LAND COURT OF QUEENSLAND

REGISTRY: BRISBANE
NUMBER: MRA428-14, EPA429-14
MRA430-14, EPA431-14
MRA432-14, EPA433-14

Applicant:	ADANI MINING PTY LTD
	AND
First Respondent:	LAND SERVICES OF COAST AND COUNTRY INC.
	AND
Second Respondent:	CONSERVATION ACTION TRUST
	AND
Statutory Party:	CHIEF EXECUTIVE, DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION

AFFIDAVIT OF ADRIAN HAROLD CANERIS

I, Adrian Harold Caneris, Principal Wildlife Expert and Managing Director, Biodiversity Assessment and Management Pty Ltd, 233 Middle Street, Cleveland in the State of Queensland affirm as follows:

1 I am the principal wildlife expert and managing director of BAAM Pty Ltd and have been since 2002. I am a certified Environmental Practitioner (EIANZ) with expertise in vertebrate fauna assessment and identification, assessment of terrestrial habitats, ecological monitoring, wildlife management, biodiversity planning, feral species management and community liaison and facilitation.

A. Caneris
Deponent

Julie Zgliewski
Taken by:
Solicitor / Justice of the Peace

73082

Affidavit
Filed on behalf of the Applicant
Form 46 R.431

McCullough Robertson Lawyers
Level 11 Central Plaza Two 66 Eagle Street
BRISBANE QLD 4000
Phone: (07) 3233 8888 Fax: (07) 3229 9949
GPO Box 1855, BRISBANE QLD 4001
Ref: CEM:GMR:PWS:159359-00022

2 I have been engaged by McCullough Robertson, on behalf of the Applicant, to appear as an expert witness in these proceedings in relation to issues raised in the objections to the Applicant's mining lease applications and environmental authority applications for the Carmichael Coal Mine project (**Objections**).

3 My curriculum vitae is attached to the individual expert report referred to below. I refer to my curriculum vitae and say that I have provided expert evidence in relation to a number of matters of dispute relating to biodiversity, and environmental impact assessment. These include:

(a) expert evidence on behalf of the Chief Executive of the Department of Environment and Resource Management in relation to fauna values of a proposed resort development (*Rainbow Shores Pty Ltd v Gympie Regional Council & Ors* (2013) QPELR 557);

(b) expert evidence on behalf of Casagrande Investments Pty Ltd in relation to the impact of the proposed development of multiple dwellings on ecological values, in particular fauna (*Casagrande Investments Pty Ltd v Redland City Council & Ors* (2011) QPELR 426);

(c) expert evidence on behalf of Altitude Corporation Pty Ltd in relation to the impact on the proposed development of multiple dwellings on flora and fauna (*Altitude Corporation Pty Ltd v Isaac Regional Council* (2011) QPLER 222);

(d) expert evidence on behalf of the appellants in relation to the impact on ecology arising from a 90 lot residential subdivision (*Reynoldsman Pty Ltd v Brisbane City Council & Ors; Bulimba Creek Catchment Co-ordinating Committee v Brisbane City Council & Ors* (2010) QPELR 371);

(e) expert evidence on behalf of the Wrucks in relation to the impact of conditions of a subdivision approval on koala habitat (*Wruck v Redland Shire Council & Anor; Birkdale Progress Association Inc v Redland Shire Council & Anor* (2008) QPELR 154); and

Deponent

Taken by:
Solicitor / Justice of the Peace

Reg. No. 73082

(f) expert evidence on behalf of the Barns in relation to the impact of development applications on fauna (*Barns and Barns v Maroochy Shire Council* (2010) QPELR 419).

4 I have previously prepared a joint report with Lindsay Agnew, Mike Olsen, and Bruce Wilson addressing issues in respect of the Black-throated Finch southern species (**BTF**) (*Poephila cincta cincta*), being a report dated 15 January 2015 (**First BTF JER**). I have also prepared a supplementary joint report with those same persons in respect to the BTF following receipt of additional information, being a report dated 27 February 2015 (**Second BTF JER**).

5 I have been further asked to prepare an individual report in relation to BTF and the effect the proposed mining operations the subject of these proceedings could have on the BTF population, its habitat, as well as the adverse effects to the biodiversity of the area generally. Exhibited to my Affidavit and marked '**AC-1**' is a true copy of my report to McCullough Robertson Lawyers dated 13 March 2015 (**Individual Report**).

6 Pursuant to rule 428(3) *Uniform Civil Procedure Rules 1999* (Qld), I confirm that:

(a) the factual matters stated by me in the Joint Report and my Individual Report are, as far as I know, true;

(b) I have made all enquiries considered appropriate;

(c) I genuinely hold the opinions stated by me in the Joint Report and in my Individual Report;

(d) my Individual Report contains reference to all matters that I considered significant; and

(e) I understand my duty to the court and I have complied with this duty.

Deponent

Taken by:
Solicitor / Justice of the Peace

Reg. No. 73082

7 All the facts and circumstances deposed to in this affidavit are within my own knowledge except those stated to be on information and belief. I have, as required, set out the basis and source of my knowledge or information and belief.

A - Caneris.

Affirmed by Adrian Harold Caneris

at Brisbane

this 13th of March 2015

Before me:

JULIE ZYZNIEWSKI

Julie Zyzniewski

A Justice of the Peace/Solicitor

JUSTICE OF THE PEACE (QUALIFIED)

Reg.No. 73082

DEPARTMENT OF JUSTICE QUEENSLAND

LAND COURT OF QUEENSLAND

REGISTRY: BRISBANE
NUMBER: MRA428-14, EPA429-14
MRA430-14, EPA431-14
MRA432-14, EPA433-14

Applicant:	ADANI MINING PTY LTD
	AND
First Respondent:	LAND SERVICES OF COAST AND COUNTRY INC.
	AND
Second Respondent:	CONSERVATION ACTION TRUST
	AND
Statutory Party:	CHIEF EXECUTIVE, DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION

CERTIFICATE OF EXHIBIT

Exhibit '**AC-1**' to the affidavit of Adrian Harold Caneris affirmed 13 March 2015.

A. Caneris

Signed:
Deponent

Julie Zykwienski

Taken by:
Solicitor / Justice of the Peace /
Commissioner for Declarations

JUSTICE OF THE PEACE (QUALIFIED)
Reg. No. 73082
DEPARTMENT OF JUSTICE QUEENSLAND

STATEMENT OF EVIDENCE

Expert Statement on Black-throated Finch (southern)

IN REGARDS TO -

Adani Mining Pty Ltd v Land Services of Coast & Country Inc. & Anor

Land Court of Queensland Proceedings no. MRA428-14, EPA429-14, MRA430-14, EPA431-14, MRA432-14 and EPA433-01

Land Court of Queensland Registry: Brisbane

Applicant: **Adani Mining Pty Ltd**

First Respondent: **Land Services of Coast and Country Inc.**

Statutory Party: **Department of Environment and Heritage Protection**

Prepared by:	**Adrian Caneris,**
Date:	**13 March 2015**

BAAM Pty Ltd
PO Box 1376
CLEVELAND 4163

BAAM
ECOLOGICAL CONSULTANTS

STATEMENT

My name is Adrian Harold Caneris and I reside at 7 Dendy Place, Edens Landing, 4207. I have been involved in research, management, consulting, tertiary teaching and community based studies of terrestrial ecology, particularly vertebrate fauna and their habitat utilisation and management thereof, across Queensland for over 25 years.

I am currently a Managing Director with Biodiversity Assessment and Management (BAAM), a specialist fauna and flora consulting company and in this role I provide expert advice on a wide range of ecology related matters to government, industry, community based organisations and the P&E Court. I have conducted numerous field investigations and fauna and habitat assessments and compiled subsequent reports and/or management plans.

I have held public service positions in the area of nature conservation with state and local governments. I have previously worked for five years with the Queensland Government's NatureSearch program, conducting fauna surveys across SEQ and the wet tropics area and for six years at the then Redland Shire Council where I was employed as the Senior Conservation Officer – Wildlife and was responsible for conducting fauna surveys, providing technical and strategic advice to all levels of Council on fauna, flora and habitat management. I also lectured for 3 years in the fields of environmental sciences and fauna management at the Moreton Institute of TAFE.

I have been involved in numerous ecological management committees including State Ministerial Advisory Committees and I have chaired a state-wide committee to establish a stakeholder reference committee to direct and guide wildlife caring and permitting for Queensland. I have been appointed to several Local Government ecological related advisory committees.

I am a Past-President of the Wildlife Preservation Society Qld and a founding member and current Director on the Wildlife Land Fund Ltd. I have a thorough working knowledge of Queensland's fauna, fauna habitats and their ecological management.

My *Curriculum Vitae* is included as **Appendix 1**.

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, in my knowledge, been withheld from the Land Court.

I acknowledge that I have been instructed to assist the Land Court of Queensland by investigating and reporting on issues relevant to the Black-throated Finch southern subspecies (*Poephila cincta cincta*). I affirm that I am qualified to give opinion evidence as an expert witness in relation to this issue in dispute in the current proceeding.

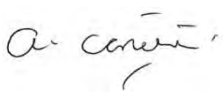
I verify that my instructions have included the Land Court Rules 2000 (current as at 13 December 2013) and the Uniform Civil Procedure Rules 1999, which I have read and understand, and that no instructions were given or accepted to adopt or reject any particular opinion in preparing this report. I confirm that I understand my duty as an expert to the court and have complied with that duty.

I acknowledge that in this proceeding:

i. As an expert witness giving evidence (by report, or otherwise) I have a duty to assist the Court; and
ii. That duty overrides any obligation I may have to any party to the proceeding or to any person who is liable for my fees or expenses.

I declare that:

iii. No instructions were given to me, or accepted by me, to adopt or reject any particular opinion in preparing this statement.



Adrian Caneris

EXECUTIVE SUMMARY

Purpose of the report

This report has been prepared on behalf of Adani Mining Pty Ltd (Adani) to assist the Queensland Land Court (the Court) by providing an independent expert assessment of the subject application. The relevant parties to the proceeding are Adani Mining Pty Ltd (Applicant) Land Services of Coast and Country Inc [LSCCI] (First Respondent),), the Conservation Action Trust [CAT] (Second Respondent) and the Department of Environment and Heritage Protection (Statutory Party). I have been engaged by McCullough Robertson, on behalf of Adani, to provide an expert report in the Land Court proceedings on Black-throated Finch southern subspecies *Poephila cincta cincta* (BTF).

