what time period, nor whether anticipated increases will actually compensate for losses such that there is no net loss of population size or increase in risk of extinction.

There appear to be important data omissions. For example, reliance on utilising grazing to improve and maintain habitat condition ignores findings of previous consultants' reports (Supplementary EIS Appendix J2, GHD 2013). These reports indicate that "the highest numbers of BTF are consistently recorded in the intact remnant vegetation dominated by *Eucalyptus melanophloia* woodlands (10.5.5) and the associated *E. similis* (10.5.1) and *E. populnea/brownii* woodlands (10.3.6 / 10.3.28). This vegetation on the site, especially in the north-west, west and south-west, is in particularly good condition due to the low level of artificial watering points, low degree of exotic pasture invasion, the presence of poison bush (*Gastrolobium grandiflora*) which is toxic to cattle, and seemingly a history of low or light grazing pressure. Many grass species that are considered ... vulnerable to disappear due to cattle



grazing, are diverse and of a high cover abundance (Kutt and Kemp 2012; O'Reagain and Bushell 2011). This includes a large number of grass species ... considered preferred food sources for the black-throated finch" (Black-Throated Finch Recovery Team 2007).

There are more robust protocols for monitoring than those described in the BTFMP; there are well-established mechanisms for evaluating the statistical power for monitoring programs (Elzinga et al. 2003); there are established mechanisms for evaluating varying levels of population loss or gain within population viability models (Wintle et al. 2005); and there are well established mechanisms for assessing the condition and stress levels in finch populations in northern Australia (which could help quantify impacts of disturbance, or benefits arising from management) (Maute et al. 2013; Legge et al. 2015), significant components of which are demonstrably effective with BTF (Maute et al. 2015).

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Q5. If the management and mitigation measures are not based on the best available science and conservation knowledge, from an expert's perspective what inclusions are necessary to ensure that the BTFMP is consistent with the best available science and conservation knowledge?

Many related issues have been detailed elsewhere in this report. A few of the key measures needed are reiterated here:

- (i) An analysis of existing survey data and approaches to monitoring to determine whether these are adequate, appropriate and sufficiently powerful to assess overall BTF population size in the Project Area and offset area and to detect meaningful changes in population trajectory.
- (ii) A commitment in the Research Program to assess temporal and spatial variability in the key resource for BTF, seeds, and the responses of these to the management of fire, grazing and other relevant factors.
- (iii) A commitment to significantly reduce stocking rates, or exclude stock, in the Project and Offset areas until research demonstrates what stocking rates are optimal for BTFs and their habitat.

As described in previous sections, the quality and spatial representation of the survey data in the impact and offset locations are limited given the number of years over which assessments have been occurring. It is crucial that state-of-the-art monitoring design protocols are developed and adopted so that the best possible information is provided that is most pertinent to the assessment of impact and design of optimal mitigation strategies.

Until population viability analysis modelling work is undertaken, it is not possible to assert that any claimed BTF population benefits of conservation actions are commensurate with the scale of impacts planned. A much broader array of impact, mitigation, and conservation management scenarios should be considered in a revised plan that includes quantitative risk assessments and predictions from a population viability analysis.

Significant knowledge gaps exist that currently preclude population modelling in support of population viability analysis and optimization of management and impact mitigation options. A number of baseline research activities should be undertaken and knowledge gaps filled before the plan can be accepted. Specifically, (i) collection of robust count and mark-resight data to support baseline density estimates at impact and offset locations, (ii) collection and analysis of movement, habitat utilization and food availability data under varying environmental and management settings, and (iii) compilation of existing data, and where necessary, new data collection to fill knowledge gaps about BTF survival and fecundity under habitat and seasonal variability.



Q6. Overall, from a scientific expert's perspective does the BTFMP as submitted provide an acceptable approach to plan, manage and mitigate the impacts of the proposed Carmichael Coal Mine of BTF populations and habitat within the project area?

The set of planning, management and mitigation actions outlined in BTFMP provides insufficient assurance that the population of BTF in the Project Area will be maintained. Many relevant details of the conservation management requirements for it are currently unknown. The research, monitoring and management framework and protocols are superficial and untested; as described in the BTFMP, it is likely to take many years for the limited Research Program to provide sufficient evidence to ensure that optimal management is implemented; responses to predicted or unpredicted impacts are too discretionary; and the resourcing of the Research Program is not well defined and is insufficient to ensure that the research objectives are realised. The only real certainties are that the BTF will disappear from areas subject to habitat clearing and mining. The BTFMP provides no assurance that numbers will increase in other areas in a way that compensates for the certain losses incurred through clearing and mining.

The monitoring and research components are treated as if they are mutually exclusive. BTF monitoring and research should be tightly coupled. At present, the BTFMP section on population monitoring lists a series of possible monitoring techniques but neither that, nor the Research Plan, details how these will identify thresholds of change or detect ecological responses to environmental change that are crucial to detect. As methods for detecting meaningful levels of change have proved problematic with BTF and other tropical finches, this needs to be a top priority for research.

The Research Program fails to consider the range of threats and issues raised under Question 1 of this review, including the dynamics of the metapopulation, the cumulative effects of development in the metapopulation area, and the interaction between the nominated stressors and between these stressors and climate change. Interspecific comparisons of granivore ecology have been most informative in identifying the stressors on other threatened finches in northern Australia (e.g. Dostine & Franklin 2002; Brazill-Boast *et al.* 2010; Legge *et al.* 2015; Franklin *et al.* 2017) and should be incorporated into the Research Program.

There is nothing in the outlined Research Program about the vegetation dynamics of BTF habitat. Vegetation dynamics have the potential to explain why BTF occur patchily in the landscape, why they may have retreated to particular portions of the landscape, and how this may change over time. There are many issues that require investigation, including, but not restricted to:

- The basic natural history of the grasses, such as when seed is produced and dropped;
- What environmental factors (e.g. edaphic, climate) influence seed quality, quantity and spatial distribution; and
- What factors influence local variation in the composition of the ground layer, including interspecific competition and other interactions (both within the grass layer and with the tree layer), as well as edaphic factors?

Q7. Please provide any additional comments on the BTFMP as submitted, which would ensure that the BTFMP better meets its objective as stated in the Environmental Authority conditions.

All relevant points are covered in other questions and below.

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Recommendations to the Department regarding a science-based response to the BTFMP

In its current form, the BTFMP does not meet the content requirements of an acceptable plan to manage an endangered species. There is insufficient information currently available for this species in general, and in this area specifically, to assess impacts of the development upon the viability of the southern BTF, or to ensure that the proposed management and mitigation actions will be successful. The population size in the Project Area is not known and cannot be calculated from the methods so far employed or the data provided; the capability of the Offset area to support a compensatory increase in population is unknown. The existing and proposed monitoring do not constitute an adequate or sufficiently robust monitoring program; hence, meaningful changes in population sizes are unlikely to be detected with sufficient reliability or timeliness to trigger remedial responses. If management actions are found to be insufficient or if unanticipated losses to the BTF population in the Project area, there is little assurance that adequate remedial responses will be implemented. The research described in the BTFMP to inform appropriate management aimed at enhancing BTF habitat quality and abundance is not sufficiently well described, or strategically conceptualized, and is likely to take many years to provide the necessary information and cost considerably more than has been budgeted. The BTFMP provides no assurance that – even if identified – such optimal management will be implemented: for example, the BTFMP generally assumes the ongoing maintenance of cattle grazing in areas not yet developed (contrary to the Bioregional Management Plan for BTF), and that fire management will be contingent on factors additional to BTF requirements. The Research Program does not include adequate consideration of the key resource for this species – the availability of seeds.

