

**Report on the agricultural suitability of
Lot 2 on RP732173, Alexander Drive,
Mission Beach for the Planning and
Environment Court, at Cairns.**



Kerry McAvoy

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Background and experience

1. My name is Kerry McAvoy and I have been asked by the Community for Coastal and Cassowary Conservation Inc to testify as an expert witness on the agricultural suitability of Lot 2 on RP732173, Alexander Drive, Mission Beach in an appeal in the Planning and Environment Court at Cairns. The proposed development involves subdividing the land into 22 lots (21 lots plus balance) for housing and retaining the uncleared portion of the land in an undeveloped, conservation area.
2. I have read and understood the Guidelines for Experts contained in Court's Practice Direction No.1 of 2000. I understand that my primary duty is to assist the Court and that I am not an advocate for any party. I note also that I am not being paid or receiving any remuneration for giving evidence in this case.
3. I have no formal qualifications but have practiced organic gardening and farming for more than 30 years. I presently farm 30 acres (12 hectares) on a 200 acre rainforested block at Japoonvale in the Johnstone Shire, where during the past 16 years I have established 15 acres of mixed orchards plus bamboos for shoots and timber, flowering plants (heliconias and gingers), spices and small-cropping. My main crops are durian, mangosteen and rambutan with some vegetable production in winter. I also run a small plant nursery specialising in the species mentioned. My farm has recently been certified Demeter Biodynamic by the Biodynamic Research Institute in Victoria.¹ Such certification requires a minimum of 3 years biodynamic practice (using biodynamic preparations and observing requirements of the Biodynamic Standard) and must demonstrate ongoing soil structure and fertility improvement. Biodynamic farms are subject to annual audit of practices and performance.
4. I act as Treasurer for Organic Producers Association FNQ and I am a member of the Organic Producers Association of Queensland, Biodynamics FNQ, Biodynamic Association of Australia and Rare Fruit Council of Australia. My study of organic/biodynamic agriculture is ongoing and I keep informed of industry developments.

The site

5. The subject site is situated on the western side of Alexander Drive about 3 km north of Mission Beach township. I inspected it, in the presence of the owner, in January.
6. The total site area is 42.58 hectares. It is slightly elevated and sloping gently east. Remnant rainforest remains on the higher elevations of the land but approximately a quarter of the block (on the lower part of the land) has been cleared for farming. Mackness Creek forms the northeastern boundary, and flows into the Coral Sea. Aerial photographs of the land are shown on the following page. The photographs were taken a few years ago when the land was still used as a farm. Neighbouring farms to the south of the land are also visible in the photographs.

¹ Biodynamics is an advanced organic method in which no artificial fertilizers or chemical sprays are used. The biodynamic grower learns to see the plant in its overall context, not just by itself in a plot of soil. Demeter is a world wide certification system, used to verify to the consumers in over 50 countries that food or product has been produced by biodynamic methods. An introduction to biodynamics is available at: <http://www.bdgrowing.com/Assets/Articles/Biodynamics%20-%20an%20Introduction.pdf>.

Aerial photograph of site looking westerly (ca 2003)