Adani is proposing to develop a 60 million tonne per annum (product) coal mine in the north Galilee Basin approximately 160 kilometres north-west of the Town of Clermont in Central Queensland.

The Project (Carmichael Coal Mine) – is a greenfield coal mine over Exploration Permit for Coal EPC 1690 and the eastern portion of EPC 1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities

The Project is a significant project for which an EIS was required under the State Development and Public Works Organisation Act 1971 (Qld) (SDPWO Act) and is also a controlled action requiring assessment and approval under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act).

The project has received approval from the Commonwealth and State Regulators have also proposed to approve the Project.

I have participated in and contributed to two BTF Experts Joint Reports (JER1 [15 January 2015] & JER2 [27 February 2015]) and these are provided as appendices 2 &3. This report address areas of disagreement identified within the Experts Joint Reports.

Prescribed environmental matter under consideration

The project will have an unavoidable residual impact on matters of National and State environmental significance. This report and my consideration are restricted to that of the BTF.

Offset requirement and areas

The approval conditions require that the minimum offset for BTF habitat loss is 30,999.99ha, which is over three times the identified BTF habitat disturbance footprint of 9,789.75ha. The proposed offset areas are within the immediate landscape and provide habitats on which BTF are known to occur.

This offset will achieve a net benefit and conservation outcome by replacing lost habitat and maintaining habitat connectivity around the site.

Offset management framework

The offset sites are owned and will be managed by Adani who has committed to legally secure the offset areas as a statutory covenant for environmental purposes under the *Land Title Act 1994*. A management framework has been outlined for the establishment, maintenance and monitoring of the offsets, with clear management and reporting

timeframes and target outcomes to inform adaptive management and ensure transparent and effective governance of the offsets.
As detailed within the BTF Management Plan (GHD 2014b) an Advisory Committee is to be established to provide peer/technical expert input and reviews during implementation of the black-throated finch management plan. The Expert Advisory Committee will include representatives from the black-throated finch recovery team, DotE, DEHP, Adani's Environment Manager and the construction/operation contractor's environment manager.

Every six months the Expert Advisory Committee will meet to review monitoring and management action results and the implementation and objectives of future monitoring and management actions. They will also review any non-compliance or corrective actions required at the six monthly meetings.

Summary of expert opinion
The proposed offsets and associated management actions do have potential to provide an overall net benefit in retained/protected habitats for BTF.

It is important to note that although the site has significant values for BTF, currently those values are unmanaged and relatively unprotected. In regard to ongoing BTF habitat values, my site investigations and viewing of the surrounding landscape identified that there are areas where ongoing land management and stock rates are severely degrading the extant habitat values

The extant habitats, both within the mining leases and offset areas, are subject to recognised threats and these threats are ongoing. Currently, there is no certainty of any ongoing protection of the extant habitats in perpetuity.

It is reasonable to assume that if left unabated these practices will continue and likely expand. It is my view that the offset provisions will provide protection of BTF habitat, and a net benefit achieved through the proposed offset areas and their long term protection and management, in the local landscape which would otherwise be unlikely to occur.

It is quite conceivable that any BTF currently nesting or foraging within the disturbance footprint would find suitable habitats, now and with increased likelihood as prescribed management actions are undertaken, within the proposed offsets. The proposed offset and associated management actions will provide a significant net benefit to BTF habitat values present in the local landscape overtime. This will be a result of the restoration and enhancement of disturbed areas and removal or reduction of recognised threats and threatening processes.

The establishment of an Expert Advisory Committee which will meet every six months to review monitoring and management actions results and corrective actions required provide a rigorous framework for ensuring required actions are being undertaken effectively.

Overall, whilst recognising the fact the proposed actions will have a significant impact on BTF habitat values, the mitigation responses, offset provision and management actions, will result in a net benefit and ultimately provide a more secure habitat future for the BTF in the local landscape.

1.0 INTRODUCTION

1.1 This report has been prepared to assist the Queensland Land Court (the Court) for the purpose of providing an independent expert assessment of the subject applications, the subject site (the Site) and proposed offset and mitigation actions for the potential impacts from proposed actions and specifically in respect of the Black-throated Finch southern subspecies *Poephila cincta cincta* (BTF).

1.2 Adani Mining Pty Ltd (Adani) is proposing to develop a 60 million tonne per annum (product) coal mine in the north Galilee Basin approximately 160 kilometres north-west of the Town of Clermont in Central Queensland (**Figure1**). All coal will be railed via a privately owned rail line connecting to existing rail infrastructure, and shipped through coal terminal facilities at the Port of Abbot Point. The Project will have an operating life of approximately 90 years.

1.3 The Project the subject of this proceeding is comprised of three major components (**Figure 2**):

(a) the Project (Mine) – a greenfield coal mine over Exploration Permit for Coal (**EPC**) 1690 and the eastern portion of EPC 1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities;

(b) the Project (Rail) – a greenfield rail line connecting the Project (Mine) to the existing Goonyella and Newlands rail systems to provide for the export of coal via the Port of Abbot Point; and

(c) the Project (Offsite Infrastructure) – largely proposed to be developed under the yet to be finalised Galilee Basin State Development Area (**SDA**), including:

(i) a workers' accommodation village and associated facilities;

(ii) permanent airport site; and

(iii) water supply infrastructure.

1.4 The Project is a significant project for which an EIS was required under the State Development and Public Works Organisation Act 1971 (Qld) (SDPWO Act).

1.5 The Project is also a controlled action requiring assessment and approval under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act).

1.6 I have not been involved in the preparation of any of the material provided in support of the proposed Mine.

1.7 I confirm that I have been engaged by McCullough Robertson, on behalf of Adani, to provide an expert report in the Land Court proceedings. My instructions from McCullough Roberstson are attached as Appendix 5.

1.8 My instructions were to specifically address BTF related components of the site and proposed actions, and to produce a Statement of Evidence to advise the Court on the extant habitat values of the site, in regard to BTF.

1.9 I have participated in and contributed to two BTF Joint Experts Reports (JER1 [15 January 2015] & JER2 [27 February 2015]) and provided as **Appendices 2 &3.**

1.10 The first BTF Experts Joint Report (JER1) details the First Respondent's notice of issues as delivered on 2 December 2014 (Preliminary Issues) and sets out the areas of agreement and disagreement of the experts in relation to BTF.

1.11 The second BTF Experts Joint Report (JER2) includes additional information and comments following the release of additional information as requested in JER1.

1.12 I have conducted a review of the application materials and other information, I have obtained that is of relevance to the matter and as required, to form my opinions.

1.13 I have carried out site inspections in December 2014 over a 7 day period.

1.14 I was assisted in the field by Dr Lindsay Popple, who is an experienced ecological consultant and certified environmental practitioner. Although assisted by Dr Popple in the field, the subsequent reporting and opinions provided are entirely my own.

1.15 Where I refer to the Site, I am referring to the Mine component of the Project which consists of a greenfield coal mine over Exploration Permit for Coal (EPC) 1690 and the eastern portion of EPC 1080, which includes both open cut and underground mining, on-lease infrastructure and associated mine processing facilities. Applications for a mining lease over EPC1690 (incorporating MLA 70441) and the eastern and northern portions of EPC1080 (MLA70505 and MLA 70506) are also included (the proposed mining lease). (See Figure 2).

1.16 The overall findings and conclusions reached within this Statement of Evidence are based on my review of the application documents and knowledge of the site and its habitat values specifically in regard to BTF and BTF habitats.

2.0 TERMINOLOGY

2.1 Abbreviations used in this report:

2.1.1 **Adani** - Adani Mining Pty Ltd

2.1.2 **BOS** - Biodiversity Offset Strategy

2.1.3 DEHP - Queensland Department of Environment and Heritage Protection (formerly DERM).

2.1.4 DSEWPaC - Commonwealth Department of Sustainability, Environment, Water, Population and Communities

2.1.5 EA - Environmental Authority

2.1.6 **EEM** - Ecological Equivalence Methodology Guideline Version 1

2.1.7 **EIS** - Environmental Impact Statement

2.1.8 **ELA** - Eco Logical Australia

2.1.9 EPBC Act - Commonwealth Environment Protection and Biodiversity Conservation Act 1999

2.1.10 **JER –** Joint Experts Report

2.1.11 **LGA – Local Government Area**

2.1.12 **ML** - Mining Lease

2.1.13 **MNES** - Matters of national environmental significance

2.1.14 **MSES** - Matters of state environmental significance

2.1.15 **NC Act** - Nature Conservation Act 1992 (Old)