Given these concerns and concerns expressed in our responses to Questions 1 to 6, the Panel considers that the BTFMP, as presented, does not provide adequate assurance (i) that the research program design and implementation will be sufficient to fill current critical knowledge gaps that constrain effective management, (ii) hence that management and mitigation actions will provide benefits to the BTF that are commensurate with the likely losses due to mining and infrastructure development, and (iii) hence, that the viability of the BTF population in the Project Area and surrounding areas can be sustained.

To provide such assurance, the BTFMP requires substantial elaboration and enhancement. The main directions for such enhancement are outlined below. Note that where possible in the remarks below, the Panel seeks to note not only actions, but more importantly to identify and explicitly define relevant (or necessary) outcomes and outputs.

Population estimate

Notwithstanding results presented in the BTFMP from many years of survey, the BTFMP is unable to provide a robust estimate of the BTF population in the Project area. Without such an estimate, it is almost impossible to assess the absolute and relative quantity of any impact or commensurability arising from any management benefit. The design and implementation of the Research Program should be revised to ensure that the census design (complemented with mark-recapture studies) is sufficient to establish a population estimate for the Project area with confidence limits of no more than +/-10%. This estimate should be derived within 1 year of the research program.

Monitoring

A far more explicitly defined and robust monitoring program is required. It should be designed in a way that ensures it is characterised by: (i) appropriate statistical power, (ii) the ability to directly measure impacts and responses to individual research and conservation management investments (e.g. grazing trials) at the Project site level; (iii) attributes that allow it to inform and integrate directly with monitoring at the Offset sites, to allow for coherent reporting of population trend across both categories of sites; (iv) explicit, sound and conservative trigger points directly relating to BTF population size, with assured mitigation responses when triggers are breached; and (v) the production of results that can be analysed annually and interpreted and reported publicly .

To help specify the level of monitoring acuity and effort required, the Panel recommends that the monitoring program be designed and implemented in such a manner that by Year 2 from now it can reliably (>90% chance) detect a change



of +/- 10% over a 12-month period in the population size of BTF in the project area, and attribute causality to any such change.

The Panel notes that the Approval conditions and Offset calculations relate to responses of habitat condition to management. The Panel recommends that monitoring should relate directly to changes in BTF population sizes in addition to monitoring changes in habitat condition. This is partly because what constitutes variation on habitat condition is currently poorly understood, and partly because monitoring change in finch populations is a more direct way to track the effects of management and impacts on the species.

Population Viability Analyses (PVA) and Modelling

The BTFMP, as presented, includes no consideration of assessments of population viability, a relevant context and mechanism for collating and interpreting data, particularly for evaluating the many components of BTF biology, such as demography, population substructuring and responses to impacts and management options. Such a PVA would help identify aspects of the biology of the species which may be most critical for management interventions and can predict and extrapolate benefits and impacts to the population level from localised research trials.

To help specify the outcome required, the Panel recommends that a population viability model for the BTF in the Project Area and nearby areas, including the Offset Areas be established within 12 months, with ongoing application to contextualise and use results from monitoring and management research trials. Such a model should also be used as the basis for assessing commensurability of management relative to impacts in the Project Area, and also to confirm the adequacy of the offsets. The PVA should also be used to help guide the setting of triggers in monitoring programs.

Grazing management

The Bioregional BTF Plan recognises that one of the main drivers of the decline of BTF is livestock grazing pressure, and that BTF populations are often highest in areas that are ungrazed or lightly grazed. The BTFMP provides no commitment to reducing grazing pressure in the Project Area in order to benefit the BTF. The Panel recommends that, until research trials demonstrate otherwise, the stocking rate in the Project area should be significantly reduced to conservatively low rates, and that grazing be excluded from key areas for BTF (such as Ten Mile Bore area). This reduction and exclusion from key areas should happen at Project inception.

Dust impacts

Modelling of the dispersion, deposition and accumulation of dust from mine disturbance areas, taking into account prevailing wind and rainfall patterns including seasonal and year-to-year variation in them, should be undertaken prior to commencement of that disturbance. This will allow a preliminary appraisal of its consequences for BTF and its habitat and the need for mitigation. It will also provide a framework for experimental consideration of dust impacts on vegetation, food sources and BTF directly that should be undertaken as part of the Research Plan during the first three years of the Project, and hence the setting of response thresholds for mitigation for much of the life of the Project.

Seed availability and its responses to management

A key resource for BTF is food: grass seeds. Seed availability varies seasonally and across the landscape, with different habitats and in response to fire, grazing and other management. Research for many other finches in northern Australia has shown that seed is scarce at certain times of year (typically the late dry season and early wet season), and that the nutritional quality of seeds can also be affected by management. Periods of seed scarcity are crucial times in the biology of finches – which plant species provide seeds at such times, the particular locations where such seeds are available, and management actions that enhance the abundance of seeding at such times, that may dictate whether or not individual finches survive, and hence whether the population can be viable. The Research program as outlined provides little indication that food resources will be examined in sufficient detail to identify these critical aspects of BTF viability. The Panel recommends that a major component of the research program should be directed to assessing seed availability throughout the year and the factors that affect it, especially at any critical periods of



seed scarcity. Within 3 years, such a research component should identify which plant species are most critical for the provision of seeds through the year, and have demonstrated how management can be used to enhance the abundance of these plant species and their seed production, especially during any critical periods that have been identified.

Rehabilitation

The BTFMP should more clearly identify how, where and when it can contribute to ensuring that rehabilitation of disturbed areas is undertaken in a manner that most quickly and reliably restores key components of BTF habitat to those disturbed areas. For example, research should identify those plant species that provide critical food resources to BTF during seasons of general landscape-scale food shortages. Rehabilitation planning should then ensure that such plant species are readily available for broad-scale revegetation, and that there is adequate propagation and management knowledge to ensure that such use in revegetation is successful.

BTF home range and dispersal

Population viability analysis will not be possible without a strong understand of BTF movement ecology, including assessment of its home range and dispersal. A detailed synthesis of BTF and closely related species movement biology should be developed as soon as possible and integrated with telemetry studies of local populations to provide a strong understanding of movement and dispersal. The technologies now available for tracking the movements of biologically meaningful samples of small birds in real time has been advancing rapidly and should not be considered prohibitive. The panel suggests that this component of the research program be completed within two years.

Important populations and locations

The BTFMP should prioritise identification and site-management planning and rehabilitation to ensure protection and optimisation of BTF habitat in key locations such as Ten Mile Bore. It should provide specific quantitative criteria defining whether any subpopulations or locations in the Project Area are important (e.g. if loss of such subpopulations or locations reduce the viability of the overall population in the Project Area). It should also provide explicit commitment to ensuring the protection of such locations or subpopulations, if such importance is demonstrated.

Triggers and remedial response

To provide assurance that this project will not drive the BTF to extinction, in the region or globally, it will be necessary to re-shape the BTFMP to ensure:

- (iv) a monitoring program is designed and implemented that is powerful enough to learn within 5 years of the commencement of the open cut portion of the mine whether, with high certainty (>95%), the planned conservation actions within the Project Area *and* the offset area bring increases to BTF populations commensurate with anticipated losses through destruction of the known habitat, primarily that in the area proposed for underground mining, and
- (v) monitoring and research can demonstrate explicitly and quantitatively the responses (degree of benefit or loss) of the BTF arising from the management and mitigation actions and offsets, and whether these are adequate to compensate for anticipated BTF population losses caused by further mining in the high-quality habitat. If this is not the case, then this should trigger a hold on mining in the higher quality BTF habitat areas until appropriate and enhanced offsets can be found that deliver benefits to the species commensurate with the impending impacts, with high confidence and to the satisfaction of regulators and independent scrutiny, and
- (vi) independent scrutiny is established to oversee and approve all aspects of the monitoring and research design and implementation, the analysis and interpretation of monitoring and



research results, and establishment of appropriate triggers that will ensure destruction of BTF habitat does not proceed unless sufficient confidence that mitigation and offset with bring increases to BTF populations commensurate with anticipated losses.

