

June 10th, 2020

Mrs Victoria Pereira
Director of Planning
Department of Planning
Dame Lois Browne Evans Building
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City of Hamilton HM 12

PLAN-0239-20

Bermuda–Caribbean Engineering Consultants limited

Proposed Demolition of Unstable Mound with Subterranean Void in Wilkinson Quarry, Hamilton Parish

Dear Mrs Pereira,

On behalf of the Bermuda National Trust I am submitting an objection to the above application.

We have grave concerns about the proposal to destroy the “subterranean void” known as Wilkinson Quarry Cave, which provides essential habitat for at least four critically endangered and protected species. Bermuda’s own planning laws emphasise the value of the Island’s caves by according them the highest level of protection. The Fourth Schedule of the Planning Act 1974 states:

“The protection of caves shall take precedence over all other planning considerations and the Board shall refuse any development application or planning of subdivision if, in the opinion of the Board, the proposal will have detrimental impact on a cave entrance or underlying cave.”

The Act is clear and unequivocal: Bermuda’s caves are protected by law “**over all other planning considerations**” and any development application should be refused if the proposal will cause harm to a cave or its entrance. There is no doubt that this application will have a “detrimental impact” on Wilkinson Quarry Cave and the ecosystem it supports.

I. Discovery

The discovery of the cave in 2002 came to light when a quarry worker reportedly brought a large and freshly broken stalagmite into a local bar. Learning of the find, the Government Conservation Officer and the Curator of the Natural History Museum at the Bermuda Aquarium went to examine the cave. In spite of their authority to inspect the cave, their visit was resisted before the quarry manager allowed them access. The entrance to the cave is on the north side of the Wilkinson Quarry at an elevation of approximately 20 metres above sea level. They discovered that the cave, which initially lacked any natural entrances, had been exposed at its highest elevation during quarrying operations.

On that first visit, the two described the cave as being exquisitely decorated with actively growing speleothems (dripstone formations such as stalactites and stalagmites) throughout. The cave was said to be quite deep, with a tidal, sea-level pool at its lowest level. It appeared that three separate activities had negatively impacted the cave:

- a) Quarrying operations had directly damaged the cave, opening it to view.

- b) Flowstone slopes and associated columns in many locations within the cave were shattered or sheared in two, presumably as a result of the quarry blasting.
- c) Perhaps most concerning was the fact that during the week between the first and second visits by the Government Conservation Officer, serious damage had been inflicted on numerous different kinds of speleothems. He found a row of the larger stalactites, which had been perfectly intact on his first visit, lying in pieces all over the floor of the cave. Because of their size large implements such as clubs or sledgehammers would have had to be used to knock them down. Sizeable stalagmites had also been broken.

II. Response

In June 2002, Dr Tom Iliffe, Professor of Marine Biology at Texas A&M University, was invited by the Department of Conservation to evaluate the significance of the cave. He was a Research Associate at Bermuda Biological Station (now BIOS) for 11 years (1977-88) during which time he comprehensively studied Bermuda's cave systems. During the cave evaluation in 2002, Dr Iliffe spent three days exploring, diving and collecting biological specimens from the cave. A fourth visit was cancelled at the last minute when quarry management informed him that he was no longer permitted access to the quarry property.

During his diving explorations Dr Iliffe discovered extraordinarily long submerged soda straws (tubular stalactites) hanging from the ceiling of the cave and several massive stalagmites and columns adorning a flowstone slope. On one wall he found the largest, most densely packed, and best-preserved display of helictites (erratic speleothems or twig-shaped stalactites) that he had ever witnessed in any underwater cave in the world.

The cave was judged by professionally qualified experts to be exceptional, environmentally important and in some respects, unique. At this point, under Bermuda law, steps should have been taken to protect this outstanding global treasure; but it's not what happened.

The quarry management commissioned reports from their own consultants: Professor Arrigo Cigna, a former president of the International Union of Speleology (UIS), Cumberland Caverns Manager Mr Roy Davis, and Canadian mining engineer Dr Peter Calder. The three consultants submitted written statements in support of destroying the cave, arguing that the cave was 1) small, 2) structurally compromised by blasting activities in the quarry and thus unsafe, and 3) not ecologically or aesthetically significant.

This was in strong contrast to the report of Dr Iliffe who noted that on a small island like Bermuda where caves are confined to an even smaller region, the combined dry and underwater portions of this cave are of quite significant size. Dr Iliffe, marine biologist Dr Leo Blanco-Bercial and Gil Nolan, respected and experienced local cave diving expert, also make it clear that the cave is the habitat of a number of species registered on the Red List of Threatened Species by the International Union for Conservation of Nature (IUCN), with the likelihood of more and undiscovered species existing in the cave.