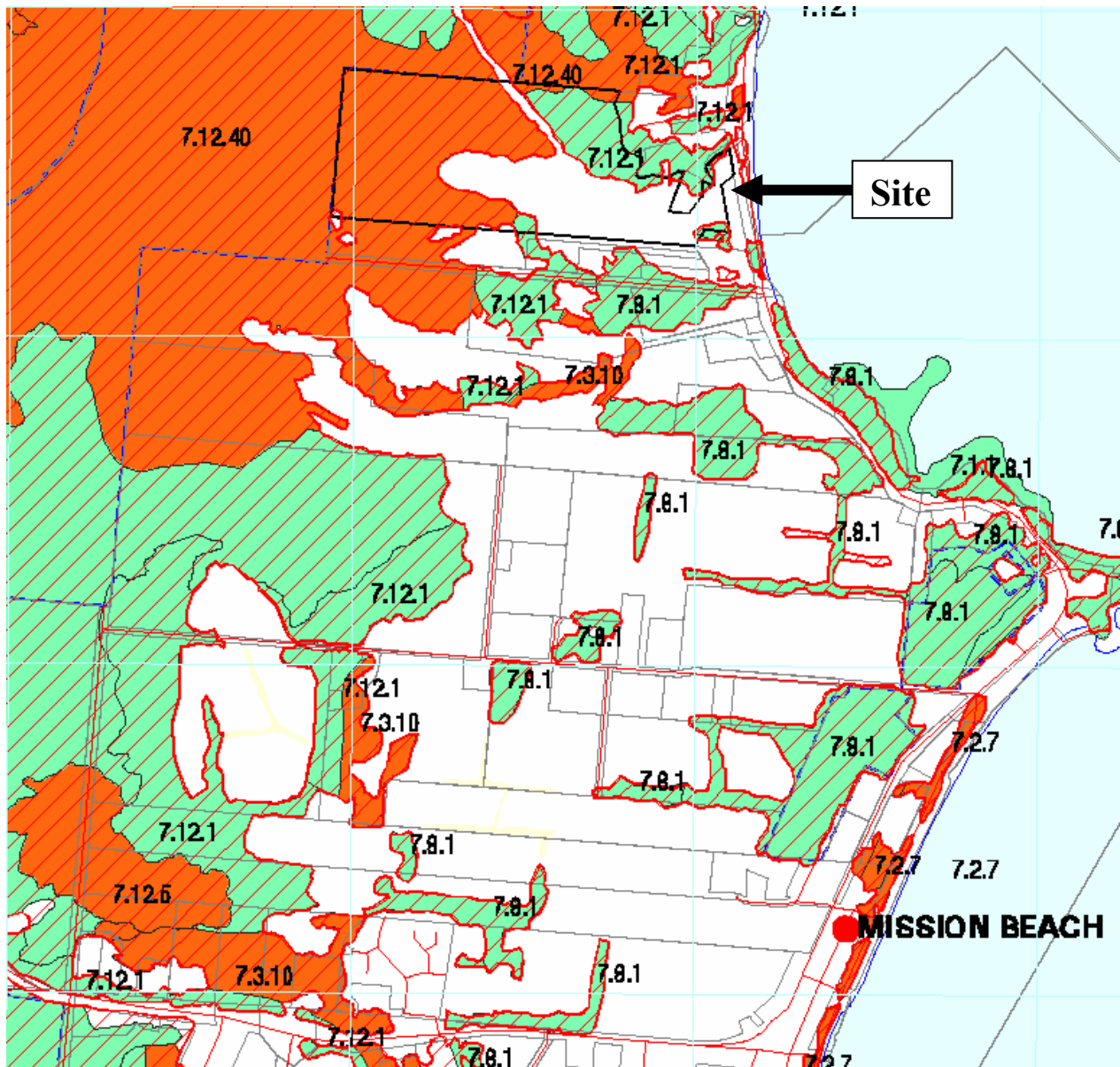


Aerial photograph of site (marked by arrow) looking easterly (ca 2003)



7. The remnant vegetation and cleared areas on the land, farms to the south of the land and the township of Mission Beach are shown in the following extract from a regional ecosystem map. The regional ecosystems are explained in an ecological report prepared by Dr Graham Harrington for the appeal. For the purposes of this report it is sufficient to note that the site boundaries are shown in black, the areas shown in orange and green are remnant vegetation, and the area shown in white is cleared of vegetation. Cadastre lines of other property boundaries are shown in grey.

