

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

Land Court Nos.:
MRA428-14, EPA429-14, MRA430-14, EPA431-14, MRA432-14,
EPA433-14, EPA446-14

Dr Roderick Fensham

Expert Report on Springs Ecology

INSTRUCTIONS

- [1] I have been instructed to prepare an individual expert report on springs ecology issues for the Land Court of Queensland hearing of objections to the grant of Adani's mining lease (ML) and environmental authority (EA) applications for the mine component (Mine) of the Carmichael Coal Mine and Rail Project (Project).
- [2] My qualifications and experience are contained in the curriculum vitae at Appendix A.
- [3] My letter of instruction is attached at Appendix B.

Part 1 - In reference to a disagreement in 'Joint Experts Report: Springs Ecology'

Issue No 14 (in part) [Line 78]

RF: Effective offsetting for the complete loss of the Doongmabulla Springs is not feasible because:

a) enhancing existing values of other springs is not an effective offset for the loss of the exceptional values of the entire complex at the Doongmabulla Springs;

b) the circumstances to reconstruct the hydrological, chemical and biological values at additional artificial springs complex are unavailable.

BW: Enhancing existing values of other springs is unlikely to be able to provide an effective offset for the loss of the exceptional values of the entire complex at Doongmabulla Springs and reconstructing artificial springs that are totally equivalent is not possible. However, enhancing existing values at another spring site may be able to provide equivalent values that could be used to offset specified impacts at the Doongmabulla Springs.

Opinion:

- [4] I am responding to the offsetting of 'specified impacts' referred in the BW comment. If 'specified impacts' include partial loss of spring wetland area the historical record is instructive and is expanded on here.

- [5] Historical records provide a reasonably precise estimate of original flow rates (typically estimated by early hydrologists in gallons per day). Springs occur in 'spring complexes' defined as clusters of springs in a similar landscape setting at a location where pairs of springs are not separated by more than about 6km. Of the 347 'discharge spring' (springs emanating under artesian pressure as opposed to gravity) complexes in the Great Artesian Basin (GAB), there is evidence for decline in 193 (56%) complexes. Of these 193 spring complexes, 143 are completely inactive and another 13 are nearly inactive (more than 80% loss of flow rate, or number of individual springs in a complex). A comparison of the current and historical status of GAB springs suggests that when springs decline in flow in response to reduced aquifer pressure they are far more likely to suffer major than minor impacts. However, there are also areas in the GAB where there have been substantial declines in aquifer pressure and there is no evidence of substantial declines in spring flows.

Spring decline in the vicinity of the Doongmabulla Springs

- [6] There are numerous examples of springs that have become inactive over the last 130 years in the vicinity of the Doongmabulla Springs (see Figure 1 below). Most of the following historical descriptions come from the unpublished diaries of J. Alfred Griffith who was employed by the Water Supply Department of the Queensland Government to conduct a survey of artesian waters. He visited many springs throughout the GAB between 1896 and 1898, riding up to 30 miles a day on horseback.



Figure 1: Inactive (red) and active (blue) discharge springs in the vicinity of the Doongmabulla Springs. The location of the large springs that have become inactive (described in detail below) are identified as well as the location of the proposed Carmichael Mine development.

1. ATHERTON SPRINGS, ABERFOYLE

a) Historical description

[7] J. Alfred Griffiths, October 1897 (vol. 4, pp.19-20):

*The Atherton Spring is the most northerly and is situated approximately 3 miles bearing about 350° from SE corner of Aberfoyle block. It is an oval mound about 20 yards long and 2 feet high, covered with reeds at the top, from which a small stream issues and flows down the slope into a logged drinking place the overflow spreading in shallow lagoons for some hundred yards around. On the 29 October this stream, about halfway down the slope filled about 1.6 inches on a V-notch = **9,260 gallons daily**. By damming round the opening & cutting drains to collect the water no doubt this supply could be much increased. The temp at the summit of the drain was 85°F.*

*About 1 ¼ miles southwards is another spring of similar character flowing about **2000 estimated gallons daily**.*

Two miles or more south of the main spring, and about one mile west of Durbar Yard is very small spring that is fenced to keep out cattle.

In the Durbar paddock there is a fourth small spring sufficient to supply a small camp say of two men and their horses.

b) Current status

[8] The mound described by Griffiths has disappeared and the lagoons are dry. The spring is reduced to an excavated permanent pool 15 x 10m in a grey clay scalded depression. The other three springs have been inactive for at least two decades.



(a) Atherton Spring (site 1112), showing excavated pool and pushed timber (b) site of one of the shallow lagoons adjacent to spring as described by Griffiths (c) scalded country adjacent to spring with high density of Aboriginal stone flakes.

2. ABERFELDIE SPRINGS, ABERFOYLE

a) Historical description

- [9] J. Alfred Griffith in 1898 (vol.4, pp.20-21) described three groups of springs: a northern one which had been excavated and boxed, a line occurring amongst roots of black tea-tree heading south (one logged), and two mud springs to the south-east:

From 6 to 7 miles east of Aberfoyle Homestead are the Aberfeldie Springs on Spring Plains. The most northerly spring is near the old Bowen Road and approximately about 4 miles bearing 303° from the SE corner of block Aberfeldie. It has been excavated and boxed to a depth of about 9 feet, and the water stands level with the depression about 1 ½ foot below the general surface. There is no measureable flow.

South of this for about ¼ mile are clumps of black ti-tree among the roots of which are water springs; one of these is excavated 3 feet & logged but the supply is less than the boxed spring.

Also a well 6x3 has been sunk & fenced in which on 26 October the water stood 18 feet below the cusp and 32 feet deep, making 50 feet to the bottom of the well. The rate of supply is said to be too small to be worth pumping.

Small holes sunk in the loam are sometimes filled with potable water. About ¼ further to SE are a couple of mud springs of the usual character in which poles can be sunk to an indefinite depth; there have small trickles of water...

...The Spring Plain Bore No.4 is situated at the edge of scrub about 3 miles bearing 333° from the SE corner of block Aberfeldie. It is about 2 miles to the east of the Aberfeldie Springs, and is approached from the Old Bowen Road. This bore was sunk between 3rd to 27th Feb 1892. Water from 120 feet rose to 2 feet below the surface...

b) Current status

- [10] All springs are long extinct. The most northerly spring described by Griffiths is marked by a clump of *Melaleuca bracteata* surrounded by an old fence, situated on a scald on *Astrebla squarrosa* downs with *Acacia victoriae* adjacent to a patch of *Acacia cambagei*.



Northern Aberfeldie Spring, which emanated from amongst roots of tea-tree; old fence is still visible around spring, although boxed well was not found and has probably been filled with silt over the years

- [11] Clumps of tea-tree extending about ¼ mile to the south remain, but the water springs at their roots are long dry. The only time there is water is after rain. No traces of the excavated and boxed spring or the well were found.