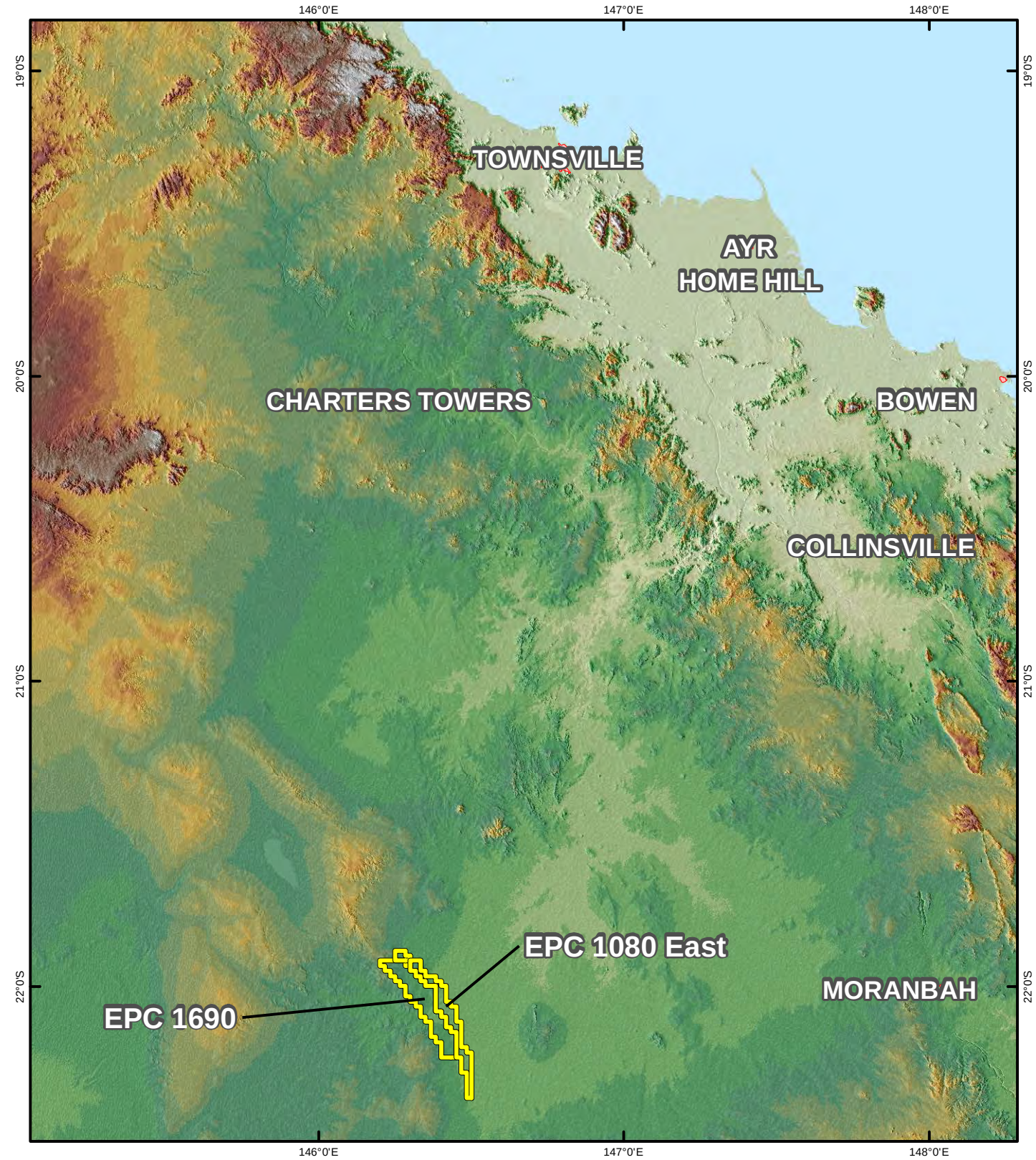
2.1.16 **OAMP** - Offset Area Management Plans

2.1.17 RE - Regional Ecosystem as defined by the Queensland Vegetation Management Act 1999**.**

2.1.18 **SEIS** - Supplementary EIS

2.1.19 **SSBV** - State significant biodiversity values

2.1.20 **Project** - Carmichael Coal Mine and Rail Project



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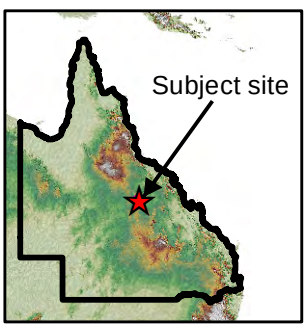


LEGEND

Subject Tenement area

Major centres

Drawn By: MG Reviewed by: AC Date: 11/03/2015

Figure:	**1**
Title:	Subject site and surrounds
Project:	**Adrian Caneris expert statement on Black-throated Finch**
Client:	**Adani Mining Pty Ltd**

BAAM ECOLOGICAL CONSULTANTS

Document Location: D:\GIS\Jobs\0373-001 Black Throated Finch\GIS\MXDs\ReportMaps\Figure 1 Site and surrounds.mxdDate: 11/03/2015 2:08:57 PM

3.0 SUBJECT SITE AND SURROUNDS

3.1 The Site is predominantly within the Local Government Area of Isaac Regional Council (LGA), with the exception of approximately 167 ha situated in the north-western corner of the EPC1690, which is located within the LGA of Charters Towers Regional Council.

3.2 The Site is defined by EPC 1690 and EPC 1080 (See: **Figures 2 & 3**)

3.3 The local landscape has numerous coal exploration permits granted as shown on **Figure 2**.

3.4 Much of the surrounding landscape has in the past been the subject of anthropogenic influences which include timber felling, agricultural/pastoral pursuits, residential uses, access tracks, and roadways.

3.5 In general terms, the site and surrounds retains a mixture of natural vegetation cover (much of which is considered to be remnant vegetation) and lands modified primarily for pastoral uses. The modified portions have been cleared to varying degrees.

3.6 The Site and surrounds are recognised as having high value as habitat for fauna of conservation significance. The Site is known to provide habitat for BTF and breeding has been recorded onsite.

3.7 Prior land uses and disturbances have reduced but not removed the BTF habitat values of the site and surrounds. There are significant areas of high value habitat in the landscape.

3.8 As BTF are known to utilise the site, and evidence of breeding animals has been identified, the site and surrounding landscape currently plays an important ongoing role as BTF habitat or as a key component of the broader landscape.

3.9 As the site and surrounds, including proposed offset areas, hold key habitat values (woody cover, native grasses and watering points) and are known to be used for breeding these areas should be viewed as holding habitats which are critical to the survival of the species in the local landscape.

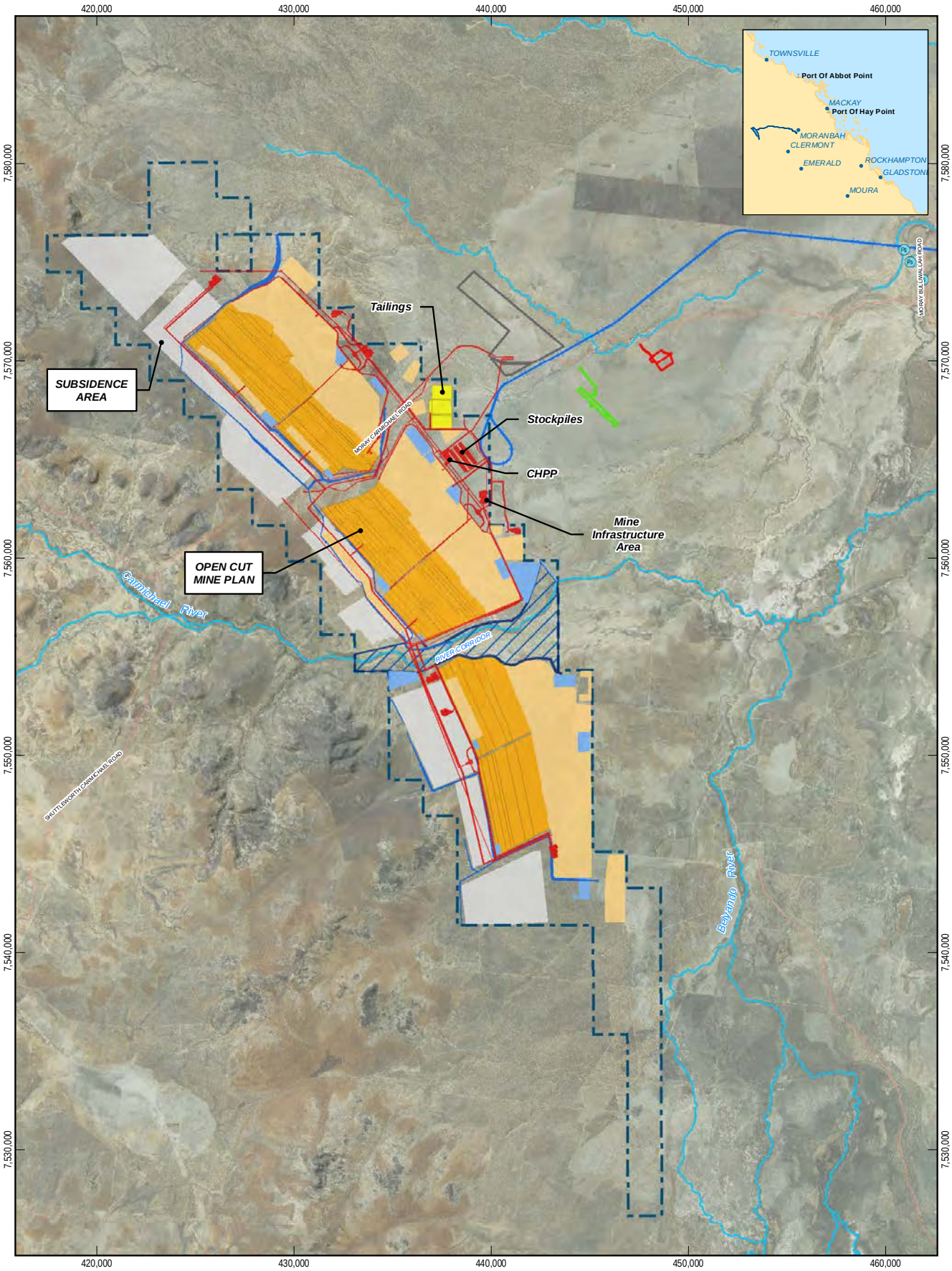
3.10 The subject site, in respect to BTF, is part of a larger vegetated landscape and relatively safely accessed from the adjoining bushlands.

3.11 The Mine on-lease infrastructure includes all infrastructure located within the boundary of the proposed mining lease area. EPC 1690 runs northwest to southeast, covering approximately 45 km in length and approximately 7 km in width. The eastern and northern portion of EPC 1080 is approximately 50 km in length and between 3 and 6 km wide.

3.12 The offsite infrastructure is located outside EPC 1690 and EPC 1080, and is not within the proposed mining lease (e.g. Airport, rail line etc.)

3.13 Although outside of the mining lease the disturbance within these areas has been included within offset calculations.

3.14 The site and surrounds contain several dams and bores which are providing reliable (permanent) water source for BTF, and this access to water is contributing to the bird's permanency in the landscape.



