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SUBMISSION ON HUME COAL PROJECT DEVELOPMENT APPLICATION DA 15_7172
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INTRODUCTION:

My wife and I **strongly oppose** the Hume Coal project. I have focused this submission on **the impact of the proposed mining operations on the groundwater, based on information provided by Hume Coal in both the EIS and in direct communication with us.**

There are many other issues of serious concern with the Hume Project which will be addressed by others such as Mine Safety, Surface Water Impacts, Economic Impacts, Social Issues, Heritage, Dust and External Effects, Legal and Regulatory breaches amongst others. We also support these submissions but will not address those issues in this document.

However, we have intentionally focused on the issues relating directly to our property and as a proxy for the many other landowners in Sutton Forest who are similarly affected by the proposed mine.

SUMMARY:

- This is **a highly risky project with many uncertainties particularly regarding the groundwater.** A Hawkesbury sandstone aquifer sits directly above the coal seam and may be drained if mining goes ahead.

- Hume Coal states that **our irrigation bore will be drawn down over 46 metres by 2033 and will not recover until 2078.** Independent analysis suggests that the impact may be far worse. Hume cannot guarantee 'make-good' given the water volumes involved. There are many other landowners and business people in the district similarly affected.

- The **financial and life-style impacts on our property will be potentially severe for many years** if the project goes ahead. This is due to the loss of our vital bore-water resources which sustain our agricultural businesses and the natural environment we have created.

- Hume completely ignores the Precautionary Principle and Intergenerational Equity in its proposal.

- Hume Coal have attempted to force its way onto our property for exploratory drilling against our wishes. They have failed to do so after intense legal action regarding s31 of the Mining Act 2002 relating to 'Significant Improvements'. **Given these circumstances, we will never allow Hume Coal to access our property for any purpose.**

BACKGROUND:

- I am a qualified Civil Engineer with an MBA. I am very familiar with the heavy construction and finance industries. I have extensive experience with major industrial projects having worked around the world building oil and gas platforms and marine pipelines in extreme

environments during the !970 and 1980s. I also worked for over 25 years in finance and merchant banking.

- My wife and I jointly own a farm at 371 Golden Vale Road, Sutton Forest 2577 that sits within AUTH349 in Sutton Forest. Hume's proposed coal mine will go directly under our property at a depth of about 150 metres.

- We bought the property comprising grazing paddocks, a road and an artificial lake serviced by a stock and domestic bore in 2002. Wells Creek lies on our Western boundary. We have substantially improved the property at very significant cost.

- We built a 'weekender' in the form of a 'Barn' in 2004 and had plans prepared for a farmhouse in 2008/9. This project was put on hold in late 2010 when we first discovered the coal mining issue.

PROPERTY DESCRIPTION:

- Our property is small at 43.4Ha but highly developed. We produce Lucerne for commercial sale on approximately 20 Ha. We also run a small breeding herd of pedigree Belted Galloway cattle.

- The major commercial activity on the property is **a commercial scale Truffiere** for the production of French Perigord black truffles. 2400 oak trees were planted 7 years ago over an area of 6 Hectares. Production is planned for winter 2018.

- We have plans to **expand the Truffiere to an area of 12 to 15 Hectares.** These plans are on hold subject to a decision on the Hume Coal mine.

- Approximately **15 Ha of the property is devoted to free-form native gardens.** Over 30,000 native trees, shrubs and grasses have been planted on the property in the 15 years we have owned it. Our plan is to revegetate the property and attract native species of birds and animals. The project has been a great success.

- Approximately 250 introduced deciduous trees have also been planted. Most of the introduced trees were well established, some up to 25 or 30 years old. All introduced trees are drip-irrigated for the first 5 years after planting.

- An active tree planting programme is underway with at least 1500 natives planted each year. New native plantings are watered periodically after planting particularly in hot seasons.

- The property has a 2 Hectare expanse of **Southern Highlands Shale Woodland** which is listed under the EPBC Act federally as 'Critically Endangered'. We are replanting the woodland with original species and employ an arborist service each year to trim the dead wood off the trees to increase the life of the older specimen. *[The woodland has not been identified in the EIS]*

- My wife's pride and joy is a very large flower and vegetable garden covering an area of 40 metres by 50 metres plus an orchard with 35 fruit trees of various types. The entire area is automatically irrigated. Vegetables of all types are produced in season. A large green-house is planned.

GROUNDWATER BORES & IRRIGATION:

- To service the property, we have **an irrigation licence for 30 mega litres/year** which we purchased 12 years ago. We also have two stock and domestic licences each of 8 mega litres/year. We have two bores only one of which is presently in use.

- Our irrigation water comes **from a 122-metre-deep bore pumping water from the underlying Hawkesbury sandstone aquifer 80 metres down.** The bore is highly productive and has been tested at 11.5 litres/sec and is pumped at 3.5litres/second.

- The groundwater is pumped into a series of three large ponds which naturally filter the water via an aeration process. A spillway and a series of rock lined channels between the ponds extract the iron in the form of iron oxide (rust).

- The water flows through natural reeds into **an artificial lake which holds approximately 45 mega-litres of water.** It's a large body of water covering approximately 2 Ha and is 6 metres deep in the centre. The lake-water is clear and blue. Water from the lake is used for irrigation and is (almost) drinkable.