Clumps of *Melaleuca bracteata* marking sites of now-inactive water springs as described by Griffiths

- [12] The springs ¼ mile to the south-east are now inactive and marked by a small scald in open Mitchell grass downs.

3. BIG SPRING (MONGOOBURRA), CORINDA



Scalded patch in Mitchell grass downs, marking the site of two mud springs described by Griffiths

a) Historical description

- [13] Griffiths' (25-26 March 1898) does not describe the spring, but it appears to have been one of the biggest in the line of springs stretching south along Thunderbolt Creek:

The most northerly is a detached spring called Big Spring which is located approximately about 5 miles bearing 60° from SW corner of block Mongooburra...

b) Current status

- [14] Big Spring has been inactive for at least two decades, but its location is marked by a large clump of tea-tree (*Melaleuca bracteata*) with river red gum (*Eucalyptus camaldulensis*) in a hollow between arms of a limestone ridge.



Big Spring on Mongooburra block, Corinda. River red gums (a); clump of tea-tree from limestone ridge (a, b); apparent site of former main vent (c); grindstone found on scald near spring (d).

4. FIVE MILE SPRING, CORINDA

a) Historical description

- [15] J. Alfred Griffiths (25-26 March 1898):

... in the fork of Thunderbolt and Sandy Creeks is the Five-Mile Spring, which is located about 2 ½ miles bearing 290° from the SE corner of block Jericho North. A strip of land about 30 chains x 5 chains is fenced in. The whole strip was formerly boggy but now the water flows

from two or three defined spots at the east end, resting(?) amongst the roots of the rushes. A V-notch placed a little below these in the gutter collected 2.10 inches in water = 18,300 g.p.d, having a temp of 80°F at the outburst(?). The water is led through a drinking trough outside the fence and is lost in the sand of Thunderbolt Creek about ¼ mile west. In winter the water gets a mile further down the creek.

b) Current status

- [16] The extinct spring is located on an open clay plain between Thunderbolt and Sandy Creeks and is marked by a scalded *Melaleuca bracteata*/*Eucalyptus camaldulensis*/*Acacia oswaldii* depression. The fence and trough drawn by Griffiths are not obvious on the ground, but there are old posts and troughs. The channel that carried water west to Thunderbolt Creek is marked by clumps of *Melaleuca bracteata* and scalded depressions.



Scalded depression marking the site of Five-Mile spring (left), and channel which previously carried water west to Thunderbolt Creek (right)

5. CAMP SPRING, CORINDA

a) Historical description

- [17] J. Alfred Griffiths:

The Camp Spring is in the horse paddock in the NE corner of Block Jericho, about ½ mile south of a conspicuous scarp of desert table-land. In the beginning of 1897 this was a peat mound 11 feet high and about 30 yards across, all with springs (?). In May '97 drains were cut to the centre and at first a strong flow of water was got, but mound sank, until in November it was only a trickle (1.1 in an V = 3,600 g.p.d.) and the mound was only 2 feet high. The water did not formerly rise to the top of the mound but was tapped about 3 feet up by driving poles into the centre of the mound. At present some parts of the former mound are below mean surface, and the water is led in an elevated gutter with considerable leakage, to a clay crab-hole a few chains away for the supply of the horses & camp. The temp in the water is 80°F (while the atmosphere was 107°).

There are several mud & water holes adjoining of great depth but small capacity. In the Thunderbolt Creek are many permanent water holes formerly/probably (?) fed by submerged artesian springs.

b) Current status

- [18] The peat mound described by Griffiths had already subsided by the late 1890s and is no longer evident. The site of Camp Spring is not obvious on the ground, but was assigned to a scalded hollow with *Melaleuca bracteata* and *Eucalyptus camaldulensis* in the western channels of Thunderbolt Creek ½ mile south of the conspicuous scarp. There are patches of tea-tree along the creek and numerous dry sandy holes which were once the permanent holes described by Griffiths. Any trace of the camp has probably been washed away by floods in the creek over the past century.



Possible location of Griffiths' Camp Spring, although peat mound or remains of camp no longer evident

6. SANDY CREEK, GORDONBROOK

a) Historical description

- [19] J Alfred Griffiths (1898, volume 3, p 103):

The Sandy Creek springs are close to the west boundary and about 3 miles south of the NW corner. The water issues from the desert formation and fills pools about a mile in extent running north into Sandy Creek. The water suits stock but is not considered good for human consumption. During the 1897 drought (Nov) 9 to 10 000 sheep with 70% of lambs were regularly watered here, taking about 24 000 gallons per day.

b) Current status

- [20] One spring was active and dammed, with free water covering 250m² but does not beyond the confines of the dam.



Sandy Creek Spring in 1999

7. FIVE-MILE SPRINGS, BALLYGAR

a) Historical description

[21] J. Alfred Griffiths did not visit them, but describes (19/6/1897):

The following are the main groups [across the eastern side of the Aramac Run at the foot of the ranges]: (E) The V-mile group, about 6 miles south of NW corner of Camara yield about 10,000 gpd.

[22] Jimmy Keyes, an old-timer in the Aramac district, could remember the springs flowing water until the early 1950s.

b) Current status

[23] Three groups of extinct springs were documented, clustered along the upper reaches of Splitters Creek and its tributaries. The occurrence of extensive travertine pavements, groundwater scalds and tea-tree thickets suggests that there were once springs throughout the area. The Old Five Mile well/bore was sunk in 1894, probably on an old spring. It is situated in a red gum hollow, and drains were dug to run the water downslope. There was an old shepherd's hut on the ridge nearby. There

are numerous red gum hollows and travertine pavements dotted across the area. These indicate the locations of old springs, which ran water until 1951 when many bores were sunk in the area. One kilometre to the east is a site known as 'The Graveyard', with many dead *Melaleuca bracteata* trees on a scalded slope with travertine pavements.



Five-Mile springs, Ballygar: (A) Rock Corner Bore, showing extensive travertine pavements; (B) Scalded area with travertine near (C) 'The Graveyard'; (D) Scalded depression in *Melaleuca bracteata* hollow, probably representing an old spring; (E) Travertine on slope below old well, the location of which is marked by a rusty bucket, held by Frank Mainwaring in photo (F)

8. FRIENDLY SPRINGS

a) Historical description

[24] J. Alfred Griffiths did not visit them, but describes (19/6/1897):

The following are the main groups [across the eastern side of the Aramac Run at the foot of the ranges]:...(F)The Friendly Springs in the NE corner of the block of the same name are estimated to yield 100,000 gpd.

b) Current status

- [25] All springs are now extinct. The site of the main spring is marked by a buried ships tank near the ruins of Aramac Outstation, which was built at the spring in the 1860s. The ships tank is on a sandy, scaldy rise with buffel grass. The area to the south-east of this is an extensive scalded plain with travertine and *Melaleuca bracteata*/*Eucalyptus camaldulensis* hollows, indicating the past existence of now-inactive springs.