A sound knowledge of species-habitat relationships underpins appropriate scheduling of research and monitoring activities. Given the lack of confidence about current approaches described in the BTFMP to defining, quantifying and categorising BTF habitat suitability, it is essential that enhancement of the approach to understanding species-habitat relationships be instituted immediately.

Enhancements to the BTFMP described in this section need to be established immediately as the basis for management prior to the commencement of impacts.

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References

- Bekessy SA *et al.* 2009. Modelling human impacts on the Tasmanian wedge-tailed eagle (*Aquila audax fleayi*). *Biological Conservation* 142: 2438-2448.
- Brazill-Boast J, Pryke SR, Griffith SC. 2010. Nest-site utilisation and niche overlap in two sympatric, cavity-nesting finches. *Emu* 110: 170-177.
- Brook BW, Sodhi NS, Bradshaw CJA. 2008. Synergies among extinction drivers under global change. *Trends in Ecology & Evolution* 23: 453-460.
- Brys R, Jacquemyn H, De Blust G. 2005. Fire increases aboveground biomass, seed production and recruitment success of *Molinia caerulea* in dry heathland. *Acta Oecologica* 28: 299-305.
- Burgman, M. A. 2005. Risks and decisions for conservation and environmental management. Cambridge University Press, Cambridge, UK.
- Crowley G, Garnett S. 1999. Seeds of the annual grasses *Schizachyrium* spp. as a food resource for tropical granivorous birds. *Australian Journal of Ecology* 24: 208-220.
- Crowley GM, Garnett ST. 2001. Growth, seed production and effect of defoliation in an early flowering perennial grass, *Alloteropsis semialata* (Poaceae), on Cape York Peninsula, Australia. *Australian Journal of Botany* 49: 735-743.
- Department of Environment and Science (2018) 'Black-throated Finch Bioregional Management Plan – Draft outline for consultation.' Brisbane.
- Dostine PL, Franklin DC. 2002. A comparison of the diet of three finch species in the Yinberrie Hills area, Northern Territory. *Emu* 102: 159-164.
- Dostine PL, Johnson GC, Franklin DC, Zhang Y, Hempel C. 2001. Seasonal use of savanna landscapes by the Gouldian finch, *Erythrura gouldiae*, in the Yinberrie Hills area, Northern Territory. *Wildlife Research* 28: 445-458.
- Elith, J. & Leathwick, J. R. 2009. Species Distribution Models: Ecological Explanation and Prediction Across Space and Time. *Annu. Rev. Ecol. Evol. Syst.* 40, 677–697.
- Elzinga, C. L., Salzer, D. W., Willoughby, J. W. & Gibbs, J. P. 2001. Monitoring plant and animal populations. Blackwell Science, Inc..
- Franklin DC, Legge S, Skroblin A, Heathcote J, Maute K, Schaefer DJ, Garnett ST. 2017. Wings of tropical finches: interspecific differences in shape are consistent with levels of mobility, but moult and feather fault patterns are more complex. *Emu* 117: 370-381.
- Franklin DC, Whitehead PJ, Pardon G, Matthews J, McMahon P, McIntyre D. 2005. Geographic patterns and correlates of the decline of granivorous birds in northern Australia. *Wildlife Research* 32: 399-408.
- Garnett, S.T., Franklin, D.C., Ehmke, G., VanDerWal, J.J., Hodgson, L., Pavey, C., Reside, A.E., Welbergen, J.A., Butchart, S.H.M., Perkins, G.C. and Williams, S.E. 2013. Climate change adaptation strategies for Australian birds. National Climate Change Adaptation Research Facility, Gold Coast.
- Garnett ST, Szabo JK, Dutson G (2011) 'The action plan for Australian birds 2010.' (CSIRO Publishing: Collingwood)
- James CD, Landsberg J, Morton SR (1999) Provision of watering points in the Australian arid zone: a review of effects on biota. *Journal of Arid Environments* 41, 87-121.
- Landsberg J, James CD, Morton SR, Hobbs T, Stol J, Drew A, Tongway H (1997) 'The Effects of Artificial Sources of Water on Rangeland Biodiversity.' Environment Australia & CSIRO, Canberra.
- Laurance WF, Useche DC. 2009. Environmental synergisms and extinctions of tropical species. *Conservation Biology* 23: 1427-1437.
- Legge S, Garnett S, Maute K, Heathcote J, Murphy S, Woinarski JCZ, Astheimer L. 2015. A landscape-scale, applied fire management experiment promotes recovery of a population of the threatened Gouldian Finch, *Erythrura gouldiae*, in Australia's tropical savannas. *PLoS One* 10: e0137997.
- Lewis M. 2007. Foraging responses of the endangered Gouldian Finch to temporal differences in seed availability in



northern Australian savanna grasslands. In *Temporal Dimensions of Landscape Ecology - Wildlife Responses to Variable Resources*, ed. JA Bissonette, I Storch, pp. 218-235. Springer US: ??

- Maute K, French K, Legge S, Astheimer L, Garnett S. 2015. Condition index monitoring supports conservation priorities for the protection of threatened grass-finch populations. *Conservation Physiology* 3: Article Number: cov025.
- Maute KL, French K, Legge S, Astheimer L. 2013. Seasonal stress physiology and body condition differ among co-occurring tropical finch species. *Journal of Comparative Physiology B-Biochemical Systemic and Environmental Physiology* 183: 1023-1037.
- Rees JD, Kingsford RT, Letnic M. 2017. In the absence of an apex predator, irruptive herbivores suppress grass seed production: Implications for small granivores. *Biological Conservation* 213: 13-18.
- Şekercioğlu ÇH, Primack RB, Wormworth J. 2012. The effects of climate change on tropical birds. *Biological Conservation* 148: 1-18.
- Stork NE, Coddington JA, Colwell RK, Chazdon RL, Dick CW, Peres CA, Sloan S, Willis K. 2009. Vulnerability and resilience of tropical forest species to land-use change. *Conservation Biology* 23: 1438-1447.
- Vanderduys EP, Reside AE, Grice A, Rechetelo J. 2016. Addressing potential cumulative impacts of development on threatened species: the case of the endangered black-throated finch. *PLoS ONE* 11: e0148485.
- Weier A, Radford IJ, Manson A, Durrans LJ, Lawes MJ. 2017. Frequent fires reduce the nutritional quality of *Sorghum stipoideum* seed, a keystone food resource for the Gouldian finch (*Erythrura gouldiae*). *Rangeland Journal* 39: 105-112.
- Weier A, Radford IJ, Woolley L-A, Lawes MJ. 2018. Fire regime effects on annual grass seeds as food for threatened grass-finch. *Fire Ecology* 14: Article Number: UNSP 8.
- Wintle B.A., S.A. Bekessy, J.L. Pearce, L.A. Veneir & R.A. Chisholm. 2005. Dynamic landscape metapopulation models for sustainable forest management. *Conservation Biology* 19:1930-1943.
- Woinarski JCZ, Williams RJ, Price O, Rankmore B (2005) Landscapes without boundaries: wildlife and their environments in northern Australia. *Wildlife Research* 32, 377-388.



Appendix 1. Review Terms of Reference

Task:

To undertake an independent external scientific review of the Black-throated Finch Management Plan as submitted by Adani to the Environmental Services and Regulation (ESR) division of the Queensland Department of Environment and Science.