Regarding the comment that the cave had been structurally compromised by the blasting it should be noted that Dr Iliffe observed that "large cracks were evident in several places, even splitting apart a two-meter flowstone slope in the cave; however, most fragile soda straws and helictites that were not intentionally smashed remained unharmed". This suggests the initial damage had not destroyed the cave and that it continued to hold value.

During his three dives in the Wilkinson Quarry Cave, Dr Iliffe identified four species of stygobitic (aquatic, cave-dwelling) crustaceans registered on the 2003 IUCN Red List as “critically endangered”, the highest threat level. Since these creatures are only found in a small number of caves in Bermuda, and since the groundwater quality in many parts of the Island is declining, the survival of these species is uncertain. Dr Iliffe is convinced that if further time were permitted for study of this cave, additional endemic, cave-adapted species would also be found.

Based on the scientific findings, cordoning off the site and limiting access to protect the cave and the habitat it hosted should have been a top priority and, in fact, is required under the Protected Species Act 2003. Section 6 (1) of the Protected Species Act states:

“Without prejudice to section 28 of the Development and Planning Act 1974, the Minister may by order designate as a protected area any critical terrestrial or marine habitat essential for the protection of a specified protected species and specify the location and boundaries of the area and the order may impose such prohibitions or restrictions on activities within the area as the Minister may consider necessary for the protection of that species.”

This did not happen.

A site-specific recovery plan should have been developed and implemented within one year according to the Protected Species Act (7(2)(a), because the species detected was classified as critically endangered and placed on the IUCN Red List.

This did not happen either.

III. Situation report

After the exploration carried out by Dr Iliffe, and the submissions from the three Wilkinson Quarry consultants, little more was done. Several large metal sheets were placed over the entrance. Quarrying activity continued all around the cave, leaving it as a raised section with the appearance of a volcano or protuberance in the middle of the flattened quarried landscape (*Figure 1*). The quarrying inevitably continued to have a detrimental effect on the cave. In his report Professor Cigna concluded that there were only two options: destroy the cave or continue quarrying. As we know, the quarrying was resumed and it continued to cause serious damage to the cave.

Interestingly, planning applicant David Summers, president of Bermuda-Caribbean, has argued in the past that the destruction of a cave really starts when the first item is removed. He is quoted in a 1982 *Australian Cave and Karst Management Association Journal* article entitled ‘The Amazing Story of the Admiral’s Cave Stalagmite’:

“The removal of any formation from a cave is the equivalent of passing a death sentence on the removed item ... Regardless of the honorable intent, and genuine scientific objective, the removal of a specimen from a cave inevitably results in its doom.”

The fate of the Wilkinson Cave was perhaps sealed even sooner: at the moment it was discovered in the middle of an area earmarked for development.

IV. Global and local value

Wilkinson Cave – and Bermuda’s entire cave system – is of global significance. Marine biologist Dr Leo Blanco-Bercial is currently working at BIOS on research of the evolutionary process through species such as copepods (microscopic crustaceans that form part of the food chain). These primitive species act as time capsules, providing insight into early life on the planet. The work he’s doing on Bermuda’s caves forms a part of the research into such global issues as climate change. Dr Blanco-Bercial notes: “Knowing where we started will help us to understand the present and the future, not just for Bermuda but for the world.” The species observed in Bermuda are not found anywhere else on Earth. In addition, discoveries are being made in the smallest of caves, indicating that the size of a cave is not an indicator of its value.

When being interviewed about his work, Dr Blanco-Bercial has said: “These caves are in areas where fresh and saline water mix, so they are unique because they harbour some of the oldest lineages of crustaceans. We have some interesting questions to ask about their genetics, to solve relationships within those groups, but also related to the adaptations to such unusual and fragile environments in the view of the changing global environment.”

V. Proposed remediation

The Government-commissioned Management Plan for Bermuda’s Critically Endangered Cave Fauna (Dr Annie Glasspool 2014) refers to the importance of protecting the entire cave habitat. In the case of the Wilkinson Quarry Cave, destroying the dry cave and proposing the retention of just the portion of the cave below water level doesn’t take into account the dynamic interaction between the two habitats. The Management Plan further states: “Meeting the objective for the management of cave fauna in Bermuda depends on preventing further damage to the cave habitat.” At Nonsuch Island the Cahow (*Pterodroma cahow*) habitat is protected, in order to ensure protection of the Cahow itself. The species found in Wilkinson Quarry Cave warrant the same degree of protection or they could face extinction.

It is the Bermuda National Trust’s recommendation that fencing should be installed around the cave area to protect it and ensure the safety of anyone venturing too close to the site. Bermuda’s planning law requires us to protect our caves; in this case, in addition to that basic requirement, we are aware that Wilkinson Quarry Cave is the habitat for some of the world’s unique and endangered species.