Friendly Springs, Ravenswood: (A) Shovel marks site of buried ships tank, which marks site of main spring and old Aramac Outstation; (B) Extensive scalds and travertine indicating old springs; (C) Hollow currently filled with rainwater with travertine pavement adjacent.

9. JERSEY SPRINGS

- [26] J. Alfred Griffiths did not visit them, but describes (19/6/1897):

The following are the main groups [across the eastern side of the Aramac Run at the foot of the ranges]: The Jersey Springs near the middle of the west boundary of block Jersey but mainly on the block Friendly Springs are estimated to yield 100,000gpd.

[27] Four active but much-reduced springs were documented on the Taree/Politic boundary. All are small pools which only occasionally trickle down the gully. The most northerly spring, has been excavated. The substrate has a strong smell and the water is corrosive and changes colour, and can be yellow, black or green at different times.



Jersey Springs on the Taree-Politic boundary: (A) Bryceson's Spring (B) Kangaroo Bog (C) Politic spring (D) Black Pond

Part 2 - In reference to Dr Noel Merrick's Memorandum

1. Impact of reduced spring flows on spring conservation values

a) Expert Extracts on Groundwater Impacts at Doongmabulla Springs

[28] In our Joint Experts Report: Springs Ecology (Bruce Wilson, Rod Fensham) we made a request for further information: 'We require an assessment of the predicted change in flow rates to fully assess the impact on ecological values of Doongmabulla Springs.'

[29] In the subsequent reports, impacts include a 'minimal impact' scenario presented by Dr Noel Merrick in his document dated 3 February 2015 and titled "Adani - Carmichael Coal Project: Assessment of Potential Reduction in Spring Flow":

- i) On page 11 states that "At the downstream end of the springs the loss 160 m³/day and the pre-mine flow is about 3000 m³/day for the Option 1 model, giving an impact of 5.3 percent."
- ii) On page 12 states that "Using a range of possible drawdown magnitudes, I have calculated that the loss in spring flow is likely to be in the 3 percent to 5 percent range at the Doongmabulla Springs."

[30] A 'maximum impact' scenario is also represented by:

- a. Dr Adrian Werner on page 29 of his individual statement of evidence to the Land Court in this matter:

"Ultimately, given that there are springs with discharge points that are almost at the land surface, the change in flow will be up to 100% of spring flow and not the small values of a few % suggested by Dr Merrick."

- b. Dr John Webb on page 33 of his individual statement of evidence to the Land Court in this matter:

"If the Permian strata underlying the springs (coal-bearing Colinlea Sandstone and/or overlying Bandanna Formation) are contributing to the groundwater flow at the springs through a fault breaching the Rewan Formation aquitard, then dewatering for the mine, which will lower the watertable and potentiometric surface of the Permian units across the area around the springs (EIS Hydrogeology), would adversely affect the spring flow and would most likely cause the springs to dry up."

b) Assessment of Groundwater Impact for the Springs and their Conservation Values

[31] In order to calculate the impact of the minimal impact scenario the function of Fatchen (2001) relating flow rate to wetland area was employed for the springs at Doongmabulla with high conservation value (Moses Springs, not including Joshua Spring, Little Moses or Surprise Springs):

- a. A 3% decline in spring flows would result in an overall decline in wetland area from about 7.85 ha to 7.68 ha;
- b. A 5% decline in spring flows would result in an overall decline in wetland area to about 7.57 ha;

- c. In percentage terms these are slightly lower reduction in area than the projected reductions in flow because the Fatchen (2001) function includes a logarithmic conversion; and
- d. The number of springs may be reduced with the disappearance of some small vents. However, the most important values of the springs in terms of biological conservation, namely the persistence of viable populations of the species that are endemic to spring wetlands will almost certainly be maintained under this minimal impact scenario.

[32] The maximum impact scenario where springs dry up completely because of reductions in the aquifer head will result in the loss of the spring wetlands and eradication of all spring-dependent species including the rare plant species that are endemic to spring wetlands.

Part 3

Expert Statement – Additional Facts

[33] I am not aware of any further readily ascertainable additional facts that would assist me to reach a more reliable conclusion.

Declaration

[34] I confirm:

- (a) the factual matters stated in the report are, as far as I know, true;
- (b) I have made all the enquiries which I consider to be desirable and appropriate, and that no matters of significance which I regard as relevant have, in my knowledge, been withheld from the Court;
- (c) the opinions stated in the report are genuinely held by me;
- (d) the report contains reference to all matters I consider significant;
- (e) I have been instructed as to my duty to the Court as an expert and have understood and discharged that duty;
- (f) I have read and understood the Land Court Rules on expert evidence; and
- (g) I have not received or accepted instructions to adopt or reject any particular opinion in relation to an issue in dispute in the proceeding in preparing the report.

Signed:



Rod Fensham
11 February 2015

Reference:

Fatchen, T (2001) Vegetated wetland area as an index of mound spring flows. Proceedings of the 4th Mound Spring Researchers Forum Friday 23 February 2001, Department of Environment and Heritage, Adelaide, pp. 5-8, accessed 10 March 2008, <http://www.gabcc.org.au/tools/getFile.aspx?tbl=tblContentItem&id=47>.

Source data:

Fensham RJ, Ponder WF, Fairfax RJ (2010) Recovery plan for the community of native species dependent on natural discharge of groundwater from the Great Artesian Basin. Department of the Environment, Water, Heritage and the Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane.

Queensland Herbarium spring database

This database is currently undergoing development as part of the Lake Eyre Basin Spring Assessment project.

Appendix A

CURRICULUM VITAE - ROD FENSHAM

PERSONAL DETAILS

NAME: Roderick John FENSHAM

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NATIONALITY: Australian

TERTIARY EDUCATION

Latrobe University, Melbourne
2 years BSc 1979-80

University of Tasmania
BSc (Botany major) awarded December 1983

University of Tasmania
BSc (Hons) Geography (First) awarded December 1985

University of Tasmania
PhD (Geography) awarded May 1992

PROFESSIONAL APPOINTMENTS

July 2009 – present
Associate Professor, School of Biological Sciences, University of Queensland

August 1998 – present
Principal Botanist, Queensland Herbarium, Department of Science, Information
Technology Innovation and the Arts

March – May 2005
Acting Chief Scientist, Ecology and Vegetation Management, Queensland Herbarium,
Environmental Protection Agency

September 2004 – present
Adjunct Associate Professor, School of Geography, Planning and Architecture,
University of Queensland

September 1994 – March 1998
Senior Botanist, Queensland Herbarium, Environmental Protection Agency

April 1994 - September 1994

Botanist, Queensland Herbarium, Queensland Department of Environment and Heritage (grassland survey and conservation).