LEGEND

- Local road
- Watercourse
- Mine lease
- Project (Rail)

Mine Domain

- Mine infrastructure
- Tailings drying cells
- Water storage areas
- Stream diversions
- Open-cut voids and slopes
- Out-of-pit spoil dumps
- Carmichael River corridor
- Underground mining areas

Mine (Offsite)

- Pump Station
- Storage Facility (Offstream)
- Airport
- Industrial Area
- Accommodation Village

1:275,000 (at A4)

0 2 4 6 8 10

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

N

Adani Mining Pty Ltd
Carmichael Coal Mine and Rail Project

Disturbance Area - Mine Domains
SEIS Mine Layout

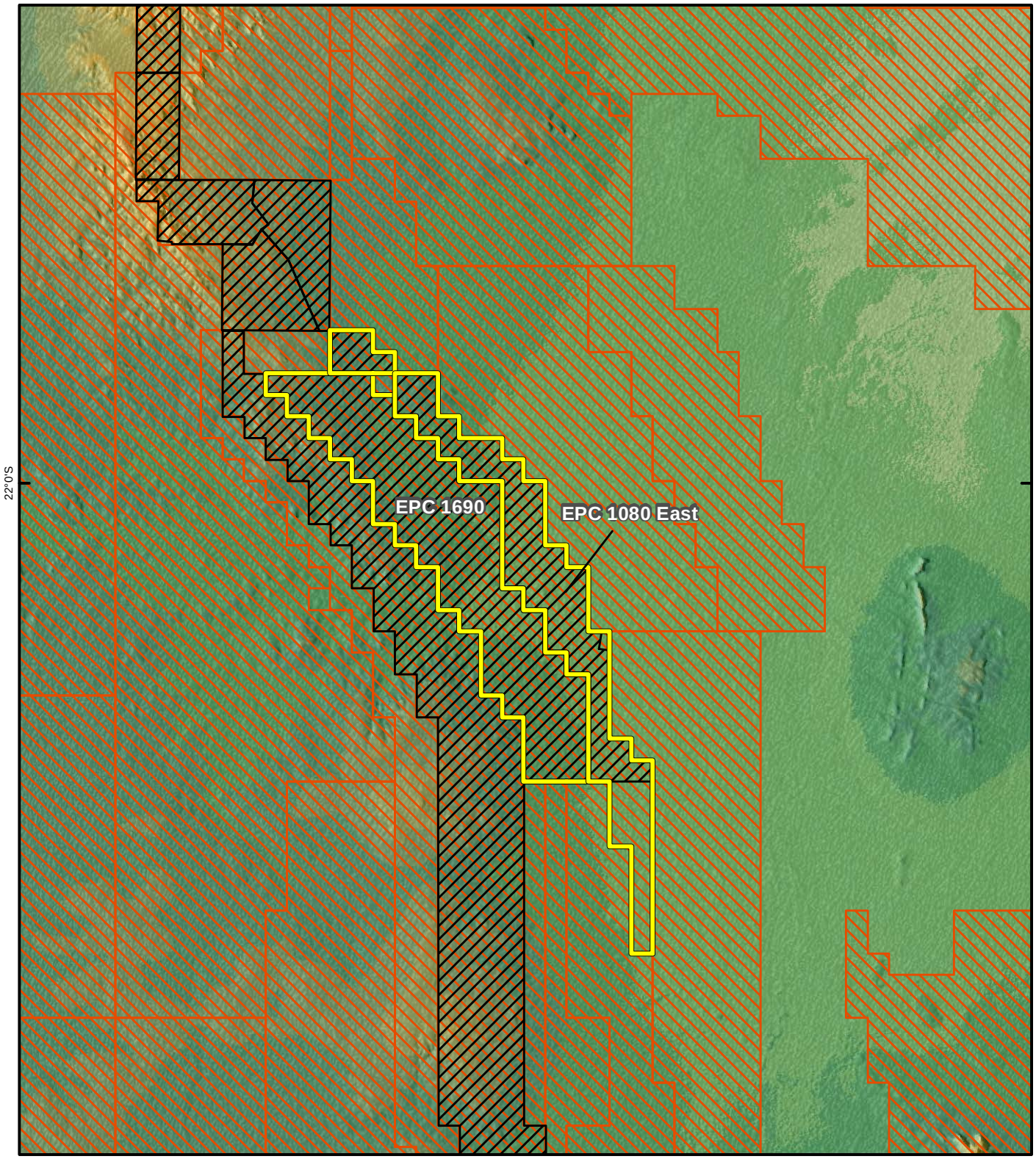
Job Number 41-28430
Revision 0
Date 06-02-2015

Figure 2

G:\41\28430\GIS\Maps\MXD\41_28430_002_rev_a.mxd

Level 9, 145 Ann St Brisbane QLD 4000 T +61 7 3316 3000 F +61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data Source: GA: Road, River / Watercourse (2007); DME:EPC1690 (2010), EPC1080 (2011); Adani: Alignment, Offsite(2013), Mine Domains (2014); Digital Globe: Satellite (2009). Created by: MS



Mining tenure data sourced from QLD Government March 2015
Mining Leases and Exploration Permits for Coal.
Queensland Spatial online data.

Coordinate System: GCS GDA 1994
Datum: GDA 1994
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1:479,129 at A4
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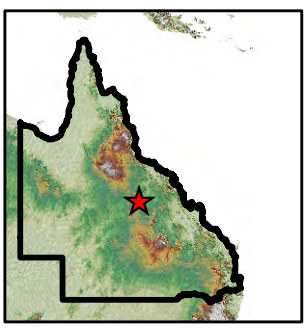

LEGEND

Subject tenement area

Mining leases

Application

Exploration permits for coal

Granted

Drawn By: MG Reviewed by: AC Date: 12/03/2015

Figure:	**3**
Title:	Subject site showing mining leases and EPC's
Project:	**Adrian Caneris expert statement on Black-throated Finch**
Client:	**Adani Mining Pty Ltd**

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4.0 GROUNDS AND ISSUES

4.1 I have read the grounds of the objection, as filed.

4.2 The grounds and relevance to BTF have been detailed in the BTF JER1 (Appendix 2).

4.3 In general terms, the submitted grounds contend that the project will have unacceptable impacts on BTF and their habitats.

4.4 In terms of the impacts to the BTF, Land Services of Coast and Country Inc. (LSCCI) has specifically raised the following matters:

(a) if the mine proceeds, it will cause severe adverse environmental impacts to biodiversity and ecosystems on, and associated with, the area of the mine (paragraph 18 of the LSCCI Objection);

(b) the species that will be severely impacted by the mine include, but are not limited to, the BTF (paragraph 19 of the LSCCI Objection);

(c) a nationally significant population of BTF is located within the mine lease area and will be severely and permanently adversely impacted by the mine through impacts such as the direct clearing of habitat and diminution of surface water and groundwater dependent ecosystems (paragraph 20 of the LSCCI Objection);

(d) the exact extent of the impacts cannot be known as the application, EIS and SEIS did not adequately assess the presence of BTF or its habitat requirements (paragraph 21 of the LSCCI Objection);

(e) no confidence can be placed in proposed offsets for the BTF as its requirement are insufficiently known to select any offset areas (paragraph 22 of the LSCCI Objection);

(f) the full extent of the adverse environmental impacts to biodiversity and ecosystems cannot be particularised by the objector due to the inadequate information provided by the Applicant in the applications, EIS and SEIS (paragraph 23 of the LSCCI Objection);

(g) it has not been adequately demonstrated that the mine will not have unacceptable adverse impacts on biodiversity, including threatened species, and ecosystems. In particular, the:

(i) mine will have adverse impacts on the environment by adversely impacting on biodiversity and ecosystems considering s 269(4)(j) of the MRA;

(ii) absence of adequate scientific information about potentially severe and long-term adverse impacts on biodiversity is good reason to refuse the mining lease applications considering s 269(4)(l) of the MRA; and

(iii) adverse environmental impacts and potentially severe adverse environmental impacts cause by these proposed mining operations on biodiversity and ecosystems is an inappropriate use of the land when current use does not pose a similar threat

considering s 269(4)(m) of the MRA. (paragraph 24 of the LSCCI Objection)

5.0 ASSESSMENTS OF THE SITE

5.1 There have been numerous site investigations conducted as part of the project application and ongoing assessment.

5.2 The Applicant's reporting with specific relevance to BTF which were reviewed for the JER's and this report comprised the following:

- GHD (2012a). Report on Carmichael Coal Mine and Rail Project Mine Technical Report: Terrestrial Ecology 16 November 2012. Appendix N1 of EIS.
- GHD (2012b). Moray Downs Black-throated Finch Surveys. Carmichael Coal Mine Project 22 October 2012.
- GHD (2013a). Report for Black-throated Finch On-site Monitoring Survey 1. Carmichael Coal Mine and Rail SEIS. 17 October 2013.
- GHD (2013b). BioCondition Assessment Report. Report for Offsite Infrastructure Project. Carmichael Coal Mine and Rail Report SEIS. 31 October 2013.
- GHD (2014a). Report for Black-throated Finch On-site Monitoring Survey 2. Carmichael Coal Mine and Rail SEIS. February 2014.
- GHD (2014b). Black-throated Finch Management Plan. Carmichael Coal Mine and Rail Project. 11 February 2014.
- CO2 (2014). Biodiversity Offset Strategy. Carmichael Coal Mine and Rail Project. 29 October 2014.
- Eco Logical Australia (2014a). Carmichael Coal Mine Ecological Equivalence Assessment Stage 2. 30 January 2014.
- Eco Logical Australia (2014b). Moray Downs West Ecological Equivalence Assessment Stage 2. 9 October 2014.
- Niche Environmental (2015) Pre-wet season monitoring report December 2014

5.3 I assessed the subject site over 7 days in December 2014. My assessment was primarily a broad site familiarisation targeting the key BTF watering holes, known record locations and broader habitat values of the disturbance area and nominated offset habitats within the Moray Downs property and surrounding lands.

5.4 A summary of my BTF records derived from field investigations and those of Mr Agnew's first site visit are presented in Attachments 1 and 2 to JER1 (**Appendix 2**).

5.5 I note the criticisms within the BTF JER1&2 of the site assessment work conducted to date.

5.6 Whilst I agree with some aspects of that criticism, overall my view is there has been extensive assessment to inform the subject application and that work should be viewed in context of the application as a whole.