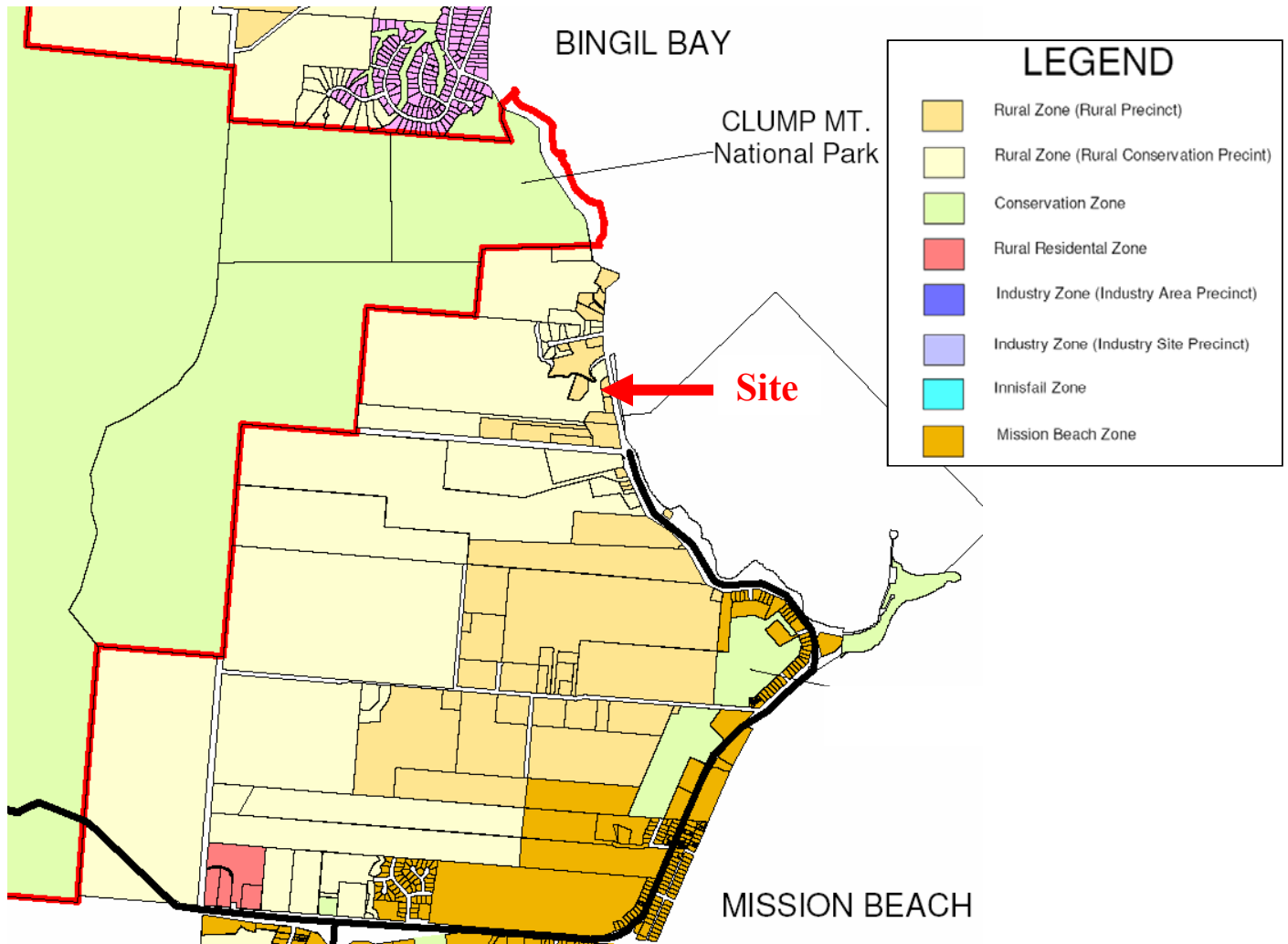
Map showing remnant vegetation (coloured) and cleared areas (white) on the land, farms to the south of the land and the township of Mission Beach²



² Obtained from the Environmental Protection Agency website at http://www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/introduction_and_status/regional_ecosystem_maps/#/lot (search performed 12 January 2006).

8. The land is in the Shire of Johnstone. It was included in the Rural Conservation Zone under the *Johnstone Shire Planning Scheme 1997* and is included in the Rural Zone (Rural Conservation Precinct) under the *Johnstone Shire Planning Scheme 2005*. The following map shows the landuse mapping of the land, the farmland to the south of the land, and Mission Beach. Cadastre lines of other property boundaries are shown as thin black lines.