May 1992 - November 1993

Conservation Officer, Queensland Department of Environment and Heritage (vine forest vegetation survey and conservation).

1984-2008

Contract lecturing and research: School of Integrative Biology, University of Queensland, Department of Geography, James Cook University, Department of Arts Sport Tourism and Territories and Conservation Commission of the Northern Territory, Hobart City Council, Australian Conservation Foundation, School for Field Studies, Conservation Commission of the Northern Territory, Department of Geography and Environmental Studies, University of Tasmania, Department of Lands, Parks and Wildlife, Tasmania, Jerry de Gryse Pty. Ltd, National Rainforest Conservation Program, Australian National Heritage Commission, Conservation Commission of the Northern Territory, Hobart City Council.

RESEARCH EXPERIENCE

- Vegetation community typology and ecology
- Structural vegetation change and greenhouse budgeting
- Ecology and recovery of rare and threatened plant species and ecological communities
- Tree regeneration processes in eucalypt forests
- Vegetation ecology of dry rainforest communities
- Fire effects on vegetation
- Edaphic control of vegetation gradients in tropical savanna
- Monsoon forest-savanna boundaries
- Grasslands and grassy woodlands ecology
- Historical biogeography
- Ethnobotany
- Forest/woodland/grassland transitions
- Forest fuel dynamics
- Coastal sand-dune ecology
- Reserve planning
- Ecology of exotic plants
- Effects of pigs in rainforest
- Foliar nutrient cycling
- Conservation of bryophytes
- Insect herbivory-vegetation dynamics

TEACHING EXPERIENCE

- Plant identification and vegetation classification (Co-ordinator, 3rd year 2008-2013)
- Outback Ecology (Co-ordinator, 3rd year 2008-2013)
- Climate change (3rd year 2009-2013)
- Conservation Biology (Masters Program 2008-2013)

MAJOR ACHIEVEMENTS

- Publication of 'The Leichhardt diaries. Early travels in Australia during 1842-1844'. The book was given a two page review in the Weekend Review (The Australian 19-20 October 2013, p. 18-19) by Nicolas Rothwell, nominated by Rothwell as 2013 Book of the Year for the Australian Book Review and a section was selected for the publication 'Best Australian Science Writing 2014' (Ed. Ashley Hay).
- Developed and initiated the CATER (Carbon Accumulation Through Ecosystem Recovery) project that provides spatially explicit web information for ecosystem restoration for any area in Queensland including: a) quantitative estimates of carbon sequestration potential accumulation, b) management advice for ecosystem restoration, c) the contribution to biodiversity for ecosystem restoration.
- Winner 2005 \$10,000 Sherman Eureka Prize for Environmental Research for 'For innovative research into biodiversity and woodland dynamics that underpins a range of conservation measures to protect native vegetation threatened by broad-scale clearing in northern Australia'. The sponsor of the prize, Brian Sherman (President of the Museum Trust) indicates that 'Collectively, their (Fensham and Fairfax's) work forms a comprehensive and, compelling and sophisticated chronicle...and represents a significant increase in our understanding of how to protect bush' and that 'Fensham and Fairfax followed through with the implications of their research, influencing State Government policy and land management practice'.
- Long standing involvement with the Vegetation Management Act in Queensland to regulate land clearance, including a major architect of the policy framework. Numerous government committees including those contributing to the development of legislative codes for the Queensland Vegetation Management Act legislation (2004) that prohibits broadscale clearing of native remnant vegetation
- Active involvement with spring wetland conservation including negotiation of tenured Nature Refuge agreements, redirecting the substantial GABSI (the Federal/State/Landholder partnership for bore capping) program to benefit high value spring wetlands
- Major contributor to the Underground Water Impact Report regulating the Coal Seam Gas Industry in the Surat Catchment Management Area.
- Contributed to establishment of conservation reserves, including ecological planning, landholder consultation and political lobbying, including the Norm Gibson Nature Reserve, Epping Forest, Tasmania; 'Gonderoo', Central Queensland (Bush Heritage Australia), 'Carnarvon', Central Queensland (Bush Heritage Australia), Albinia Downs NP, central Queensland (QPWS), Nairana NP, central Queensland (QPWS), Edgbaston (Bush Heritage Australia)
- Organised numerous field days for farmers, non-government organizations and general public to heighten conservation awareness and understanding of ecosystems and ecological processes.
- Many productive and highly valued working relations with staff, colleagues and diverse sections of the community including aboriginal Australians and rural landholders.
- International Study Tour August 2001 to present and enhance research on structural change in Australian woodland ecosystems at A&M University, Texas USA; US Geological Survey, Harvard University USA; University of Oxford, UK.
- Invited speaker at Ecological Society of America Conference, San Jose 2007.
- Supervision of numerous PhD and other post-graduate students
- 2009 Nancy Keesing Fellow. Mitchell Library, Sydney. (Leichhardt diaries project)
- Media appearances on 7:30 report, Science Show, Ockham's razor, Breakfast Show, Time magazine, Australian review.

SUCCESSFUL FUNDING APPLICATIONS AND CONSULTANCIES

2013 \$223,548 Assessing ecosystem recovery after extreme drought-related dieback events worldwide. (with A. Jump, T. Kitzberger, C. Allan, F. Lloret), The Leverhulme Trust.

2013 \$393,000 Predicting the consequences of drought-induced mortality for tree species in a changing climate. ARC Discovery DP140102077

2013 \$1.6M Lake Eyre Basin Springs Assessment – Australian Government Bioregional Assessment Program, Department of Environment (Commonwealth)

2012 \$498,196 Ecological and Hydrogeological Survey of Great Artesian Basin – Phase 1. Office of Water Science, DSEWPaC

2011 \$460,000 Accelerating species richness gains and carbon sequestration in secondary regrowth in north Queensland LP110201093 (ARC Linkage; Laurance, S.G., Goosem, S.P., Laurance, W.F. Preece, N., Fensham, R.J.)

2011 \$109,000 Survey of artesian springs, Surat Basin. Queensland Water Commission.

2010 \$3,500,000 Carbon Accumulation Through Ecosystem Recovery CATER Queensland Government

2011-2013 \$210,000 Diversity, divergence and restoration potential of plant communities in isolated desert spring wetlands. BHP Billiton Cannington Mine Community Fund

2009 \$90,000 Water remote grazing management Caring for Country 945C9147D. Department of Environment, Water, Heritage and the Arts.

2009 \$2000 Review of ‘Allocating water and maintaining springs in the Great Artesian Basin (Ecology program)’ National Water Initiative funded project.