5.7 The site assessments have been undertaken to address numerous ecological aspects and these have been conducted in accordance with contemporary methodologies.

5.8 Given the EIS has a broad range of matters to deal with, only a portion of the onsite assessment had specific focus on BTF.

5.9 I agree that the BTF work could be improved and that modification of methodology going forward is required to obtain more meaningful results.

5.10 Recommended changes to ongoing monitoring methodology have been agreed to by the BTF experts in JER1&2.

5.11 I have, subsequent to the completion of JER2, spoken with Mr Tony Grice (who is the person responsible for field and technical lead, statistical analyses and quality control of the recent monitoring events) and he has advised that there has been and there is ongoing review of the monitoring protocols and methodologies.

5.12 It is my view that the BTF habitat assessments to date, although generally broad, have sufficiently identified BTF habitat values within the project area to demonstrate that the required offset values can substantially be met.

5.13 In JER 1 paragraph 6.6 (and subparagraphs) it was noted that further more detailed and targeted studies are required to fully understand the existing values of the site. The undertaking of additional site assessment including specific BTF studies is ongoing.

5.14 The additional studies and information obtained on BTF and their habitat partitioning will provide valuable information on the species and inform future management actions.

5.15 As the project progresses there is a requirement to undertake more detailed and specific assessment of the habitat values and to have these assessments reviewed (See: Coordinator Generals report conditions I2 to I7) within the disturbance area.

5.16 The proposed establishment of, and contribution to, a BTF Bioregional Management Plan will further describe the characteristics of the regional population and identify known/potentially suitable habitat and information gaps.

5.17 There is specific process within the approval conditions to ensure that ongoing assessments fully capture the habitat values lost and to ensure commensurate replacement.

5.18 In respect to the BTF Monitoring Program, there have been criticisms raised within both the BTF JER's 1 & 2.

5.19 It is my view that with relatively simple improvements to the existing monitoring protocols/approach the current level of field assessment could be far better targeted to provide the required information on BTF and their habitats.

5.20 An agreed outline of recommended improvements is provided within the JER1 (see: 7.8 BTF JER1).

5.21 Whilst it is true that it is not known that the proposed offsets will mitigate the potential impacts, it is clear that the offsets hold habitats of value and these areas, with proposed management actions, will have increased habitat values overtime.

5.22 As the offset areas have been identified by EEM, the standard method for identifying and measuring offset values, it is reasonable to predict they will provide a considerable contribution to the overall BTF habitats retained and protected in the local landscape.

5.23 It is also noteworthy that the proposed offsets are within the local landscape and directly connected with the disturbance footprint which will provide opportunity for BTF to frequent or even occupy these areas.

5.24 In JER1 (paragraph 6.8.4), Mr Agnew states that the Coordinator-General's report acknowledges that further baseline information and research is required to fully understand the habitat preferences of the species in the project area.

5.25 Whilst acknowledging the need for additional information, the Coordinator-General's report recommended approval of the Mine subject to conditions.

5.26 It is through these conditions, and specifically conditions I2 to I7, the Coordinator Generals report imposes milestone achievements to ensure adequate identification and protection of BTF habitats and habitat values are being retained.

5.27 I note Mr Agnew's concern in JER 1 (see point: 6.10.2) that there appears to be no impact thresholds nominated by the relevant approval conditions, thus the only likely primary response to new knowledge which describes an increase in impact significance is by way of providing additional offsets.

5.28 Whilst correct in that if there is higher habitat values present within the disturbance area, the approval conditions clearly require those habitat values to be replaced within offset areas.

5.29 Condition I4 of the draft EA states 'If the review under condition I3 or I4 finds that the actual areas of disturbance to state significant biodiversity values differs from the area of disturbance as detailed in the Biodiversity Offset Strategy, the holder of the environmental authority must amend the Biodiversity Offset Strategy as per condition I5 and deliver the amended offset requirement within 12 months.

5.30 It is clear these approval conditions have specific regard to ensuring commensurate offset actions.

5.31 The ongoing monitoring and finer scale assessments, as required by approval conditions, will provide a more thorough measurement of the impact and offset area values and should there be a shortfall, additional offset measures will be required.

5.32 This is a purely habitat value measurement and is designed to ensure that suitable habitats are provided within the proposed offset areas.

5.33 I agree there is some issue with ensuring the monitoring is being conducted consistently, and with appropriate methodology, to allow meaningful interpretation of results.

5.34 As detailed in JER 2 (see point: 2.15) there is agreement between the experts that there is an obvious need to standardise site names and locations and ensure these are repeatedly used. There have been errors made within monitoring reports as to specific location details.

5.35 In our JER 1, we noted that a "3rd round" of BTF monitoring has been completed. No reporting or interim findings in regard to that monitoring event had been provided to the BTF experts at the time of preparing the JER1.

5.36 The results of the 3rd round monitoring and other data requested within the JER1 were released on or around the 13 February 2015.

5.37 Amongst the information released was the site register of BTF sightings which includes some notable sighting information.

5.38 The copy of the "BTF register" provides 10 BTF records during the period 15 July 2012 to 18 April 2014. Of these 10 records, 7 are listed as "confirmed sightings".

5.39 Mr Agnew and I agreed (JER2, point 4.5) that of the 7 confirmed sightings, two are regarded as highly significant, being observations of two large flocks, one observation of >150 BTF (17 September 2013) and another flock of 75 BTF (6 April 2013). Both records are attributed to Shaun Lovelock (Adani employee).

5.40 The 3rd round monitoring results (Niche 2015) were provided and the results are relatively consistent with earlier monitoring events.

5.41 However, there was a notable increase in the number of breeding records, with six confirmed nest sites. This is likely as a result of the timing of the survey coinciding with the commencement of breeding following summer rainfall events.

5.42 It should be noted that the 3rd round BTF monitoring report does not include the results of camera traps. I understand that this is as a result of the cameras being deployed and the data not yet analysed.

5.43 I assume this was a conscious decision in order to have the 3rd round monitoring results, without camera trap results, made available to the BTF experts as requested within JER1.

5.44 There were agreed criticisms within JER2 of some aspects of the 3rd round monitoring event and associated reporting (Section 2.0 JER2).

5.45 Although the timing was not ideal for a 'dry season' monitoring event as was envisaged by the BTF experts, the timing did coincide with recent rainfall and allowed for identification of breeding activities as a response to seasonal influences.

5.46 The 3rd round monitoring report is titled 'Pre-wet season monitoring report' and the field work was conducted in December, after summer season rainfall events had begun.

5.47 This is evidenced by the deployment of cameras on ephemeral water points.

5.48 Despite the criticism in respect to the timing of the monitoring event, the results have added to the known records and highlight the recognised value in conducting targeted BTF nest surveys following rainfall events at the start of the wet season.

5.49 As stated in 2.5 of JER2 Mr Agnew and I have agreed there is certainly value in having information obtained during the pre-wet season although this would need to be undertaken repeatedly and systematically to contribute meaningfully to monitoring results.

5.50 The 3rd round monitoring water source watch surveys were conducted at ten locations, representing a subset of the May and October 2013 water source survey sites except for two additional smaller water sources that were opportunistically encountered (CWAT99 and 5 Mile Bore).

5.51 A description of the December 2014 water source watch survey sites and their locations are shown in Annexure 8 of the 3rd round monitoring report (Niche 2015).

5.52 A review of the time spent at each watering point location reveals the timing of survey commencement could be improved. The report states that "*A three hour early morning survey and a one hour late afternoon survey were able to be undertaken at all of the sites except for CWAT05, where no afternoon survey was conducted due to extremely high temperatures (~41 C) on the allocated day (refer to Annexure 8) of the sites*".

5.53 As noted in JER2, a review of the table provided as Annexure 8 of the water source watch survey site descriptions and locations reveals that not all sites were subject to the above methodology.

5.54 Annexure 8 describes water source surveys at 10 sites. Average effort for each survey was 1.65 person-hours. The average effort stated for each survey site was 2.98 survey person-hours and the range was between 0.1 to 4.77 survey person-hours.

5.55 I understand from talking to Mr Tony Grice that there is likely an anomaly in those results. The 0.1 hours at the site referred to as 5 Mile Bore may be the same was an opportunistic/incidental sighting on the last afternoon of the monitoring event and this location may have separately been a site.

5.56 Unfortunately, Mr Grice has not been able to confirm the exact locations of the site referred to as 5 Mile Bore at the time of writing.

5.57 After checking of location details within the table and broader report Mr Agnew and I concurred that the new site "5 Mile bore' is actually the 4 mile bore from previous survey events. The location given in Annexure 8 of the report is believed to be that of a camera trap site located on the Boundary track monitoring one of the ephemeral watering holes.

5.58 The survey design should ensure that the morning monitoring events commence within 1 hour of sunrise. I accept, as is evidenced within the monitoring reports, that there is inconsistency within the time surveys are being undertaken and the length of time for which water watch monitoring is being conducted.

5.59 There is a clear need for more rigor and uniformity in BTF monitoring events and subsequent reporting. The recommended changes provided within the JER 1&2 should be adopted for future monitoring events.

5.60 From my discussion with Mr Grice, I understand that there has been a review of monitoring protocols and many of the above discrepancies have or are being addressed.

5.61 Whilst there is room for improvement, the monitoring events to date, have provided useful background data, data which would otherwise be absent for the site.

5.62 As new watering points are installed within the offset areas these should be added to the monitoring program. This is important to capture that the offset areas are providing suitable habitat for the species to occur.

5.63 Overall, whilst the monitoring events have had deficiencies identified, these monitoring events have provided valuable background of data by which future and ongoing monitoring events can be continued.

5.64 With the recommended changes, the monitoring events, and other actions as prescribed within the BTF management plan and approval conditions for the subject application, the impacts of the project can be monitored and identified to ensure appropriate offset actions are undertaken.

5.65 I have conducted a site inspection in December 2014 and this included general assessment of the site and surrounding lands, including the proposed offset areas (Moray Downs West).