Questions:

1. Does the Black-throated Finch Management Plan (BTFMP) as submitted identify and address all the impacts with respect to the proposed loss and disturbance of Black-throated Finch habitat, the impact on Black-throated finch populations.
2. Are the proposed management and mitigation measures as detailed in the BTFMP commensurate with the impacts?
3. Within the scope of the Environmental Authority conditions (16, 18 and 19), are there any significant omissions that should be addressed in the BTFMP?
4. Does the BTFMP as submitted provide management and mitigation measures that are based on the best available science and conservation knowledge?
5. If the management and mitigation measures are not based on the best available science and conservation knowledge, from an expert's perspective what inclusions are necessary to ensure that the BTFMP is consistent with the best available science and conservation knowledge?
6. Overall, from a scientific expert's perspective does the BTFMP as submitted provide an acceptable approach to plan, manage and mitigate the impacts of the proposed Carmichael Coal Mine on the Black-throated Finch populations and habitat within the project area?
7. Please provide any additional comments on the BTFMP as submitted, which would ensure that the BTFMP better meets its objectives as stated in the Environmental Authority conditions.

Deliverables:

- A written review agreed by the Expert Panel of the Black Throated Finch Management Plan as submitted.
- Written recommendations to the department regarding a science-based response to the Black Throated Finch Management Plan.



Appendix 2. Scope and purpose of the BTFMP (taken from BTFMP)

This BTF Management Plan is specific to the Carmichael Coal Mine and associated infrastructure component of Adani's overall mine and rail project. This document is a BTF Management Plan for the Carmichael Coal Mine (which includes open cut and underground mining) and required associated infrastructure which includes workers' accommodation, an airport, and water supply infrastructure. These combined components of the development are hereafter referred to as the Project (**Figure 1**). This management plan describes the proposed management of direct and indirect impacts of mining operations on BTF which will be implemented throughout the Project.

The management of the BTF for the rail link component of the Carmichael Coal Mine and Rail Project and the NGBR are addressed in separate documents. Additionally, Species Management Plans for other threatened species and ecological communities, groundwater dependent ecosystems are also addressed in separate documents.

The purpose of the BTF Management Plan is to meet the conditions of approval granted by the Queensland and Commonwealth governments, and commitments made by Adani in securing these approvals. The BTF Management Plan is consistent with relevant guidelines and policies on the protection of Matters of National Environmental Significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and the management of threatened species listed under the Queensland *Nature Conservation Act 1992* (NC Act).

The BTF Management Plan details the management actions and monitoring requirements for the Carmichael Mine to minimise and mitigate impacts prior to and during construction. Management and monitoring actions apply to mining-related activities across the Project area, including those conducted on ML70505, ML70506 and ML70441. Conceptually, the adaptive management approach to be implemented applies to areas that will be disturbed by mining activities, areas of mining leases where no mining impacts are proposed, and offset areas where BTF habitat will be improved (**Figure 1**).

However, in relation to the management of offset areas, it should be noted that a detailed Offset Area Management Plan: Moray Downs West (OAMP; C02 2017), has been developed with specific management actions to achieve offsets for a range of environmental values, including BTF. While the BTF management plan includes some reference to management of the offset area, reference should be made to the OAMP for details of specific management actions.

Objectives of the BTF Management Plan are as follows:

- Describe management objectives, performance criteria and practical measures (management actions) to mitigate impacts of the Project on BTF
- Describe monitoring measures that will be implemented to assess the effectiveness of mitigation measures, and inform adaptive management actions
- Describe triggers for the implementation of adaptive management and corrective actions
- Provide a consistent framework across the Project for the mitigation of risks to BTF
- Collate relevant Project commitments relating to mitigation and monitoring of BTF ecological values, to assist in streamlining their implementation, the monitoring of compliance and reporting
- Achieve consistency with other management plans for the Project, related to biodiversity offsets, groundwater dependent ecosystems, construction activities and operations
- Achieve compliance with relevant Commonwealth and Queensland approval conditions (**Appendix D**).

As required under Condition I6a) to c) and I8 of the EA the BTF Management Plan includes a BTF Research Program (**Appendix C**). The purpose of the BTF Research Program is to increase the knowledge of the ecological requirements of BTF populations within and adjacent to the Carmichael Coal Mine and by doing so, inform and improve management of the local populations. The Research Program outlines the studies to be undertaken to identify:

- Specific nesting and feeding requirements of the species



- Whether BTF in the Project Area are sedentary, local migratory or regionally migratory
- Any changes in of classification and / or impact on BTF habitat
- The relationship between water sources, woody habitat and food sources
- Population dynamics, including dietary requirements, home range, nesting requirements
- Responses of the BTF and its habitat to grazing management practices, fire management practices and water body locations

The Research Program will primarily focus on studies that will provide results and information that facilitate improving suitable BTF habitat within the Moray Downs West offset area as well as habitat within ML70506 where no impacts from mining are proposed.

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0
1
2
3

Contact: Professor Brendan Wintle, University of Melbourne, Victoria Australia, 3010. brendanw@unimelb.edu.au



Department of
Environment and Science

4 March 2019

Mr Dean Knudson
Deputy Secretary
Environment Protection Group
Department of the Environment and Energy
John Gorton Building, King Edward Terrace
Parkes Canberra ACT 2600

By email: dean.knudson@environment.gov.au

Dear Mr Knudson,

I refer to your email correspondence of 20 February 2019, requesting a copy of the final report (Final Report) of the expert panel engaged to review Adani Mining Pty Ltd's (Adani) Black-throated Finch Management Plan (BTFMP).

The Department of Environment and Science (the department) understands that you have requested a copy of the final report in order to assess whether there is anything in the report that is relevant to the approvals granted to Adani by the Commonwealth under the *Environment Protection and Biodiversity Conservation Act (1999)* (Cth) (EPBC Act).

Given that the Queensland Government works closely with your department on EPBC Act matters, in accordance with the bilateral arrangements, we have agreed to provide you with a copy of the final report (see enclosed).

As a decision has not yet been made by the department on whether or not the draft BTFMP should be approved, the report is provided on a confidential basis and on the condition that its use is only for your internal purposes.

Any questions in relation to this correspondence please don't hesitate to contact Juliana McCosker at juliana.mccosker@des.qld.gov.au or (07) 4987 9343.

Yours sincerely

sch4p4(6) Personal information

Melissa Wells
Executive Director
Coal and Central Queensland Compliance
Environmental Services and Regulation

Date : 3/05/2019 4:47:58 PM
From : "MERRICK Jamie"
To : "ELLWOOD Dean" , "LAWRENCE Rob"
Subject : Fwd: BTFMP Status and Response
Attachment : DES re BTFMP - 20190503.pdf;ATT00001.htm;
Please see below.

Let's discuss strategy for response. Potentially with legal support.

Jamie

Sent from my iPhone

Begin forwarded message:

From: Lucas Dow sch4p4(6) Personal information
Date: 3 May 2019 at 4:38:47 pm AEST
To: "jamie.merrick@des.qld.gov.au" <jamie.merrick@des.qld.gov.au>
Subject: BTFMP Status and Response

Jamie,
Please find attached latest BTFMP correspondence.

Thanks
Lucas

3 May 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane Qld 4000

By email: jamie.merrick@des.qld.gov.au

Dear Mr Merrick

Adani Mining Pty Ltd - BTFMP

We refer to previous correspondence in relation to the Black-throated Finch Management Plan (**BTFMP**) and in particular to your Department's letter of 2 May 2019.

The letter states (emphasis added):

*"The department is of the view that it **cannot approve the BTFMP** in its current form because the document does not meet the requirements of conditions 16, 18 and 19 of the Carmichael Coal Mine environmental authority EMPL01470513 **for the reasons identified in Attachment A** to this letter."*

It appears that the letter and its attachment together form the Department's decision in relation to approval of the BTFMP.

Can you please urgently confirm whether your letter constitutes the Department's approval decision and, if so, whether you intend to provide further reasons for that decision (**Question 1**)?

Your letter goes on to say that Adani may submit a new or revised BTFMP at any time. To facilitate this, we would like confirmation that the matters addressed in Attachment A to your letter represent the final and complete list of issues that the Department wishes to see address with respect to the BTFMP as submitted (**Question 2**).