2009 \$10,000 Nancy Keesing Fellowship (Leichhardt Diaries project). Mitchell Library, Sydney.

2008 \$770 000 Towards Novel Biomimetic Building Materials: Evaluating Aboriginal and Western Scientific Knowledge of Spinifex Grasses DP0877161 (ARC Discovery; Memmott, PC, Schmidt, S., Hyde, RA, Martin, DJ, Fensham, RJ)

2008 \$570 000 Understanding the impact of global environmental change on Australian forests and woodlands using rainforest boundaries and Callitris growth as bio-indicators (ARC Discovery; Bowman, DM, Murphy BP, Fensham RJ, Lloyd, JJ)

2008 \$60,000 Baseline monitoring of Great Artesian Basin Springs with satellite imagery (Department of Natural Resources and Energy)

2008 \$149,000 Identification of permanent refuge waterbodies in the Cooper Creek & Georgina-Diamantina River catchments for Queensland and South Australia. The South Australian Arid lands Natural Resources Management Board.

2008 \$5,000 Historical Research Collaboration Project Mulga Lands Information Hub. Southwest Natural Resources Management Board.

2008 \$79,200 Gambusia control in spring wetlands. The South Australian Arid lands Natural Resources Management Board.

2008 \$64,900 Historical collation of waterbody information in the Lake Eyre Basin Catchments for Queensland and South Australia

2008 \$41,000 Biomass assessment of Brisbane forests. Brisbane City Council.

2007 \$3,300 Identifying water-remote areas on GABSI lands. (Department of Natural Resources and Energy)

2007 \$33,860. Bringing fire back to the Bunya Mountains. Burnett Mary regional Group.

2006 \$9,950 Review of water remoteness in semi-arid Queensland. (Department of Natural Resources and Energy)

2006 \$22,000 Pilot study for monitoring Great Artesian Basin Springs with satellite imagery (Department of Natural Resources and Energy)

2005 \$20,000 Flora survey and heritage values of the Peak Range, Central Queensland (Australian Heritage commission)

2005 \$5,000 Flora survey and management issues for Yelarbon Desert spinifex salt scald area (Condamine Alliance Natural Resource Management Group)

2004 \$47,580 Calibration of vegetation structure on aerial photographs in tropical savanna. (Tropical Savanna Co-operative Research Centre)

2003: \$4,000 Structural change in gidgee, Part 1. (Tropical Savanna Co-operative Research Centre)

2003 \$83,800 Costs and benefits for using fire to maintain structure and production in eucalypt woodlands (Land and Water Australia)

2003 \$4,000 Effects of thickening on fauna in the Desert Uplands, aerial photo assessment. (Tropical Savanna Co-operative Research Centre)

2003 \$13,500 (Land and Water Australia)

2003 \$182,492 Recovery plan for the ecological community listed as ‘community of native species dependent on natural discharge of groundwater from the Great Artesian Basin’ and national recovery plans for associated flora and fish species covering the Elizabeth Springs Goby (*Chlamydogobius micropterus*), Edgbaston Goby (*Chlamydogobius squamigenus*), Red-finned Blue-eye (*Scaturiginichthys vermeilpinnis*), *Eryngium fontanum*, *Eriocaulon carsonii*, *Calophyllum bicolor* and *Cyathea exilis*. (Department of Environment and Heritage)

2000 \$26,000 Conservation strategy for Artesian Springs outside the Great Artesian Basin in Queensland. (Environment Australia)

2000 \$7,500 Monitoring biodiversity in Australian rangelands. (Environment Australia)

1999 \$15,000 Phase 2 Endangered flora species, vegetation and land-holder survey of Artesian Springs in Queensland. (Environment Australia)

1998 \$77,000 Structural change in tropical woodlands. (Tropical Savanna Co-operative Research Centre)

1997 \$9,800 Conservation assessment of *Trioncinia retroflexa*. (Pacific Coal Pty. Ltd)

1997 \$54,000 *Trioncinia retroflexa*: monitoring and re-establishment. (Pacific Coal Pty. Ltd)

1997 \$304,000 Fauna and habitat studies in central Queensland. (Environment Australia (Bushcare), jointly with Juliana McCosker, Department of Environment, Emerald)

1997 \$15,000 Phase 1 Endangered flora species, vegetation and land-holder survey of Artesian Springs in Queensland. (Environment Australia)

1996 \$10,500 Survey and conservation assessment of mound springs in the vicinity of the proposed Nathan Dam. (Department of Primary Industries and Water Resources)

1994 \$54,000 Survey and conservation assessment of grasslands in the Central Highlands, Queensland. (Australian Nature Conservation Agency)

1993 \$12,000 Dry rainforest mapping. (Jobs for the Environment Program, Australian Nature Conservation Agency)

1993 \$54,000 Survey and conservation assessment of grasslands on the Darling Downs, Queensland. (Australian Heritage Commission)

1991 \$60,000 Ecology and conservation of monsoon forest on the Tiwi Islands. (National Rainforest Conservation Programme, Australian Nature Conservation Agency)

1989 \$3,000 Cape York Peninsula monsoon forest studies. (Conservation Commission of the Northern Territory)

1989 \$9,000 Fuel accumulation in Hobart environs. (Hobart City Council)

1989 \$60,000 Animal disturbance and rare plant species establishment' (Endangered Species Advisory Council, Australian Nature Conservation Agency)

1989 \$2,000 Assessment of the feasibility of preserving a portion of Epping Forest, Tasmania'. Department of Lands, Parks and Wildlife, Tasmania)

1988 \$2,000 Assessment of the conservation significance and provision of management recommendations for Waverley Park, Bellerive, Tasmania. (Jerry de Gryse Pty. Ltd.)

SOCIETY MEMBERSHIP

Ecological Society of Australia
Royal Society of Queensland

PUBLICATIONS

Refereed articles

Evans M.C. Josie Carwardine, J., Fensham, R.J., Don W. Butler, D.W., Wilson, K.A., Possingham, H.P., and Martin, T.G. (in press) Carbon farming via assisted natural regeneration as a cost-effective mechanism for restoring biodiversity in agricultural landscapes. *Environmental Science and Policy*

Nicol, S., Haynes, T.B., Fensham, R., Kerezszy, A. (in press) Identifying the impact of *Gambusia holbrooki* on the extinction risk of the critically endangered red-finned blue-eye. *Ecosphere*

Silcock, J.E., Fensham, R.J. (in press) Lost in time and space: re-assessment of conservation status in an arid-zone flora through targeted field survey. *Australian Journal of Botany*

Zeppel, M.J.B., Harrison, S.P., Adams, H.D., Kelley, D.J., Li, G., Tissue, D.T., Dawson, T.E., Fensham, R., Medlyn, B.E., Palmer, A., West, A.G., McDowell, N.G. (in press) Drought and resprouting plants. *New Phytologist*

Smith, G.C., Fensham, R.J., Ferguson, D., Hogan, L., Mathieson, M. (in press) Fauna of the grassland-forest landscape mosaics of the Bunya Mountains, eastern Australia. *Australian Zoologist*

Halford, J.J., Fensham, R.J. (in press) Vegetation and environmental relations of ephemeral subtropical wetlands in central Queensland, Australia. *Australian Journal of Botany*.