5.66 My intent was to broadly survey the proposed disturbance area to gain an understanding of the actual level of habitat loss proposed, and to gain understanding of the key BTF locations. I also sought to gain a broad overview and understanding of the proposed offset areas and their BTF habitat values.

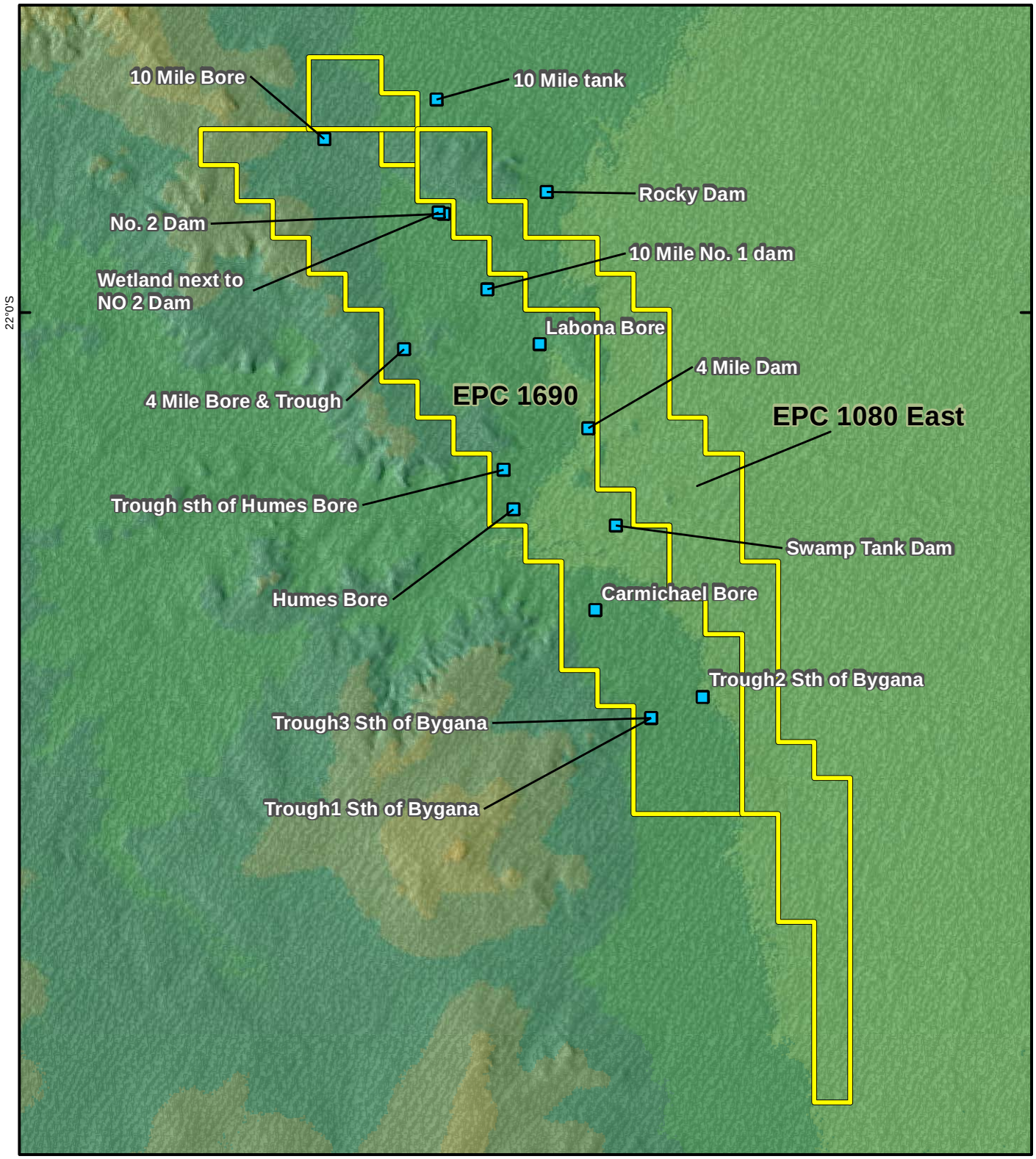
5.67 Due to the size of the site and offset areas, my investigations adopted a rapid search of the subject site, focussing on the areas to be cleared and a focus on those habitats where BTF were known, monitoring site locations (see **Figure 3**) and suitable habitats identified.

5.68 It should be noted that recent rainfall events considerably increased opportunistic watering points during my visit and reduced the accessibility of some locations.

5.69 I identified BTF as present within the disturbance area and offset area.

5.70 My largest sighting was of a flock of birds (approximately 120) just north of the 10 mile tank, within the offset area (See: **Figure 4** for 10 Mile tank Location).

5.71 I have provided **Figure 4** below which shows where key monitoring (water watch) locations are situated in respect to the mining lease.



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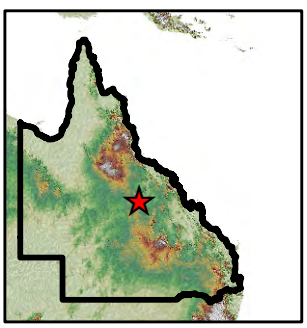

LEGEND

- Key locations
- Subject Tenement area

Drawn By: MG Reviewed by: AC Date: 11/03/2015

Figure:	**4**
Title:	Key locations within the study area
Project:	**Adrian Caneris expert statement on Black-throated Finch**
Client:	**Adani Mining Pty Ltd**

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Document Location: D:\GIS\Jobs\0373-001 Black Throated Finch\GIS\MXDs\ReportMaps\Figure 3 Key locatiopns within the mine lease area.mxdDate: 11/03/2015 2:13:03 PM

6.0 BTF AND BTF HABITAT VALUES

6.1 There has not been sufficient work to date to accurately estimate the number of BTF in the local landscape and/or within the proposed disturbance footprint or proposed offset area of the subject application.

6.2 Based on the results of assessments to date it is apparent, as agreed by the BTF experts, that the northern portions of the site hold the highest value for BTF.

6.3 Mr Agnew and I have agreed that whilst an accurate estimate of the number of BTF is unavailable at the time of writing, based on existing data and our own site investigations, it is our view that the proposed mining lease and near surrounds support a significant population which may be the largest known sub-populations of the southern subspecies of BTF.

6.4 Further, based on the numbers and regularity in which BTF are being seen and evidence of breeding within the subject area, I view the population as being viable.

6.5 I wish to be clear that I do not have the data or information to support such a statement, which is based solely on my expert opinion. Given the relatively rapid decline in the species it is difficult to be certain that BTF would persist in the local landscape in the long term.

6.6 The species is certainly in decline and the local landscape holds an important population (**Figure 6**).

6.7 There are habitats of high value to BTF within the disturbance footprint (**Photo 1**). The proposed loss of these habitats warrants a response which provides a clear process by which the BTF population and available habitats can be measured.

6.8 The application and approval conditions propose to establish a net benefit. It is important that the monitoring is designed and conducted to ensure that a net benefit is demonstrable.

6.9 A summary of the project's residual impacts on BTF habitat, as provided by the Environmental Offset Package for the Carmichael Coal Mine and Rail Project (Revision 9 - 21 March 2014), with the extent of the impacts [represented by area (ha)] is presented in **Table 1**.

Photo1: High value habitats along Boundary track in the north of the Subject Site

6.10 The proposed loss or disturbance of nearly 10,000ha of BTF habitat, of varying values, is undoubtedly a significant impact.

6.11 The Coordinator-General's Report and the EPBC Act approval include the requirement for Adani to prepare and implement a Biodiversity Offset Strategy (BOS) that outlines how the project proposes to address offset requirements for significant residual impacts on matters of national environmental significance (MNES) and matters of state environmental significance (MSES).

6.12 Condition 8 of the project's EPBC Act approval requires that Adani must legally secure the minimum offset areas detailed in **Table 2** within two years of commencement of each component of the project.

6.13 The required minimum offset areas are for impacts on BTF resulting from; the open-cut mine, off-lease infrastructure, and the rail components.

6.14 As per the requirements of the EPBC Act approval there is also an initial offset contribution of 2,000 ha for subsidence impacts associated with the underground mine. This initial contribution of 2,000 ha was conditioned by the Commonwealth Government with regards to the modelling of the cumulative impacts of subsidence, cracking and ponding as per the Draft Subsidence Management Plan (Adani 2013).

Table 1. Summary of Project (Mine and Rail) Impacts on BTF

	PROPOSED IMPACT AREA (ha)			
	MINE			
	ON SITE AND SUBSIDENCE	OFF SITE	RAIL	TOTAL
Black-throated finch (southern)	9,770.99	2.53	16.24	*9,789.75

6.15 **Table 2**, details that the minimum offset required is 30,999.99ha, being over three times the disturbance footprint of 9,789.75ha.

Table 2 Minimum Offset Area Required for BTF (ha)

Mining Operations North of Carmichael River	Mining Operations South of Carmichael River	Under-ground Mining	Off-lease Infrastructure	Rail East	Rail West
18,204.06	**10,739.39**	**2,000.00**	**7.62**	**2.44**	**46.48**

6.16 **Table 2** provides the minimum offset area for underground as 2,000 ha. I note that this is only the initial offsetting requirement for the underground mining areas and the EPBC approval (specifically conditions 11m to p) require constant revision of the offset area requirement for underground mining in line with mining progression and actual observed subsidence impacts.

6.17 It is well recognised that BTF is in decline (**Figure 4**) and that retention of suitable habitat is critical to the species survival

6.18 The magnitude of the proposed offsets and associated management actions do have potential to provide an overall net benefit in terms of retained/protected habitats for BTF.

6.19 I note from the information reviewed in JER2 being the BTFRT Report 2015; (**Attachment 1 in JER2)** that **"**It is the current (Jan 2015) view of the BTFRT that the population in the eastern Desert Uplands Bioregion in the vicinity of Moray Downs is likely to be the most significant and largest population of BTF remaining.

6.20 The recognition of the local BTF population and its significance adds to the overall importance of the offset locations in respect to maintaining suitable habitats in the long term.

6.21 There is criticism of the use of "key grass species" (JER1 6.18 &6.19 and subparagraphs and JER 2). These species are noted within the BTF Management Plan (GHD 2014b) which references 8 species.