We ask that you provide a clear commitment from the Department with respect to the timing of any future steps required to obtain approval. While we appreciate some flexibility in any process, clearly an endless cycle of review and comment is untenable. Further, in order to properly consider and respond to the matters set out in Attachment A, we would require a more comprehensive understanding of the Department's position, including the rationale for the approach you have taken.

Adani Mining Pty Ltd
Level 25
10 Eagle Street, Brisbane QLD 4000
GPO Box 2569, Brisbane QLD 4001
Australia

Tel +61 7 3223 4800
www.adaniaustralia.com

In relation to Attachment A, we would like to understand (**Question 3**):

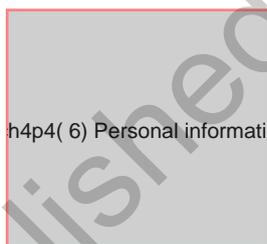
- (a) What is the scientific basis and evidence on which the Department relies to support each one of the recommendations?
- (b) To the extent any recommendations are based on scientific views, identify the experts on whom you rely and the facts that demonstrate their qualification to provide a view on these matters, including their qualifications.
- (c) Given the long history of engagement on the BTFMP and our comprehensive correspondence to you nearly seven weeks ago, why were these matters not raised in previous iterations of the draft BTFMP? What has influenced the Department's change in approach?
- (d) Explain how the consideration that you state was given to the Final Report of Prof. Wintle and his group was applied with respect to each of the issues and recommendations.
- (e) How do each of the recommendations relate to requirements of the EA?
- (f) What consideration was given to the detailed submissions provided by Adani on 15 March 2019 and further on 2 April 2019? How was this material weighed?
- (g) What authority is the DES relying upon, particularly what is the relevant legislative power and relevant section or sections (i.e. the specific enactment/s or regulation/s), to request the changes contained in your most recent letter?

We ask for your response to our questions 1 and 2 by **close of business Tuesday, 7 May 2019**.

We ask for your response to question 3 by **close of business Wednesday, 8 May 2019**.

This will assist us to prepare for the meeting with your Department scheduled for Friday, 10 May 2019.

Yours sincerely



Lucas Dow
Chief Executive Officer

Date : 1/03/2019 4:46:35 PM

From : "WELLS Melissa"

To : "MERRICK Jamie" , "ELLWOOD Dean" , "TRACEY Alena" , "HALLIDAY Genevieve"

Subject : Fwd: Request from Commonwealth DOEE

Attachment : image001.jpg;ATT00001.htm;image002.png;ATT00002.htm;Adani_Letter_DES_010319.pdf;ATT00003.htm;
FYI

Sent from my iPhone

Begin forwarded message:

From: Hamish Manzi [sch4p4(6) Personal information]
Date: 1 March 2019 at 4:36:20 pm AEST
To: WELLS Melissa <Melissa.Wells@des.qld.gov.au>
Subject: RE: Request from Commonwealth DOEE

Good afternoon Melissa,

I can confirm receipt and on behalf of Adani provide our response on this request.

Kind regards,

Hamish

Hamish Manzi

Head - Environment & Sustainability

E [sch4p4(6) Personal information]
P office: +61 7 3223 4800 | direct: [6) Personal info] mobile: [6) Personal info]
A Level 25, 10 Eagle Street, Brisbane, QLD, 4000
P GPO Box 2569, Brisbane, QLD, 4001
W adaniaustralia.com



1 March 2019

Ms Melissa Wells
Executive Director Coal and Central Queensland Compliance
Environmental Services and Regulation
Department of Environment and Science
PO Box 3028
Emerald Qld 4720

By email: Melissa.Wells@des.qld.gov.au

Dear Melissa

I can confirm receipt of your letter dated the 25 February 2019.

Adani's concerns in regards to the Department of Environment and Science's (DES) expert panel review of the Black-throated Finch Management Plan (BTFMP) have been communicated to DES on a number of occasions.

In particular, but not exclusively:

- the nature and process of the external review with regards to the independence and bias of those responsible for that review;
- the conclusions of the review that are inconsistent with the science underpinning the environmental impact assessment process, relevant government conservation advice and the relevant conditions of the Environmental Authority;
- the premise that there are knowledge gaps and therefore the project should not proceed on that basis.

For these reasons, and on the basis that Adani does not accept that the review provides value to the approval of the BTFMP (by DES), Adani does not support the provision of this review material to the Department of Environment and Energy.

Your Personal information

4(6) Personal information

Person: Jamish Manzi

Personal information

Department of Environment & Sustainability

cc: Jamie Merrick, Director-General – Department of Environment and Science
jamie.merrick@des.qld.gov.au

Adani Mining Pty Ltd
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Date : 10/04/2019 12:21:17 PM

From : "BENNINK Kate"

To : "LOWE Trinity"

Cc : "ELLWOOD Dean"

Subject : Plans table

Attachment : Document1.docx;

Trin, inserted simplest description of timing against OAMP. Cheers Kate

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CARMICHAEL COAL AND RAIL PROJECT – FURTHER PLANS REQUIRED

Further Plans required			
	Description	Jurisdiction	When required
1	Black-throated Finch Management Plan	Queensland	Before mining operations commence
2	Groundwater Dependent Ecosystems Management Plan	Queensland	Before mining operations commence
3	Groundwater Management and Monitoring Plan	Queensland	Before first box cut (first extraction of coal)
4	Great Artesian Basin Springs Research Plan	Commonwealth	Before first box-cut (first extraction of coal)
5	Rewan Formation Connectivity Research Plan	Commonwealth	Before first box-cut (first extraction of coal)
6	Offset Area Management Plan Moray Downs West – Offset Delivery Stage 1 – Carmichael Coal and Rail	Commonwealth & Queensland	For Queensland, this is prior to impacting Matters of State Environmental Significance.
7	Seismic Survey Management Plan	Commonwealth	Before seismic survey activities (not currently required)
8	Subsidence Management Plan	Queensland	Prior to commencing underground mining (not currently required)
9	Groundwater Model Review	Queensland	Within 2 years of the first box cut (first extraction of coal)
10	Groundwater Monitoring Network	Queensland	Before first box-cut (first extraction of coal)

Date : 23/05/2019 2:39:28 PM
From : "MCCOSKER Juliana"
To : "ELLWOOD Dean" , "WELLS Melissa"
Subject : re. BTFMP and GDEMP
Attachment : image001.png;image003.png;
Hi Dean and Melissa,

Please note, as the delegate for the approvals of the Black-throated Finch Management Plan and the Groundwater Dependent Ecosystem Management Plan and in accordance with the environmental authority requirements for Carmichael Coal Mine, any required potential commitments for additional work will not preclude the commencement of Project stage 2 activities at the mine site.

Ciao for now

Juliana



Juliana McCosker
Manager
Business Centre Coal - Coal and Central Queensland Compliance
Department of Environment and Science
P 07 4987 9356 M Personal ir
99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

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RTI Act 2009

Date : 18/04/2019 12:17:03 PM
From : "CAGNEY Justin"
To : "ELLWOOD Dean"
Cc : "MERRICK Jamie" , "WELLS Melissa"
Subject : RE: DES Advancement of Adani's Environment Management Plans
Attachment : RE: BTFMP Document;image002.png;image003.png;image004.jpg;image005.jpg;

Dean,

Please see attached my response to Mr Fennelly of 17 April 2019.

Regards,



Justin Cagney
A/Executive Director
Coal and Central Queensland Compliance
Department of Environment and Science

P 07 4837 3318

209 Bolsover Street Rockhampton 4700
PO Box 413 Rockhampton 4700



From: Paul Fennelly [sch4p4(6) Personal information]
Sent: Thursday, 18 April 2019 11:18 AM
To: ELLWOOD Dean
Cc: MERRICK Jamie; WELLS Melissa; CAGNEY Justin; Lucas Dow; Hamish Manzi
Subject: DES Advancement of Adani's Environment Management Plans

Dean

I refer to the letter sent by Lucas Dow to Jamie Merrick on 12 April relating to the GDEMP. The penultimate paragraph states – "we ask again that the Department immediately provide us with clarity as to the next steps to apply these principles and the timing of each step to the approval." We are yet to receive a response from the Department of Environment and Science.