Extract from Johnstone Shire Planning Scheme 2005 - Zoning Map IJ

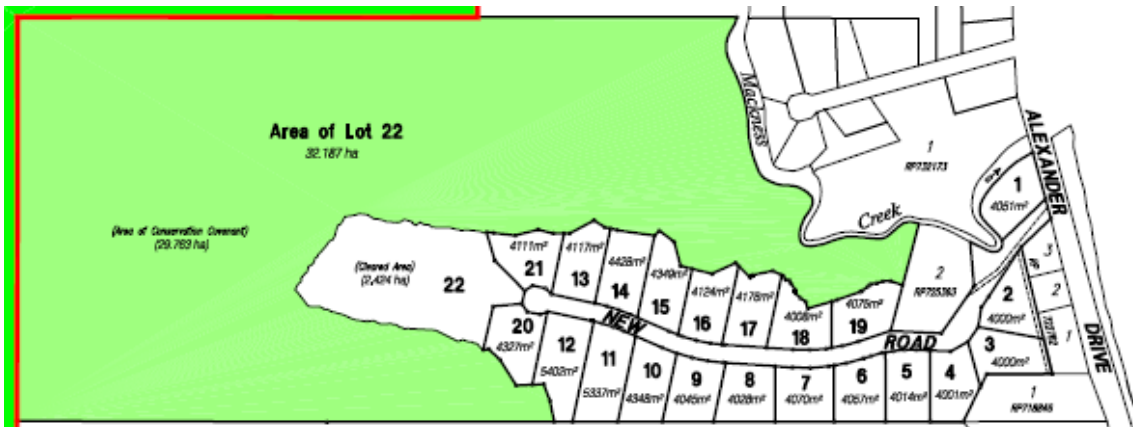


9. Consistent with the landuse planning for the area, organic banana farming was conducted on the cleared area of the site for approximately 14 years. That area now has a mown grass and legume cover.

The proposed development

10. The proposed development is for the cleared portion of the site to be developed for house blocks, with the uncleared portion of the land retained as a balance block that is protected for conservation purposes. The layout is shown on the following map.

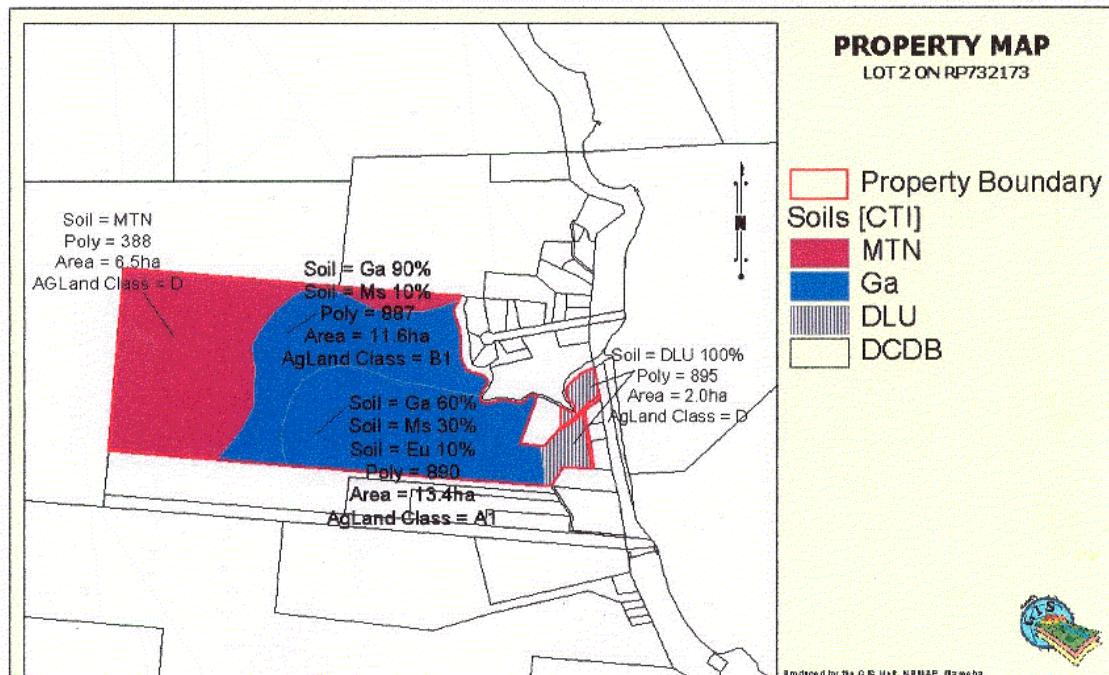
Map showing the layout of the proposed development