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Appendix B - Letter of Instruction



EDO Qld.

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*Using the law to protect
our environment.*

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25 November 2014

Professor Rod Fensham
Department of Biological Sciences
The University of Queensland
PO Box 6042
St Lucia, Qld 4067

Sent by email: r.fensham@uq.edu.au

Dear Professor Fensham

Land Services of LSCC Inc. – Analysis of Carmichael coal mine assessment

We confirm that we act for Land Services of Coast and Country Inc. (**LSCC**) in respect of its concerns with the Carmichael Coal Mine (**Project**). LSCC has made an objection to the grant of a mining lease (**ML**) and environmental authority (**EA**) for the Project which are currently the subject of proceedings in the Queensland Land Court (**Proceedings**).

1. Engagement

1.1 On behalf of LSCC, we wish to engage you to act as an independent expert witness in the Proceedings in relation to your area of expertise; spring ecology.

2. Instructions

2.1 You are instructed to review this letter and accompanying documents and advise generally as to whether you consider there are any significant issues or deficiencies in the assessment of your area of expertise for the Project.

2.2 Participate in the court process in the manner set out in the orders of the Court made on 20 October 2014.

3. **Background information**

- 3.1 The Project is a proposed open-cut and underground coal mine 160 km north-west of the town of Clermont, in Central Queensland. The mining lease application is for 30 years with an annual coal production rate of around 60 million tonnes per annum, but it is noteworthy that the Applicant's intention is to run the mine for 60 years.
- 3.2 The Project is situated in the Galilee Basin in the catchment of the Burdekin River, which flows into wetlands and the Great Barrier Reef, and the area of the Project and its surroundings is predominantly used for agriculture, particularly grazing.
- 3.3 The thermal coal deposits for the Project are located within Mining Lease Applications 70441, 70505 and 70506 (**MLAs**). Approximately 28,000 hectares of the mining lease area is proposed to be disturbed by the open-cut and underground mining operations and related activities.
- 3.4 Adani Mining Pty Ltd (**Applicant**) lodged MLA 70441 for a mining lease (**ML**) under the *Mineral Resources Act 1989* (Qld) (**MR Act**) on or about 8 November 2010 and subsequently applied for MLAs 70505 and 70506 on 9 July 2013.
- 3.5 The Coordinator-General declared the Project a significant project¹ for which an environmental impact state (**EIS**) was required under the *State Development and Public Works Organisation Act 1971* (Qld) (**SDPWO Act**) by [gazettal notice](#) on 26 November 2010.
- 3.6 The Applicant's EIS was published and public submissions invited from 15 December 2012 to 11 February 2013. A Supplementary EIS (**SEIS**) was published and public submissions invited from 25 November 2013 to 20 December 2013.
- 3.7 The Coordinator-General's report on the Project under the SDPWO Act was delivered on 7 May 2014. The Coordinator-General recommended that the mine be approved subject to conditions.
- 3.8 The Applicant made an application for an environmental authority (**EA**) under the *Environmental Protection Act 1994* (Qld) (**EP Act**) on 11 April 2014.
- 3.9 Objections to the MLAs and EAs were referred to the Queensland Land Court on about 29 September 2014.

4. **Brief of Material**

- 4.1 Once you have confirmed your availability to act in this matter, we will send you an invite to the electronic brief in this matter through Dropbox (a copy of the index to the current Dropbox brief is **Annexure A**). We can provide these document in other electronic format or in hard copy if necessary.
- 4.2 We draw your attention in particular to the general application and approval documents in Index B.

¹ Note that the SDPWO Act was amended in December 2012 (with the amendments taking effect on 21 December 2012). The amendments replaced the term 'significant project' with the term 'coordinated project' and these terms may be used interchangeably.

5. **Timing**

- 5.1 Our client lodged an objection to the ML on 17 June 2014, and an objection to the EA on 10 September 2014.
- 5.2 You be required to participate in the proceedings in accordance with the Orders made on 20 October 2014 (document 22 of Index A of your Brief).
- 5.3 You may be required to meet with any corresponding expert from the other parties and prepare a joint report on setting out points of agreement and disagreement.
- 5.4 You may be required to give oral evidence, or be cross-examined on your evidence, at a hearing.

6. **Your duty to the Land Court**

- 6.1 We enclose as **Annexure B** rules 22 to 24I of the *Land Court Rules 2000* which govern experts in the Land Court.
- 6.2 In particular we note that rule 24C of the *Land Court Rules 2000* provides that you have a duty to assist the Land Court which overrides any obligations you may have to LSCC as your client.
- 6.3 We also emphasise that we and our client don't seek to influence your views in any way and we ask for your independent opinion to assist the Land Court. Consequently, please note that any statements of fact or opinion in this letter of instructions, the above documents, or anything given or said to you by us relevant to the issues in your report do not constrain you in any way and are not intended to influence your views. We ask you to form your own opinion about the relevant facts and circumstances for the purposes of your report.
- 6.4 Any joint report or separate expert report you prepare should confirm that each expert understands the expert's duty to the court and has complied with that duty.

7. **Format of your statement of evidence (other than joint report)**

- 7.1 Suggestions for the format of your report are set out in **Annexure C**, "Format of your statement of evidence".
- 7.2 If you have taken part in a meeting of experts, the joint report is taken to be your statement of evidence and you are to produce a further statement of evidence in relation to any issue of disagreement.
- 7.3 Your report must:
 - (1) be addressed to the Court;
 - (2) include your qualifications;
 - (3) include all material facts, whether written or oral, on which your report is based;
 - (4) include references to any literature or other material you relied on to prepare the report;

- (5) include for any inspection, examination or experiment you conducted, initiated, or relied on to prepare your report—
 - i. a description of what was done; and
 - ii. whether the inspection, examination or experiment was done by the expert or under the expert’s supervision; and
 - iii. the name and qualifications of any other person involved; and
 - iv. the result;
- (6) if there is a range of opinion on matters dealt with in your report, include a summary of the range of opinion, and the reasons why you adopted a particular opinion;
- (7) include a summary of the conclusions you reached; and
- (8) include a statement about whether access to any readily ascertainable additional facts would assist you in reaching a more reliable conclusion;
- (9) include a confirmation at the end of the statement of evidence:
 - a) the factual matters included in the statement are, as far as the expert knows, true; and
 - b) the expert has made all enquiries considered appropriate; and
 - c) the opinions included in the statement are genuinely held by the expert; and
 - d) the statement contains reference to all matters the expert considers significant; and
 - e) the expert understands the expert’s duty to the court and has complied with the duty; and
 - f) the expert has read and understood the rules contained in this part, as far as they apply to the expert; and
 - g) the expert has not received or accepted instructions to adopt or reject a particular opinion in relation to an issue in dispute in the proceeding.
- (10) include your signature.