Yesterday I wrote to Melissa Wells stating - *Juliana and yourself indicated in our teleconference (Tuesday 9 April) that you would be sending a document/letter to Adani Australia later in the week. You described this document as containing further issues and clarifications relating to the Black Throated Finch Management Plan that DES intends to raise with Adani. Could you please clarify when the document will be sent to Adani.* We are yet to receive a response for Melissa Wells or Justin Cagney who also received this email.

Adani Australia is eager to progress the GDEMP, GMMP and BTFMP so that we can get on with the task of delivering thousands of jobs for Queenslanders, accordingly could you please as a matter of urgency advise me when the Department is able to meet with representatives of Adani.

Regards

Paul

Paul Fennelly
Head - Government and Corporate Affairs

E [sch4p4(6) Personal information]
P office: +61 7 3223 4800 | direct: (6) Personal info | mobile: (6) Personal info
A Level 25, 10 Eagle Street, Brisbane, QLD, 4000
P GPO Box 2569, Brisbane, QLD, 4001
W adaniaustralia.com



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Date : 17/04/2019 5:21:01 PM
From : "CAGNEY Justin"
To : "Paul Fennelly"
Subject : RE: BTFMP Document
Attachment : image002.png;image003.png;image004.jpg;image005.jpg;

Hi Paul,

Thanks for the email.

I will make some enquiries internally and get back to you.

Regards,



Justin Cagney
A/Executive Director
Coal and Central Queensland Compliance
Department of Environment and Science

P 07 4837 3318

209 Bolsover Street Rockhampton 4700
PO Box 413 Rockhampton 4700



From: Paul Fennelly [sch4p4(6) Personal information]
Sent: Wednesday, 17 April 2019 12:52 PM
To: CAGNEY Justin
Subject: FW: BTFMP Document

Justin

Could you please assist with the below request?

Thanks

Paul Fennelly
Head - Government and Corporate Affairs

E [sch4p4(6) Personal information]
P office: +61 7 3223 4800 | direct: [6) Personal info] | mobile: [6) Personal info]
A Level 25, 10 Eagle Street, Brisbane, QLD, 4000
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From: Paul Fennelly
Sent: Wednesday, 17 April 2019 10:31 AM
To: WELLS Melissa <Melissa.Wells@des.qld.gov.au>
Cc: MCCOSKER Juliana <Juliana.Mccosker@des.qld.gov.au>; Hamish Manzi [sch4p4(6) Personal information]; Melinda Bergmann [sch4p4(6) Personal information]
Subject: BTFMP Document

Hi Melissa

Juliana and yourself indicated in our teleconference on Tuesday 16 April that you would be sending a document/letter to Adani Australia later in the week. You described this document as containing further issues and clarifications relating to the Black Throated Finch Management Plan that DES intends to raise with Adani.

Could you please clarify when the document will be sent to Adani.

Thank-you

Paul Fennelly

Head - Government and Corporate Affairs

E [sch4p4\(6\) Personal information](#)

P office: +61 7 3223 4800 | direct: [\(6\) Personal info](#) mobile: [\(6\) Personal info](#)

A Level 25, 10 Eagle Street, Brisbane, QLD, 4000

P GPO Box 2569, Brisbane, QLD, 4001

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Date : 13/03/2019 5:05:57 PM

From : "DLO DES"

To : "MERRICK Jamie" , "TRACEY Alena"

Subject : FW: TO DG - for approval - dot point brief for Minister re BTFMP

Attachment : 130319 Dot Point Brief - Adani BTFMP.docx;image001.png;image003.png;image004.png;image005.png;image006.png;

Hi Jamie/Alena – please find attached speaking points prepared for the Minister regarding the Adani Black Throated Finch Management Plan – for your approval please.

Thanks,
Raylene



Raylene Orellana
Departmental Liaison Officer
Office of the Director-General
Department of Environment and Science

Ph: 3330 6271
raylene.orellana@des.qld.gov.au | Level 32, 1 William Street, Brisbane



From: LEWIS Kieran
Sent: Wednesday, 13 March 2019 5:00 PM
To: DLO DES
Cc: Pamela Frost; ELLWOOD Dean; GRANT Andrea; SENGERS Nathalie; Media DES
Subject: DLOs - for approval - dot point brief for Minister re BTFMP
Importance: High

Good afternoon DLOs

For ODG approval and progression to the Minister's Office please.

The attached speaking points re the Adani Black-Throated Finch Management Plan have been approved to DDG level.

Regards

Kieran Lewis
Media Services
Department of Environment and Science
media@des.qld.gov.au

Level 31 | 400 George Street | Brisbane
Tel 07 3339 5887 / (6) Personal info
www.des.qld.gov.au

If you are emailing about a media matter, please cc media@des.qld.gov.au

From: Pamela Frost
Sent: Wednesday, 13 March 2019 2:28 PM
To: DLO DES; Media DES
Cc: GRANT Andrea
Subject: Black throated Finch

Hi team,

The Minister is standing up in the morning at Queensland Museum.
Can I please get some info through this afternoon on what the latest is with the assessment of the Black Throated Finch Management Plan?
Can I please get this by COB today?

Thanks,
Pam



Pamela Frost

Senior Media Advisor

Office of the Hon. Leeanne Enoch MP

Minister for Environment and the Great Barrier Reef,
Minister for Science, Minister for the Arts

P 07 3719 7149 M **6) Personal inf**

1 William Street Brisbane QLD 4000 GPO Box 5078 Brisbane QLD 4001

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RTI Act 2009

Department of Environment and Science

SECURITY CLASSIFICATION: UNCLASSIFIED

DOT POINT BRIEFING NOTE – MINISTER

Subject **Adani Black-Throated Finch Management Plan**

Points of relevance

- The Department of Environment and Science (DES) has invited Adani to make submissions about any aspect of the final review report by the independent scientific review of the company's Black-throated Finch Management Plan (BTFMP).
- Adani requested (and was granted) until Friday 15 March to make a submission.
- DES and Adani remain in regular contact regarding this matter (the most recent meeting was on 08 March) and the department has reiterated that it will continue to meet with Adani to progress matters, as it would with any proponent during this stage of the assessment process.
- DES has advised Adani that the independent panel's review report is advice only to the department in relation to its review of the BTFMP.
- DES will continue to work with Adani to ensure that an approved BTFMP will incorporate the best scientific advice and effectively manages the conservation of the Black-Throated Finch.
- The BTFMP is one of two environmental management plans that have to be approved by both the Commonwealth and the Queensland governments prior to any significant disturbance at the Carmichael mine site.
- The other is the Groundwater Dependent Ecosystem Management Plan (GDEMP).
- The Commonwealth Government approved the BTFMP on 18 December 2018. It is yet to approve the GDEMP, having sought a review of the plan from CSIRO and Geoscience Australia.
- Although there is no statutory requirement for the Queensland Government to approve these plans within a specific timeframe, DES will continue to work with Adani to continue to progress environmental approvals in a timely fashion.

BACKGROUND

- On 18 February 2019, DES forwarded to Adani the final report of the independent scientific panel's review of the Black-Throated Finch Management Plan (BTFMP).
- The BTFMP and the GDEMP are plans required by Adani's Environmental Authority for the Carmichael coal mine.