Soil type and rainfall

11. The area which houses are proposed to be built on the land is of predominantly red “Galmará” and “Mission Beach” soil categories, classed as A1 agricultural land (AgLand) on a soil map from the Department of Natural Resources and Mines (“DNR”), Mareeba. Part of the western end of the cleared area is classed as B1 AgLand. An additional 2 hectares of AgLand Class D adjoins the front boundary. Those areas are identified in the map below.

Map showing soil types on the site³



³ Source: DNR map of soil types.

12. The area on which the houses are proposed to be built is of extremely fertile well structured red/brown soil of metamorphic origin. It is well drained but conversely holds moisture well, unlike volcanic soils of similar appearance. Such soils usually have good phosphate and potassium levels, cation exchange capacity, and good organic matter content.
13. Rainfall in the Tully area, slightly inland of Mission Beach, is generally very high. Average monthly and annual rainfall are shown in the following table from South Johnstone (28 km NW of Kurrimine) and the Silkwood Post Office (16 km NW of Clump Point):⁴

Table of average monthly rainfall (mm)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
South Johnstone	521	593	604	387	276	157	107	86	85	86	133	246	<u>3,281</u>
Silkwood	515	657	493	420	350	137	138	96	116	95	153	326	<u>3,707</u>

14. However, Mission Beach is a coastal area that is generally drier than Tully and averages around 2,500 mm of rainfall each year.

Agricultural suitability

15. The site was identified by DNR as suitable for growing sugar cane or bananas. Ian Sinclair, Senior Resource Planning Officer stated (see Attachment 1):
- “Thirteen hectares is a significant parcel of Good Quality Agricultural Land. The 1997 planning scheme for Johnstone Shire recognised the agricultural value of this land and placed the subject land in the rural and conservation zones.”
16. I will not discuss the State Planning Policy 1/92 (Development and the Conservation of Agricultural Land) in this report as its terms are self-explanatory.
17. In my opinion this land is eminently suited to growing a wide range of tree or horticultural crops such as bananas, pawpaws, passionfruit, citrus, exotic fruit crops, or annual crops such as zucchinis, pumpkins or melons. Bi-annual crops such as eggplant could also be grown.
18. The lower coastal rainfall (2,500 mm) makes the area more favourable for horticulture than the wetter inland (4,000 mm or more).
19. The subject land is very well sited for the practice of organic or biological agricultural systems, given its relative isolation from other agricultural land where chemical spray drift might be a problem.

⁴ Obtained from: Australasian Groundwater & Environmental Consultants Pty Ltd, “Report on Drainage and Groundwater Conditions, Alexander Drive, Clump Point” (February 2005).

Viable farm size

20. The total area of the site is 42.584 hectares and the area of the remnant vegetation stated in the map showing the layout of the proposed development, provided above, is 29.763 hectares, which means that the cleared area available for farming is 12.821 hectares. Comparing the relevant maps above, approximately 9-10 hectares of the cleared area is classed as A1 AgLand. I will adopt the lower figure (of 9 hectares) here to allow for a buffer area along the southern boundary of the land with neighbouring residences.
21. The question here is whether this land in its current state (assuming no further clearing of land or forestry practice occurs) is a viable farm either by itself or in combination with one or more other blocks of farmland in the area. A viable farm is one that produces a reasonable economic return that can support a farmer (and their family). Of course, farmers may own more than one block of land and the question in that case is whether, collectively, the farmer can earn a reasonable income from their land. A more precise definition is provided in a DNR publication, "Farm Size Guidelines for Horticultural Cropping in North Queensland" (1998) (see Attachment 2):⁵

"Farm viability

For the purpose of this report a horticultural farm business is considered to be viable if farm output is sufficient to cover all variable and fixed costs (including depreciation), to provide a pre-tax wage for the owner-operator and a return on total farm capital. In this report, the pre-tax wage is set at \$35 000 a year (for management and labour), and the return on capital is assumed to be 6% a year. Note that loan repayments (interest plus principal) are not included among farm expenses, as debt is a financing issue rather than a determinant of economic viability. These financing costs vary from farm to farm depending on individual circumstances. By assuming 100% equity, comparisons between different farm sizes can be made.