6.22 The significant impact guidelines for the endangered black-throated finch (DEWHA, 2009a) lists the grass species that are considered to be important forage species for black-throated finch (southern) and includes *Urochloa mosambicensis, Enteropogon acicularis, Panicum decompositum, Panicum effusum, Dichanthium sericeum, Alloteropsis semialata, Eragrostis sororia and Themeda triandra*

6.23 This is certainly not an exhaustive list of known food plants or ever claimed to be such.

6.24 However these are the species which are recognised as being primary or 'Key species' for BTF.

6.25 I consider the use of these species within the habitat modelling is in recognition of the fact they are those species recognised as important forage species for BTF.

6.26 I also note the concerns of Mr Agnew in (JER2 point 7.20) that "*As there appears to be no impact thresholds nominated by the relevant approval conditions, it seems that the only likely primary response to new knowledge which describes an increase in impact significance is by way of providing additional offsets*".

6.27 I disagree there is no impact thresholds, in that the threshold is the approved footprint. No additional clearing or disturbance is permitted.

6.28 It is correct that as actual impact parameters are established, the approval conditions require that there is to be a commensurate offset provided.

6.29 It is important to note that although the site has significant values for BTF, currently those values are unmanaged and relatively unprotected.

6.30 The extant habitats are subject to recognised threats and these threats are ongoing. Should the project not proceed, there is no certainty of any ongoing protection of the extant habitats in perpetuity.

6.31 In regard to ongoing BTF habitat values, my site investigations and viewing of the surrounding landscape identified that there are areas where ongoing land management and stock rates are severely degrading the extant habitat values (**Photo 2**).

6.32 It is reasonable to assume that if left unabated these practices will continue and likely expand. It is my view that the offset requirements will provide protection of BTF habitat, with a net benefit achieved through the proposed offset areas and their long term protection and management, which would otherwise be unlikely to occur in the local landscape.

6.33 It is quite conceivable that any BTF currently nesting or foraging within the disturbance footprint would find suitable habitats within the proposed offsets.

6.34 This is particularly plausible as the offset areas immediately adjoin the impact area and thus would be readily accessible to BTF (See: **Figure 5**).

Photo 2: Low value habitats within the subject area as a result of existing land use practices.

6.35 Of high importance is the provision of additional permanent water sources to replace those within the project footprint and the management actions are undertaken promptly to maximise potential habitat values.

6.36 The provision of additional watering points within the proposed offsets, particularly the northern portions, is in my view a priority action. BTF are primarily utilising artificial watering sources in the local landscape (**Photo 3**).

6.37 Based on my site assessment the proposal to provide additional watering points within the offset areas will result in a likely increase in habitat values and breeding potential. This is particularly so for those areas where permanent water is currently unavailable for considerable distances.

6.38 I have not located any information on the number, type or location of additional watering sources. I recommend that a two to one ratio of watering points be the minimum replacement achieved.

6.39 It is important that the location of watering points be well considered and ideally located in proximity to higher value habitats and known or potential breeding areas.

6.40 Watering points should be designed to allow relatively free unhindered access to BTF whilst not providing watering options for feral animals or kangaroo's.

6.41 There would certainly be value in additional work in the wider landscape to gain an understanding of the extant habitats and BTF presence in this area, which will be a result of the BTF bioregional management plan. It is possible that these lands, and other nearby lands, have a significant role in long term BTF population dynamics/viability.

Photo 3: BTF utilising artificial watering sources within the subject area.

6.42 I note that where underground mining is proposed, these areas will continue to hold habitat values, of varying degrees, and have direct connection to the adjoining offset area.

6.43 The provision of the proposed offset and its protection will provide increased security to the long term retention of BTF habitats in the local landscape.

6.44 I cannot perceive any other likely means by which such a large protection of suitable habitat is likely to occur in the foreseeable future. The offset area for stages 1 & 2 comprise approximately a 3:1 offset requirement.

6.45 Therefore there is an overall net benefit to BTF habitat retention and protection in an area known to retain the species and provide habitats of value.

6.46 In addition to the offset provisions, there is a management framework outlined for the establishment, maintenance and

monitoring of the offsets, with clear management and reporting timeframes and target outcomes to inform adaptive management and ensure transparent and effective governance of the offsets.

6.47 As detailed within the BTF Management Plan (GHD 2014b) an Advisory Committee is to be established to provide peer/technical expert input and reviews during implementation of the black-throated management plan.

6.48 The Expert Advisory Committee will include representatives from the black-throated finch recovery team, DoE, DEHP, Adani's Environment Manager and the construction/operation contractor's environment manager.

6.49 They will also be provided a monitoring report every 6 months that will outline the results of the latest round of monitoring.

6.50 Every six months the Expert Advisory Committee will meet to discuss these results and the implementation and objectives of future monitoring and management actions.

6.51 Any corrective actions that have occurred will also be discussed at the six monthly meetings.

6.52 It will also be the responsibility of the Expert Advisory Committee to liaise with the bioregional species management plan Steering Committee regarding collaboration of the two monitoring and management programs in terms of sharing information and contributing to common goals.

6.53 There is no dispute that portions of the proposed disturbance area holds high value habitat for BTF. However it is unlikely that the species' future in the local landscape is entirely reliant on the retention of the Mining lease area.

6.54 The connectivity between the offset areas, combined with improved management and habitat values, is expected to provide an overall net benefit.

6.55 The mapping of BTF habitat values (**Figure 5 and *cf.* Appendix 4**) is broad in nature, and has been updated with ongoing assessments. I accept, as identified by Mr Agnew that there are areas which are mapped incorrectly.

6.56 Though it is apparent that the BTF habitat mapping does have inconsistencies in respect to the extant habitats present, which is not unusual with such broad scale assessments, my site investigations identified that habitat values were both under and over mapped.

6.57 It is through the more detailed assessment, as required by approval conditions, that an accurate measure of extent BTF habitat values within disturbance and offset areas will be measured.

6.58 I observed inconsistencies in several locations within the offset areas and subject site. **Photos 4 & 5** below are taken at Latitude -21.879906, and Longitude 146.216034 in the northern offset area.

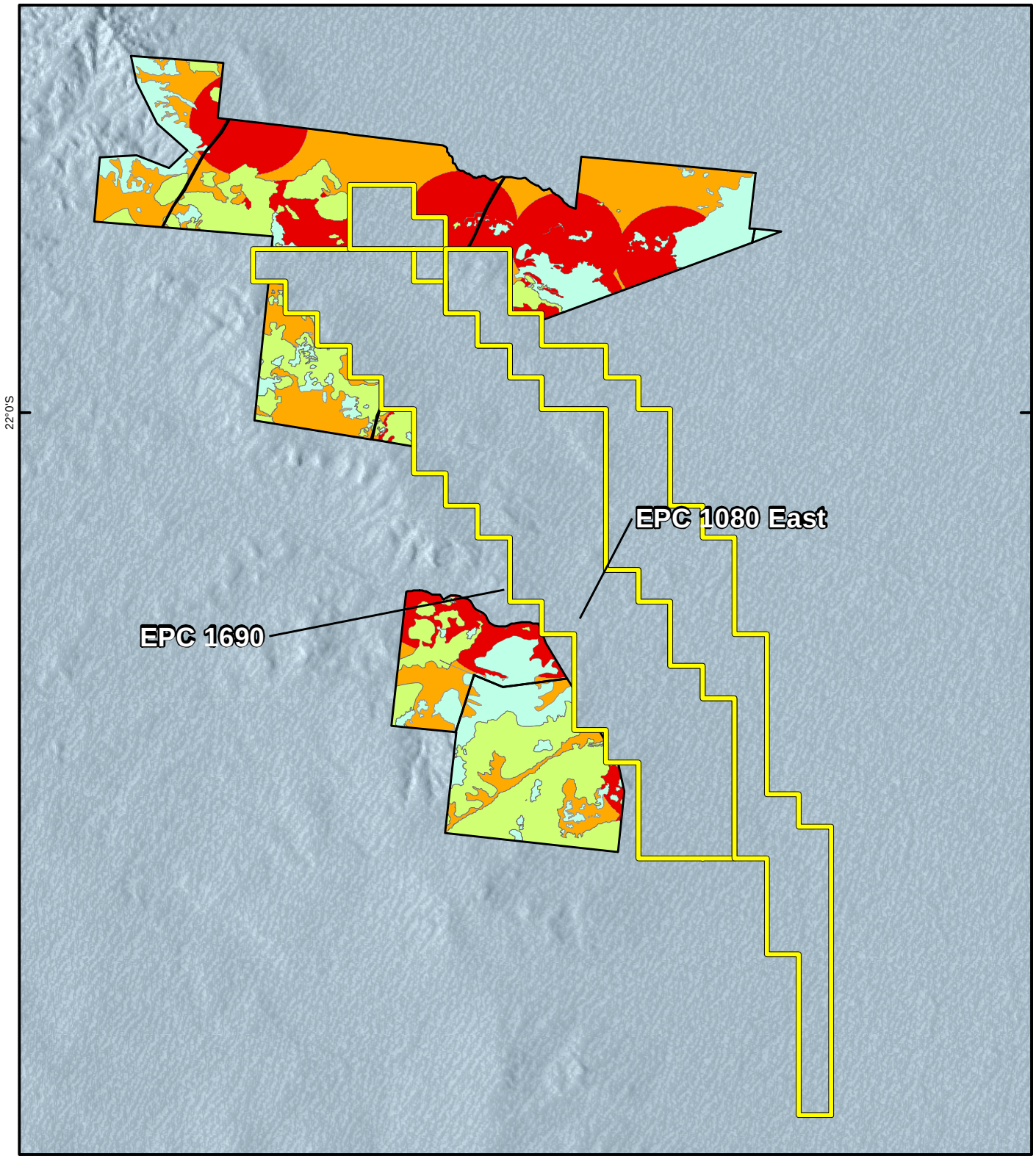
6.59 This location has mixed habitat values with the area to North West mapped as High value though habitats present are generally low value. Whilst an area to South East is mapped as Low & Medium value and holds High Value habitats.