Contact: Melissa Wells, ED Coal and Central
Queensland Compliance
Ph: 4987 9343
Date: 13 March 2019

Endorsed: Dean Ellwood, DDG ESR
Ph: 07 3330 5628
Date: 13 March 2019

Date : 13/03/2019 5:19:12 PM

From : "TRACEY Alena"

To : "DLO DES"

Subject : FW: TO DG - for approval - dot point brief for Minister re BTFMP

Attachment : 130319 Dot Point Brief - Adani

BTFMP.docx;image001.png;image003.png;image005.png;image002.png;image007.png;image008.png;

Hi – good to go with some minor edits. Thanks



Alena Tracey
Executive Director
Office of the Director-General
Department of Environment and Science

E: alena.tracey@des.qld.gov.au
M: **6) Personal info**
Level 32, 1 William Street, Brisbane Qld 4000
Level 27, 400 George Street, Brisbane Qld 4000

From: DLO DES

Sent: Wednesday, 13 March 2019 5:06 PM

To: MERRICK Jamie; TRACEY Alena

Subject: FW: TO DG - for approval - dot point brief for Minister re BTFMP

Importance: High

Hi Jamie/Alena – please find attached speaking points prepared for the Minister regarding the Adani Black Throated Finch Management Plan – for your approval please.

Thanks,
Raylene



Raylene Orellana
Departmental Liaison Officer
Office of the Director-General
Department of Environment and Science

Ph: 3330 6271
raylene.orellana@des.qld.gov.au | Level 32, 1 William Street, Brisbane



From: LEWIS Kieran

Sent: Wednesday, 13 March 2019 5:00 PM

To: DLO DES

Cc: Pamela Frost; ELLWOOD Dean; GRANT Andrea; SENGERS Nathalie; Media DES

Subject: DLOs - for approval - dot point brief for Minister re BTFMP

Importance: High

Good afternoon DLOs

For ODG approval and progression to the Minister's Office please.

The attached speaking points re the Adani Black-Throated Finch Management Plan have been approved to DDG level.

Regards

Kieran Lewis
Media Services
Department of Environment and Science
media@des.qld.gov.au

Level 31 | 400 George Street | Brisbane
Tel 07 3339 5887 / **6) Personal info**
www.des.qld.gov.au

If you are enquiring about a media matter, please cc media@des.qld.gov.au

From: Pamela Frost
Sent: Wednesday, 13 March 2019 2:28 PM
To: DLO DES; Media DES
Cc: GRANT Andrea
Subject: Black throated Finch

Hi team,

The Minister is standing up in the morning at Queensland Museum.

Can I please get some info through this afternoon on what the latest is with the assessment of the Black Throated Finch Management Plan?

Can I please get this by COB today?

Thanks,
Pam



Pamela Frost

Senior Media Advisor

Office of the Hon. Leeanne Enoch MP

Minister for Environment and the Great Barrier Reef,
Minister for Science, Minister for the Arts

P 07 3719 7149 M **Personal info**

1 William Street Brisbane QLD 4000 GPO Box 5078 Brisbane QLD 4001

Department of Environment and Science

SECURITY CLASSIFICATION: UNCLASSIFIED

DOT POINT BRIEFING NOTE – MINISTER

Subject **Adani Black-Throated Finch Management Plan**

Points of relevance

- The Department of Environment and Science (DES) has invited Adani to make submissions about any aspect of the final review report by the independent scientific review of the company's Black-throated Finch Management Plan (BTFMP).
- Adani requested (and was granted) until Friday 15 March to make a submission.
- DES and Adani remain in regular contact regarding this matter (the most recent meeting was on 08 March). ~~and t~~The department has reiterated that it will continue to meet with Adani to progress matters, as it would with any proponent during this stage of the assessment process.
- DES has advised Adani that the independent panel's review report is advice only to the department in relation to its review of the BTFMP.
- DES will continue to work with Adani to ensure that an approved BTFMP will incorporate the best scientific advice and effectively manages the conservation of the Black-Throated Finch.
- The BTFMP is one of two environmental management plans that have to be approved by both the Commonwealth and the Queensland ~~G~~governments prior to any significant disturbance at the Carmichael mine site.
- The other is the Groundwater Dependent Ecosystem Management Plan (GDEMP).
- The Commonwealth Government approved the BTFMP on 18 December 2018. It is yet to approve the GDEMP, having sought a review of the plan from CSIRO and Geoscience Australia.
- Although there is no statutory requirement for the Queensland Government to approve these plans within a specific timeframe, DES will continue to work with Adani to continue to progress environmental approvals in a timely fashion.

BACKGROUND

- On 18 February 2019, DES ~~forwarded-provided a copy to Adani of~~ the final report of the independent scientific panel's review of the Black-Throated Finch Management Plan (BTFMP) ~~to Adani~~.
- The BTFMP and the GDEMP are plans ~~required-are a requirement in by~~ Adani's Environmental Authority for the Carmichael coal mine.

Contact: Melissa Wells, ED Coal and Central
Queensland Compliance
Ph: 4987 9343

Endorsed: Dean Ellwood, DDG ESR
Ph: 07 3330 5628
Date: 13 March 2019

Published on DES Disclosure Log
RTI Act 2009

Date : 13/03/2019 5:19:44 PM

From : "DLO DES"

To : "TRACEY Alena"

Subject : RE: TO DG - for approval - dot point brief for Minister re BTFMP

Attachment : image003.png;image004.png;image005.png;image006.png;image009.png;image010.png;image011.png;

Thank you!!!!



Raylene Orellana
Departmental Liaison Officer
Office of the Director-General
Department of Environment and Science

Ph: 3330 6271
raylene.orellana@des.qld.gov.au | Level 32, 1 William Street, Brisbane



From: TRACEY Alena
Sent: Wednesday, 13 March 2019 5:19 PM
To: DLO DES
Subject: FW: TO DG - for approval - dot point brief for Minister re BTFMP
Importance: High

Hi – good to go with some minor edits. Thanks



Alena Tracey
Executive Director
Office of the Director-General
Department of Environment and Science

E: alena.tracey@des.qld.gov.au
M: (6) Personal inf
Level 32, 1 William Street, Brisbane Qld 4000
Level 27, 400 George Street, Brisbane Qld 4000

From: DLO DES
Sent: Wednesday, 13 March 2019 5:06 PM
To: MERRICK Jamie; TRACEY Alena
Subject: FW: TO DG - for approval - dot point brief for Minister re BTFMP
Importance: High

Hi Jamie/Alena – please find attached speaking points prepared for the Minister regarding the Adani Black Throated Finch Management Plan – for your approval please.

Thanks,
Raylene



Raylene Orellana
Departmental Liaison Officer
Office of the Director-General
Department of Environment and Science

Ph: 3330 6271
raylene.orellana@des.qld.gov.au | Level 32, 1 William Street, Brisbane



From: LEWIS Kieran
Sent: Wednesday, 13 March 2019 5:00 PM
To: DLO DES

RTI 18-502

File A

Page 126 of 134

Cc: Pamela Frost; ELLWOOD Dean; GRANT Andrea; SENGERS Nathalie; Media DES
Subject: DLOs - for approval - dot point brief for Minister re BTFMP
Importance: High

Good afternoon DLOs

For ODG approval and progression to the Minister's Office please.

The attached speaking points re the Adani Black-Throated Finch Management Plan have been approved to DDG level.

Regards

Kieran Lewis
Media Services
Department of Environment and Science
media@des.qld.gov.au

Level 31 | 400 George Street | Brisbane
Tel 07 3339 5887 / **6) Personal inf**
www.des.qld.gov.au

If you are emailing about a media matter, please cc media@des.qld.gov.au

From: Pamela Frost
Sent: Wednesday, 13 March 2019 2:28 PM
To: DLO DES; Media DES
Cc: GRANT Andrea
Subject: Black throated Finch

Hi team,

The Minister is standing up in the morning at Queensland Museum.

Can I please get some info through this afternoon on what the latest is with the assessment of the Black Throated Finch Management Plan?