Return on investment is used as a measure of farm profitability as it identifies the economic cost of money invested. This analysis aims at achieving a 6% return on investment as a satisfactory economic return on investment funds."

22. The Farm Size Guidelines only consider banana growing for the Wet Tropical Coast (which includes Johnstone Shire) but in my opinion the examples from the crops on the Atherton Tablelands are broadly applicable to the land, which is on the coast and slightly drier than other regions slightly inland. Even without combining the land with one of the neighbouring farms, the 12.8 hectares of cleared area on the land exceeds recommendations for certain minimum cropping areas for viable farms as set out in the Farm Size Guidelines. The relevant minimum viable farm sizes for horticultural crops on the Atherton Tablelands are:
- (a) Lychees and longans require a minimum cropped area of 8.5 hectares for a economically viable farm (total farm size 12 hectares);⁶ and

⁵ At page 10. The full report is available at <http://www.nrm.qld.gov.au/land/planning/farmsize.html>.

⁶ Farm Size Guidelines, pages 24-25.

- (b) Avocados require a minimum cropped area of 10.7 hectares for an economically viable farm (total farm size 15 hectares);⁷
- (c) Mixed horticultural crops require a minimum area of 8-21 hectares for an economically viable farm (total farm size 12-29 hectares).⁸
23. If the cropping area was limited to the approximately 9 hectares of Class A1 AgLand in the cleared area, the additional cleared areas (such as the 2 hectares of Class D AgLand at the eastern end of the land) are suitable for farm buildings.
24. According to the Farm Size Guidelines, the cleared area on the site is not sufficient to support a viable banana farm. The guidelines suggest that a minimum cropping area 29.5 hectares for self-packing farms and 19.2 hectares for centrally packed bananas is required for a viable farm on the Wet Tropical Coast.⁹
25. I note that Farm Size Guidelines omits major crops such as pawpaws and tree crops such as rambutans and purple mangosteen, all of which would be ideal crops for the subject land.
26. The Farm Size Guidelines do not acknowledge the viability of small family farms; nor do they address the economics of organic farming systems. In this regard, I quote from Craig Hunter, 13/5/2005 (see letter at Attachment 3):
- “In my position as the Visy Board Area Manager for North Queensland I am in close contact with the agricultural operations in the Innisfail and Tully area. There are numerous banana farms that are 30 acres [12 ha] or smaller that are responsible for the sole income of the families that run them.”
27. There are a number of farmers in the region who farm areas of a similar size to this block. The following is a list of local organic and biodynamic producers who derive their sole incomes from farming and the size of their farms:
- (a) M. Franklin, Mission Beach has farmed (certified Demeter biodynamic) bananas for 9 years on a 8-10 acre (3.2-4 hectare) farm.
- (b) F & L Rick, Mena Creek, who are certified Biological Farmers of Australia (BFA), farm bananas on a 9-10 acre (3.6-4 hectare) farm.
- (c) K & R Morris, Feluga, who are certified by Organic Food Chain (OFC), grow 4 acres (1.6 hectares) of pawpaws and approximately 5 acres (2 hectares) of pumpkins with a current return of \$10,000–12,000 per acre.
- (d) Tom Meredith, Japoonvale, farms certified Demeter Biodynamic Pawpaws on 4 acres (1.6 hectares), grossing \$1,000–2,000 per week. He grew zucchinis in 2005 on 4 acres (1.6 hectares) and grossed \$30,000. He farms between 12 and 15

⁷ Farm Size Guidelines, page 22-23.