Photo 4: Area to North West mapped as high value habitat which contains low value habitats.

Photo 5: Area mapped as low value habitat which contains high value habitats.

6.60 These inconsistencies are not unusual in such broad scale mapping.

6.61 As noted by in the Moray Downs West Ecological Equivalence Assessment (Ecological 2014, P.33) "*These areas vary in their range of values and condition which will define management requirements*".



Data sourced from: Moray Downs West EEA
Prepared by ECO LOGICAL AUSTRALIA PTY LTD (C) 02/10/2014

Coordinate System: GCS GDA 1994
Datum: GDA 1994
Units: Degree

1:321,685 at A4
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LEGEND

Black-throated Finch Habitat Value

- Very high
- High
- Medium
- Low

- Adani Pty Ltd - EPC
- Moray Downs West Offset Areas

Figure:	**5**
Title:	Black-throated Finch habitat values mapping
Project:	**Adrian Caneris expert statement on Black-throated Finch**
Client:	**Adani Mining Pty Ltd**

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Drawn By: MG Reviewed by: AC Date: 12/03/2015

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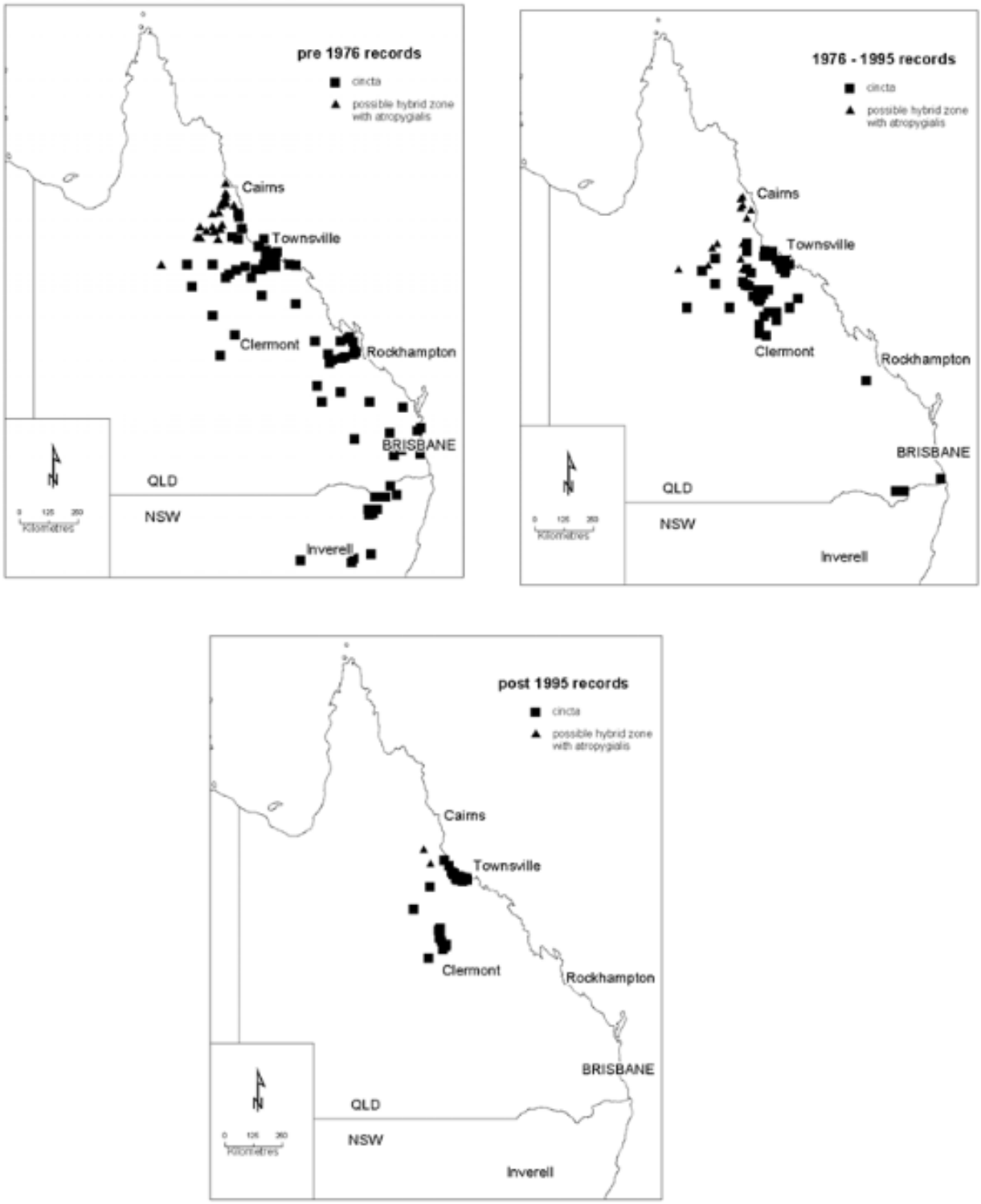

Figure 1. Known current distribution and recent historical records for the black-throated finch southern subspecies

SOURCES: Birds Australia database 2004, Black-throated finch recovery team database 2004, Queensland Environmental Protection Agency (EPA) sightings to 2004. The information shown on this map is for discussion purposes only, EPA Townsville, March 2004.

Figure 6: Showing the historical and recent distribution of BTF.

6.62 The aim of the mapping is to compare (broadly) the values within the disturbance footprint against those in the offset areas to indicate that required offset values can be generally achieved.

6.63 The National BTF Recovery Plan identifies that decline of the black-throated finch began early in the 20th century with the development of pastoralism. Overgrazing of the riparian grassland that is the main habitat of the species is most likely a major cause of the contraction in range.

6.64 The subspecies' decline began at the southern end of its range in NSW, where sheep grazing is dominant and feral rabbits have been common.

6.65 There had been a less extreme effect in the northern part of its range where clearing has not yet been so widespread, and grazing is predominantly by cattle. Now, however, even in the northern extent of its range, the subspecies appears to be in decline.

6.66 There are numerous known or potential threats to the black-throated finch which include:

6.66.1 clearing and fragmentation of habitats for pastoral or other purposes;

6.66.2 degradation of habitat by domestic stock and feral animals, including alterations to fuel load,

6.66.3 changes to vegetation structure as a result of disturbances resulting in reduced feeding resources;

6.66.4 alteration of habitat by changes in fire regime, or large fire events;

6.66.5 food availability during and immediately after the wet season;

6.66.6 exotic weed invasion including, but not limited to exotic grasses;

6.66.7 predation by introduced (feral) predators

6.67 The proposed offset and associated management action will have a significant net benefit to BTF through the removal or reduction of the above threats.

6.68 It is my view that the proposed offset areas will overtime become recognised as an important, or the most important, holding of BTF habitats within a protected area.

6.69 In regard to the statements by Dr Olsen that the 'precautionary principle' must be "invoked" in relation to this project (JER1 [paragraph 6.7.5] and JER2 [paragraph 6.19]) primarily due to concern about a lack of knowledge of grass species and their various importance as feeding resources for BTF.

6.70 My understanding of the 'precautionary principal' is that if or where there are unknown potential threats of serious or irreversible environmental damage, lack of scientific certainty should not be used as a justification to postpone an action in order to prevent environmental harm.

6.71 Whilst it is agreed there is a level of uncertainty in respect to BTF habitat requirements particularly in relation to important grass species, it is known that the local landscape holds habitats which provide suitable resources and these values are not confined to the project area.

6.72 The Draft EA conditions for the project include specific requirements (conditions I6 and I7) to undertake further work to increase the understanding of BTF habitat and identification of impacts on BTF habitat by the project.

6.73 The Draft EA for the project requires research on BTF habitat including a requirement to develop a BTF Species Management Plan, which I note has already been undertaken (GHD 2014).

6.74 The project through the BTF Species Management Plan, monitoring programme and proponent contributions to a bioregional species management plan and other associated actions, includes activities towards obtaining an increased knowledge and recognition of BTF habitat values.

6.75 I therefore view the approval conditions and associated management actions as being consistent with, and incorporating 'precautionary principles'.

7.0 SUMMARY

7.1 Whilst there is clear recognition of the fact the proposed actions will result in a significant impact, the mitigation responses will result in a net benefit and ultimately provide a more secure future for the species in the local landscape than currently exists.

7.2 The local BTF population is recognised as significance and this adds to the overall importance of the offset locations in respect to maintaining suitable habitats in the local landscape.

7.3 It is reasonable to assume that if left unabated existing detrimental land uses and threatening processes will continue and likely expand.

7.4 It is my view that the offset provisions will provide protection of BTF habitat, and a net benefit achieved through the proposed offset areas and their long term protection and management, in the local landscape which would otherwise be unlikely to occur.

7.5 The provision of the proposed offset and associated protection and prescribed management actions will provide increased long term retention of BTF habitats with the cessation of threating processes and ingoing management.

7.6 The proposed offsets are proximate to the disturbance area and readily accessible by BTF.

7.7 In addition to the offset provisions, there is a management framework outlined for the establishment, maintenance and monitoring of the offsets, with clear management and reporting timeframes and target outcomes to inform adaptive management and ensure transparent and effective governance of the offsets.

7.8 An Advisory Committee is to be established to provide peer/technical expert input and reviews during implementation of the BTF Management Plan.

7.9 The approval conditions include precautionary measures and regular reviews to ensure sufficient commensurate offsets are ultimately provided.

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9.0 ACKNOWLEDGEMENT

7.1 I acknowledge that in this proceeding:

7.1.1 As an expert witness giving evidence (by report, or otherwise) I have a duty to assist the Court; and

7.1.2 That duty overrides any obligation I may have to any party to the proceeding or to any person who is liable for my fees or expenses.

7.2 I declare that:

7.2.1 I have been instructed to assist the Land Court of Queensland by investigating and reporting on issues relevant to the Black-throated Finch southern subspecies *Poephila cincta cincta*.

7.2.2 I verify that my instructions have included the Land Court Rules 2000 (current as at 13 December 2013) and the Uniform Civil Procedure Rules 1999, which I have read and understand, and that no instructions were given to me, or accepted by me, to adopt or reject any particular opinion in preparing this statement.