- The lake contains introduced brown and rainbow trout and is a haven for waterbirds of all types. We have made the lake available to members of the Southern Highlands Fly Fishing Club who now restock it annually with approximately 700 to 1000 trout fingerlings each year. Fly fishing demonstrations are held here from time to time.

- **An extensive irrigation pipe network covers the property**. Water can be pumped to any location on the property from a pump-house located beside the lake via a 1.6 kilometre 'ring main' which circles the main garden areas and the lake. Water lines radiate out from the ring-main to cattle troughs, taps and drip or spray irrigation as required across the property.

- **Approximately 20 mega-litres of water are required to irrigate the Truffiere for three months or so in summer.** Without a regular coverage of water, truffles (which are a fungus which forms on the roots within 200mm of the surface) will not form.

- A separate fully automated irrigation feeds the Truffiere. There is approximately 5 kilometres of piping in the area. Each tree has its own spray.

FARM LABOUR AND MAINTENANCE:

- We employ **5 part-time workers** on the property on a regular basis. Three gardeners come 1 or sometimes 2 days per week. We employ a cleaner for the Barn one half day a week and a multi-purpose farm helper who comes weekly. We also employ a local contractor to plant, maintain and harvest the Lucerne crop and look after the cattle.

HUME COAL WATER IMPACTS:

- Hume Coal has sent us documents dated 23 May 2017 relating to the impact of the proposed mining operations on our water bores [see attached].

- Hume Coal advises that our main water bore GW07672 will be **drawn down by a maximum of 45.6 metres after 12 years i.e. by 2033 and will take 45.2 years to recover i.e. by 2078.** Our second bore GW048345 will be drawn down by 29 metres after 11 years (by 2032) and

take 41.8 years to recover i.e. by 2074. Hume proposes **replacement bores** to be drilled under the 'make good' provisions of the Aquifer Interference policy.

- **The assessment of water related impacts by Hume's consultants Coffey relies on one proposed scenario which could be argued represents the 'ideal case'.** No other outcomes are analysed.

- There are serious questions about the assumptions Coffey used in its analysis. In particular the unusually low sandstone permeability and an inter-burden layer between the sandstone and the coal which both do not reflect field data or even information in the EIS.

- An independent assessment by Pells and Pan (2017) indicates that **impacts could be far more extensive than Hume concedes.** UNSW Water Research Laboratory confirms this view in a submission on this project.

- My wife and I attended a meeting with the Hume Coal Project Manager Grieg Duncan and Exploration Manager Rod Doyle at their request in March 2017 to discuss the groundwater issue. When asked 'What if there is a complete drainage of the groundwater into the mine workings?' and hence new bores would not be productive, the Hume Coal representatives stated that **Hume would 'pipe in' water to replace the lost water.** From whence the water would come they could not say.

- In the case of complete bore failure on our property, I have calculated that Hume must replace a minimum of **20 mega litres of water in a three-month period over summer** just to irrigate the Truffiere. That equates to a total of **six hundred 30,000 litre semi-trailer water tankers** in that three-month period alone. **That's 46 trucks a week or 7 trucks a day**! The volumes could exceed that amount.

- The water delivery process would have to continue **over the next 50 or 60 years or more**. Clearly additional trucks would also be required through other times in the year to provide water for crops, gardens and cattle etc.

- Other landowners in the district have irrigation bores licenced for 100 mega litres and in some cases far more. In the EIS **Hume concedes that 93 bores owned by 71 landowners will be mining affected to various degrees**.

- Hume also proposes to **inject mine waste 'slurry' from the coal washery and extracted water back into the mined-out voids after mining**. They claim the slurry will be 'inert' but provide no evidence in the EIS. This is a potential source of serious groundwater pollution in the future for the Martin bores and others in the district. [See CM Jewell & Associates submission]

WATER RELATED IMPACTS OF MINING ON THE MARTIN'S:

- We have delayed the building of a farmhouse on the property for nearly seven years due to the uncertainty of the coal mining project. **The house will not be built if the project is approved**. We have delayed any expansion of the Truffiere for similar reasons.

- Loss of bore water if it occurs during mining would have **a catastrophic impact on the value and functionality of our property.** The existing Truffiere would no longer be viable and any

expansion would be out of the question. We would lose our lake and hence irrigation capability on the property.

- **We would be unable to employ the people who assist us with the maintenance of the property thus impacting local agricultural employment.** We are aware that other landowners in the district would also be in the same position with their labour as well.

- There is a risk that introduced trees and the critically endangered Shale Woodland could be lost due to the impact of water drawdown if it occurs to the extent we anticipate.

- The intention to pass on the property to future generations as a working business and life-style property would be significantly affected.

CONCLUSIONS:

- The concept of **the 'Precautionary Principle'** does not get mentioned in Hume's EIS but should be taken into strong consideration by decision makers. This is a highly risky mining proposition with many uncertainties relating to the issue of groundwater alone.

- The project could have **a potentially disastrous impact on the future value and productivity of our property due to the water related issues alone**. It could have a similar impact on many other properties in the district.

- Hume has **not provided any evidence that it can 'make good'** if the groundwater is drained from the aquifer by mining and bores go dry. Many other landowners in the area will be similarly affected.

- Hume fails to consider the issue of **'Intergenerational Equity**' in the EIS. The concept of draining bores for a period of 50 or more years with a highly questionable ability to 'make good' is completely unfair and just transfers real cost impacts onto landowners and their descendants.

- On the basis of the uncertainty of the extent of impacts on groundwater alone, this project should be rejected by the government.

Peter M Martin