⁸ Farm Size Guidelines, page 25, Table 15.

⁹ Farm Size Guidelines, pages 16-18.

acres for vegetable cropping annually between April and September with an average gross income of \$100,000 per annum.

28. I have considered the site in isolation but, of course, the 12.8 hectare cleared area on it could also be managed in conjunction with a neighbouring farm. The farms to the south of the site are certainly close enough so that machinery and workers would have little difficulty in moving between the properties. Most larger farms in the area have similar fields separated by trees and creeks. Many farmers in the region also have fields on blocks that are physically separated. There is no reason, in terms of the practicalities of farming, why this could not occur on this land if it is not developed for housing.
29. It is also worth noting that the total area of the site and the cleared area on it are comparable, or larger than, the total size and cleared areas of farms to the south of it. The map of remnant vegetation and the extract from the Johnstone Shire zoning map, provided above, show this. If this site is not a viable farm then it is logical to conclude that none of the farms to the south are either. Of course, many of the farms to the south will comprise several of the lots shown by the cadastre lines on the maps. There is no reason, in terms of the practicalities of farming, why the site cannot be used in the same way as part of a larger farm.

Potential for organic farming on the land

30. I note that none of the planning agencies or documents mention the possibility of alternative agricultural systems such as organic, biological or biodynamic agriculture as a potential use for this land.
31. The proximity of 9 neighbouring residences is identified as a constraint to the practice of conventional agriculture on this block. Potential problems are spray drift from herbicides, pesticides and fungicides; and machinery noise.
32. The attached letter dated 14/5/2005 is signed by 5 residents from adjoining properties, and testifies they all lived in harmony with zero conflict during the 14 years of organic banana farming on the subject land. (Attachment 4)
33. The possibility of noise nuisance from any farm operation could easily be addressed by a 10-12 m tree/shrub buffer which could include productive economic species. Smaller modern tractors are reasonably quiet and might favourably compare with the noise which would emanate from 22 rural residential blocks, i.e. lawn mowers, orchard tractors, motor-bikes, dogs etc.
34. Any consideration of the rural use of the site should consider the possibility of organic farming precincts which need not conflict with adjoining residential use.
35. The ecological benefits of organic/biodynamic farming are numerous. Clean air, clean water, minimal nutrient runoff and continual improvement in soil fertility are just a few, and directly contrast with conventional agricultural systems' continual drawdown of soil fertility through acidification, compaction/loss of soil structure/soil

organic matter, and loss of topsoil and water soluble nutrients into air, waterways and groundwater.

36. A critical review by P. Pittaway shows at Table 1: Nitrogen cycling (Dougherty and Wells; 2001) a comparison between Nitrogen cycling in organic system with District Practice and Best Practice vegetable farming in NSW. (Attachment 5) These results suggest that nitrogen inputs in organic systems are closest to Best Practice, leading to a substantial reduction in the potential for nitrate leaching.
37. This would be pertinent in relation to the subject land, where slope on northern, southern and eastern boundaries could facilitate nutrient loss off farm and into Mackness Creek, thence into the Coral Sea.

Organic farm tourism potential

38. Given its close proximity to Mission Beach (3 km) the land would be ideally suited to farm tourism, and could provide an attraction for the large numbers of tourists passing through the area.

The reality of the organic industry

39. The organic farming industry does exist and is a viable alternative to conventional systems. The Australian industry presently has retail sales of \$400 million per annum and is growing at 25% per annum. The attached letter from Pierce Cody, owner of Macro Wholefoods organic supermarket chain illustrates the state of the industry in Australia and its dramatic growth potential (see Attachment 6).
40. Mission Beach organic farmers generally send to southern markets but the possibility exists to market locally and to Townsville and Cairns outlets.

Conclusion

41. The size and location of this land, its exceptionally good soils and the availability of water source in Mackness Creek, all combine to make it an extremely valuable agricultural prospect either in isolation or in combination with a neighbouring property.

Declaration

42. I, Kerry McAvoy have made all the enquiries, which I believe are desirable and appropriate, and that no matters of significance, which I regard as relevant, have, to my knowledge, been withheld from the Court.