7.4 You should attach to the report:

- (1) a copy of your Curriculum Vitae; and
- (2) a copy of this letter.

7.5 Please number all pages and paragraphs of your report. You may wish to include an index.

7.6 If your report includes any photographs, measurements, graphs or illustrations these should be firmly attached to the report, and clearly identified and numbered.

8. **Change of opinion**

8.1 If for some reason, you change your opinion after delivering your report, please advise us as soon as possible. If that change is material, a supplementary report will need to be prepared, which explains the reasons for the change in your opinion.

9. **Confidentiality and privilege**

9.1 In accepting this engagement, you agree that:

- (1) this letter and all future communications (whether electronically maintained or not) between us are confidential. These communications may be subject to client legal privilege;
- (2) you must take **all** steps necessary to preserve the confidentiality of our communications and of any material or documents created or obtained by you in the course of preparing your report;
- (3) you must not disclose the information contained in our communications or obtained or prepared by you in the course of preparing your report without obtaining consent from us;
- (4) you must not provide any other person with documents which come into your possession during the course of preparing this report, whether created by you or provided to you by us or our clients, without obtaining consent from us.

9.2 The duty of confidentiality continues beyond the conclusion of your instructions.

9.3 If you are ever obliged by law to produce documents containing any of this confidential information (whether by subpoena, notice of non-party discovery or otherwise) please contact us immediately so that we may take steps to claim client legal privilege.

9.4 You should ensure that you retain copies of all drafts of your report together with all documents that you rely on in preparing your report. We will inform you when you are no longer required to retain them.

9.5 If requested, you must return to us all documents and other material (including copies) containing confidential information. Where any confidential information is in electronic form, we may require you to delete this information instead.

9.6 Any internal working documents and draft reports prepared by you may not be privileged from disclosure and may be required to be produced to the opposing parties in the litigation, and to the Court.

9.7 You may be cross-examined about any changes between your working documents and your report. The Court will be interested to understand the reason or reasons for any changes, and you should be prepared to, and able to, explain them.

10. **Document management**

10.1 Please ensure that all documents created pursuant to this retainer are marked “Privileged and Confidential: prepared for the purpose of the Queensland Land Court objection hearing to the Carmichael Coal Mine”.

11. **Court appearance**

11.1 At the hearing of any objection, you may be required to attend Court and give evidence. You must be personally involved and knowledgeable in all aspects of the preparation of the report.

11.2 If you are required to attend Court to give evidence, we will contact you to discuss your availability and make the necessary arrangements.

If you have any questions regarding your engagement or require further information, please do not hesitate to call us on 3211 4466.

Yours faithfully

Environmental Defenders Office (Qld) Inc



Sean Ryan

Senior Solicitor

To provide feedback on EDO services, write to us at the above address.

ANNEXURE A – Index to Brief

ANNEXURE B

Land Court Rules 2000 (Qld)

Part 5 Evidence

Division 1 Preliminary

22 Definitions for pt 5

In this part—

expert means a person who would, if called as a witness in a proceeding, be qualified to give opinion evidence as an expert witness in relation to an issue in dispute in the proceeding.

joint report, for a proceeding, means a report—

- (a) stating the joint opinion of experts in relation to an issue in dispute in the proceeding; and
- (b) identifying the matters about which the experts agree or disagree and the reasons for any disagreement.

meeting of experts—

- 1 A meeting of experts is a meeting at which experts in each area of expertise relevant to a proceeding meet, in the absence of the parties—
 - (a) to discuss and attempt to reach agreement about the experts' evidence in relation to an issue in dispute in the proceeding as it relates to the experts' area of expertise; and
 - (b) to prepare a joint report.
- 2 The term includes —
 - (a) a resumed meeting of experts or further meeting of experts; and
 - (b) a meeting attended by the experts in either, or a combination, of the following ways—
 - (i) personally;
 - (ii) a way that allows contemporaneous communication between the experts, including by telephone, video link or email.

party, for a proceeding, means a party to the proceeding or the party's lawyer or agent.

statement of evidence, of an expert, see rule 24E.

Division 2 Meetings of experts

23 Application of div 2

Unless the court otherwise orders, this division applies in relation to a meeting of experts ordered or directed by the court at any time in a proceeding.

24 Party must ensure expert ready to take part in meeting of experts

Before a meeting of experts, a party to a proceeding must do all things reasonably necessary or expedient to ensure an expert chosen by the party is ready to take part fully, properly and promptly in the meeting, including by giving the expert—

- (a) reasonable prior notice that the court has ordered or directed a meeting of experts; and
- (b) notice of the contents of any order or direction about the meeting, including the time by which the meeting must be held; and
- (c) reasonable notice of the issue in dispute in the proceeding to the extent it is relevant to the expert's expertise; and
- (d) enough information and opportunity for the expert to adequately investigate the facts in relation to the issue in dispute in the proceeding; and
- (e) written notice that the expert has a duty to assist the court and the duty overrides any obligation the expert may have to the party or any person who is liable for the expert's fee or expenses.

24A Experts attending meeting must prepare joint report

(1) The experts attending a meeting of experts must, without further reference to or instruction from the parties, prepare a joint report in relation to the meeting.

(2) However, the experts attending the meeting may, at any time before the joint report is completed, ask all parties to respond to an inquiry the experts make jointly of all parties.

(3) Despite subrule (1), any of the experts may participate in a mediation involving the parties.

(4) The joint report must—

- (a) confirm that each expert understands the expert's duty to the court and has complied with the duty; and
- (b) be given to the parties.

(5) The applicant or appellant must deliver to the registry, personally or by facsimile or email, a copy of the joint report received under subrule (4) at least 21 days before the date set for the hearing.

24B Admissions made at meeting of experts

(1) Subrule (2) does not apply to a joint report prepared in relation to a meeting of experts.

(2) Evidence of anything done or said, or an admission made, at a meeting of experts is admissible at the hearing of the proceeding or at the hearing of another proceeding in the court or in another civil proceeding only if all parties to the proceeding agree.

(3) In this rule—

civil proceeding does not include a civil proceeding founded on fraud alleged to be connected with, or to have happened during, the meeting.

Division 3 Evidence given by experts

24C Duty of Expert

- (1) A witness giving evidence in a proceeding as an expert has a duty to assist the court.
- (2) The duty overrides any obligation the witness may have to any party to the proceeding or to any person who is liable for the expert's fee or expenses.