Can I please get this by COB today?

Thanks,
Pam



Pamela Frost
Senior Media Advisor
Office of the Hon. Leeanne Enoch MP
Minister for Environment and the Great Barrier Reef,
Minister for Science, Minister for the Arts

P 07 3719 7149 **M** **6) Personal inf**
1 William Street Brisbane QLD 4000 GPO Box 5078 Brisbane QLD 4001

Date : 7/05/2019 6:13:43 PM
From : "TRACEY Alena"
To : "'MERRICK Jamie (Jamie.Merrick@des.qld.gov.au)'"
Subject : 2019.05.07 DES to Adani
Attachment : 2019.05.07 DES to Adani.docx;

Published on DES Disclosure Log
RTI Act 2009

Our Ref: CTS



Department of
Environment and Science

Private and Confidential

7 May 2019

Mr Lucas Dow
Chief Executive Officer
Adani Mining Pty Ltd
Level 25, 10 Eagle Street
Brisbane QLD 4000

Dear Mr Dow

Black-throated Finch Management Plan (BTFMP)

I refer to your letter dated 3 May 2019, which responds to the department's letter dated 2 May 2019.

My responses to the three questions posed in your letter are as follows.

Question 1

I confirm that the department's 2 May 2019 letter constitutes notice to Adani Mining Pty Ltd (**Adani**) that the department cannot approve the current version of the draft BTFMP.

The department's reasons for its decisions are set out in the document described as 'Attachment A' and enclosed with the 2 May 2019 letter (**Attachment A**). The department does not propose to provide any further reasons for the decision.

Question 2

You will appreciate that as a matter of administrative law I am unable to fetter the discretion of a delegate who may be tasked with considering whether to approve any future draft of the BTFMP.

However, I am advised that:

- (a) the matters described in the column headed 'Requirement' in Attachment A are a comprehensive summary of the additional matters the department considers need to be addressed in the BTFMP; and
- (b) the department does not expect to identify any additional issues that would need to be addressed in the Plan.

I am further advised that the department is likely to view favourably a revised draft BTFMP that includes all of the information and commitments described in the 'Requirement' column.

For this reason, the timing of any further steps in relation to the BTFMP is now within Adani's control. The department will review any revised draft of the BTFMP that Adani chooses to submit as quickly as possible.

Question 3

I am surprised by question 3(c), which asks why matters set out in Attachment A were not previously raised with Adani. A review of the correspondence between Adani and the department regarding the BTMP will show that in fact these and related matters have been the subject of extensive discussion.

In response to question 3(e), the relationship between the conditions of EPML01470513 and the content in the columns in Attachment A headed 'Issue' and 'Requirement' is clear on the face of the document.

In response to question 3(g), conditions 16 and 19 of EPML01470513 were conditions stated for the proposed environmental authority for the Carmichael Mine in the Coordinator-General's report for the environmental impact statement (**EIS**) for the Carmichael Coal Mine and Rail Project. The Coordinator-General's power to state such conditions is conferred by section 47C of the *State Development and Public Works Organisation Act 1971* (**SDPWO Act**). Section 205 of the *Environmental Protection Act 1994* provides that if the administering authority approves an environmental authority application relating to a coordinated project under the SDPWO Act and makes the approval subject to conditions, the administering authority must impose any condition for the authority stated in the Coordinator-General's report for the EIS.

The other questions that form part of question 3 inquire about the evidence relied on by the delegate in reaching her decision and the weight she gave to different pieces of evidence. Those are matters for the delegate. As I have already stated, Attachment A sets out in detail the reasons why the delegate was unable to approve the current draft BTFMP, and provides a clear path for Adani to consider if it wishes to revise and resubmit the BTFMP.

Yours sincerely

Jamie Merrick
Director-General

/ /

Date : 1/03/2019 5:07:02 PM

From : "TRACEY Alena"

To : "LAWRENCE Rob"

Subject : FW: Request from Commonwealth DOEE

Attachment : image001.jpg;ATT00001.htm;image002.png;ATT00002.htm;Adani_Letter_DES_010319.pdf;ATT00003.htm;

From: WELLS Melissa

Sent: Friday, 1 March 2019 4:47 PM

To: MERRICK Jamie; ELLWOOD Dean; TRACEY Alena; HALLIDAY Genevieve

Subject: Fwd: Request from Commonwealth DOEE

FYI

Sent from my iPhone

Begin forwarded message:

From: Hamish Manzi [sch4p4(6) Personal information]

Date: 1 March 2019 at 4:36:20 pm AEST

To: WELLS Melissa <Melissa.Wells@des.qld.gov.au>

Subject: RE: Request from Commonwealth DOEE

Good afternoon Melissa,

I can confirm receipt and on behalf of Adani provide our response on this request.

Kind regards,

Hamish

Hamish Manzi

Head - Environment & Sustainability

E [sch4p4(6) Personal information]

P office: +61 7 3223 4800 | direct: [6) Personal info] | mobile: [6) Personal info]

A Level 25, 10 Eagle Street, Brisbane, QLD, 4000

P GPO Box 2569, Brisbane, QLD, 4001

W adaniaustralia.com



1 March 2019

Ms Melissa Wells
Executive Director Coal and Central Queensland Compliance
Environmental Services and Regulation
Department of Environment and Science
PO Box 3028
Emerald Qld 4720

By email: Melissa.Wells@des.qld.gov.au

Dear Melissa

I can confirm receipt of your letter dated the 25 February 2019.

Adani's concerns in regards to the Department of Environment and Science's (DES) expert panel review of the Black-throated Finch Management Plan (BTFMP) have been communicated to DES on a number of occasions.

In particular, but not exclusively:

- the nature and process of the external review with regards to the independence and bias of those responsible for that review;
- the conclusions of the review that are inconsistent with the science underpinning the environmental impact assessment process, relevant government conservation advice and the relevant conditions of the Environmental Authority;
- the premise that there are knowledge gaps and therefore the project should not proceed on that basis.

For these reasons, and on the basis that Adani does not accept that the review provides value to the approval of the BTFMP (by DES), Adani does not support the provision of this review material to the Department of Environment and Energy.

Your Personal i

4(6) Personal inform

erson: Hamish Manzi

5) Personal int

of Environment & Sustainability

cc: Jamie Merrick, Director-General – Department of Environment and Science
jamie.merrick@des.qld.gov.au

Adani Mining Pty Ltd
Level 25
10 Eagle Street, Brisbane QLD 4000
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Australia

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Fax +61 7 3223 4850
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Date : 1/03/2019 4:46:35 PM

From : "WELLS Melissa"

To : "MERRICK Jamie" , "ELLWOOD Dean" , "TRACEY Alena" , "HALLIDAY Genevieve"

Subject : Fwd: Request from Commonwealth DOEE

Attachment : image001.jpg;ATT00001.htm;image002.png;ATT00002.htm;Adani_Letter_DES_010319.pdf;ATT00003.htm;
FYI

Sent from my iPhone

Begin forwarded message:

From: Hamish Manzi [sch4p4(6) Personal information]

Date: 1 March 2019 at 4:36:20 pm AEST

To: WELLS Melissa <Melissa.Wells@des.qld.gov.au>

Subject: RE: Request from Commonwealth DOEE

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Hamish

Hamish Manzi

Head - Environment & Sustainability

E [sch4p4(6) Personal information]

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1 March 2019

Ms Melissa Wells
Executive Director Coal and Central Queensland Compliance
Environmental Services and Regulation
Department of Environment and Science
PO Box 3028
Emerald Qld 4720

By email: Melissa.Wells@des.qld.gov.au

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Your Personal information

p4(6) Personal information

Person: Hamish Manzi

Personal information **of Environment & Sustainability**

cc: Jamie Merrick, Director-General – Department of Environment and Science
jamie.merrick@des.qld.gov.au

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