24D Giving or accepting instructions to adopt or reject a particular opinion prohibited

A person must not give, and an expert must not accept, instructions to adopt or reject a particular opinion in relation to an issue in dispute in a proceeding.

24E Expert must prepare statement of evidence

- (1) An expert must prepare a written statement of the expert's evidence (a statement of evidence) for the hearing of a proceeding.
- (2) If the expert has taken part in a meeting of experts—
 - (a) a joint report prepared in relation to the meeting is taken to be the expert's statement of evidence in the proceeding; and
 - (b) a further statement of evidence in relation to any issue of disagreement recorded in the joint report is to be prepared by the expert.
- (3) However, the further statement of evidence must not, without the court's leave—
 - (a) contradict, depart from or qualify an opinion in relation to an issue the subject of agreement in the joint report; or
 - (b) raise a new matter not already mentioned in the joint report.

24F Requirements for statement of evidence other than joint report

- (1) An expert's statement of evidence, other than a joint report, must be addressed to the court and signed by the expert.
- (2) The statement of evidence must include the following information, to the extent the information is not already contained in a joint report prepared for the proceeding—
 - (a) the expert's qualifications;
 - (b) all material facts, whether written or oral, on which the statement is based;
 - (c) references to any literature or other material relied on by the expert to prepare the statement;
 - (d) for any inspection, examination or experiment conducted, initiated or relied on by the expert to prepare the statement—
 - (i) a description of what was done; and
 - (ii) whether the inspection, examination or experiment was done by the expert or under the expert's supervision; and
 - (iii) the name and qualifications of any other person involved; and
 - (iv) the result;

- (e) if there is a range of opinion on matters dealt with in the statement, a summary of the range of opinion and the reasons why the expert adopted a particular opinion;
 - (f) a summary of the conclusions reached by the expert;
 - (g) a statement about whether access to any readily ascertainable additional facts would assist the expert in reaching a more reliable conclusion.
- (3) The expert must confirm, at the end of the statement of evidence—
- (a) the factual matters included in the statement are, as far as the expert knows, true; and
 - (b) the expert has made all enquiries considered appropriate; and
 - (c) the opinions included in the statement are genuinely held by the expert; and
 - (d) the statement contains reference to all matters the expert considers significant; and
 - (e) the expert understands the expert's duty to the court and has complied with the duty; and
 - (f) the expert has read and understood the rules contained in this part, as far as they apply to the expert; and
 - (g) the expert has not received or accepted instructions to adopt or reject a particular opinion in relation to an issue in dispute in the proceeding.

24G Serving statement of evidence other than joint report

- (1) This rule applies to a statement of evidence other than a joint report.
- (2) A party to a proceeding intending to call evidence by an expert in the proceeding must deliver to the registry, personally or by facsimile or email, and serve on each other party to the proceeding, a copy of the expert's statement of evidence.
- (3) A party must comply with subrule (2) at least 21 days before the date set for the hearing or, if the court directs a different time, within the time directed by the court.

24H Matters contained in statement of evidence not to be repeated

During examination in chief, an expert must not, without the court's leave, repeat or expand on matters contained in the expert's statement of evidence or introduce new material.

24I Evidence from only 1 expert may be called

Other than with the court's leave, a party to a proceeding, at any hearing of the proceeding, may call evidence from only 1 expert for each area of expertise dealt with in the hearing.

ANNEXURE C

Court Rules

- 1 A copy of the relevant sections of the *Land Court Rules 2000* is provided at Annexure B.
- 2 While the format of your report is discretionary, you should ensure that your report complies with the above requirements, and that compliance with these requirements is readily apparent.

Format

- 3 We make the following suggestions regarding the layout of your report.
- 4 Ensure that your report contains your full name and address.
- 5 Please number all pages and paragraphs of your report. You may wish to include an index. If your report includes any photographs, measurements, graphs or illustrations these should be firmly attached to the report, and clearly identified and numbered.
- 6 Your report may include the following sections and headings:

6.1 “Introduction”

This section should:

- refer to, and annex, the letter of instructions received from us;
- specifically identify and refer to any literature or other source materials (eg text books, industry guidelines and handbooks) used in support of your opinion. If lengthy, it may be practical to list this material in an annexure to the report. If for some reason, you do not refer to certain material when preparing your report, please specifically identify this material and outline the reasons it was not referred to; and
- refer to any methodology you have adopted in preparing the report, including a detailed description of any test or examinations, who carried them out, their qualifications and the results.

6.2 “My qualifications”

In this section of your report, you need to qualify yourself as an expert in the areas in which you have been asked to provide an opinion. You should describe how your specialist knowledge (whether obtained through training, study or experience), your experience and qualifications qualify you as an expert in these areas.

Your curriculum vitae should also be annexed to your report and referred to under this heading.

6.3 “Summary of my opinion”

You are required to include a summary of your opinion.

6.4 “Background facts and assumptions”

The Court Rules require you to list all “facts, matters and assumptions on which each opinion expressed in the report is based”.

The facts and assumptions you rely on need to be linked to their sources and clearly stated and verifiable. These may be sufficiently set out in our letter of instructions.

If you are called as a witness, you may be required to give evidence in relation to your assumptions.

6.5 “My opinion”

This part of your report should contain your detailed reasons for your opinions on the questions put to you. This will be the most substantial part of your report.

When drafting your report, you should make it clear that the opinion is wholly or substantially based on your expert knowledge. Your opinions must be confined to areas within your expert knowledge.

You must set out the process of reasoning that you followed in coming to your opinion and identify the facts and assumptions upon which you rely for the opinion. Where there are alternative views available, you should explain why you have chosen a particular alternative.

6.6 “Qualification of the opinion”

If appropriate, you should set out any qualification of your opinion, without which the report would be incomplete or inaccurate. If applicable, you should state that a particular question or issue falls outside your relevant field of expertise.

You should also state if your opinion is not concluded because of insufficient research or data or for any other reason.

6.7 “Confirmation”

You must confirm, at the end of the report—

- a) the factual matters stated in the report are, as far as the expert knows, true; and
- b) the expert has made all enquiries considered appropriate; and
- c) the opinions stated in the report are genuinely held by the expert; and
- d) the report contains reference to all matters the expert considers significant; and
- e) the expert understands the expert’s duty to the court and has complied with the duty;
- f) the expert has read and understood the Land Court Rules 2000, as far as they apply to the expert;
- g) the expert has not received or accepted instructions to adopt or reject a particular opinion in relation to an issue in dispute in the proceeding

Please ensure that you make all necessary inquiries in a timely fashion to enable you to confirm these matters.

6.8 “Signature”

The final page of your report must be signed by you.