VI. Summary

Bermuda’s Planning legislation is explicit and unambiguous: Bermuda’s caves are to be protected “over all other planning considerations” and any development application should be refused if the proposal will cause harm to a cave or its entrance.

There is no doubt that this application will have a “detrimental impact” on Wilkinson Quarry Cave and the ecosystem it supports.

The history of the discovery of this cave, which was not reported to the authorities but stumbled upon as the result of its treasure being shown off in a bar, and the subsequent unwillingness to enable access, exploration and protection makes it clear that the cave was not a happy discovery for the property owners. This is understandable; it sits in the middle of an industrially zoned area and is basically in the way.

However, Bermuda's legislation exists for the greater good, and most people understand and value this. Our Planning framework is the reason Bermuda effectively resisted rampant development that could have destroyed its natural beauty and associated value as an environment for our successful tourism and international business industries, as well as its own people.

In this case, we are looking at protection of a small cave containing habitat and creatures that we can't even easily see. But we do know from experts that their value is potentially enormous.

So for two reasons we submit that this proposal should be rejected:

- It's the law and our Planning legislation is unequivocal about protection of caves
- We would be further endangering species that could prove of value to mankind and our planet.

In all this, there is a chilling connection to recent events around the world. We have seen how systems set up to protect can go dreadfully off track if those implementing the rules don't value what they are mandated to protect. If we do not enforce our laws, and adhere to their values, then we risk losing part of Bermuda's and the world's irreplaceable natural heritage without proper evaluation. Surely this is not the legacy that was intended when Bermuda's Planning legislation was developed.

Sincerely



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Figure 1 Wilkinson Quarry with the "unstable mound" containing Quarry Cave isolated in the peak in the center of the photo.



Figure 2 – Quarry materials pushed up against the rock wall suggests a breach into the cave may now be covered by boulders.

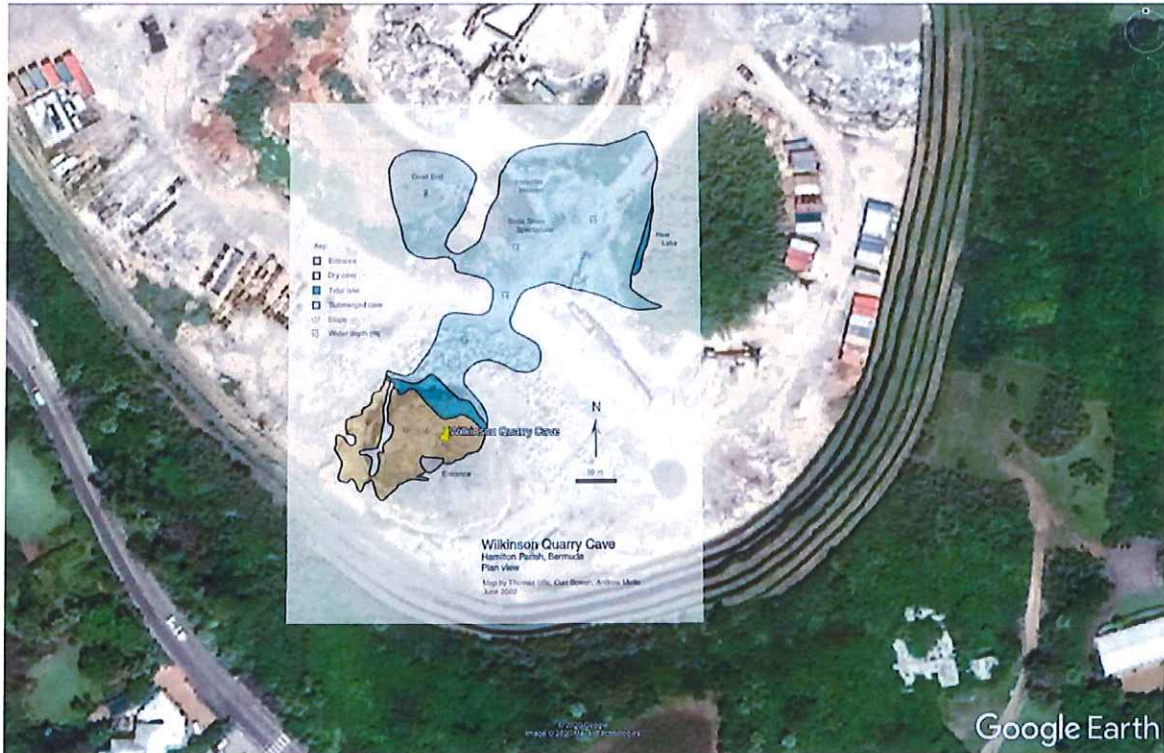


Figure 3 – Is an overlay of the cave map on top of a map of the quarry showing how the quarry has been operating directly over and around the cave.

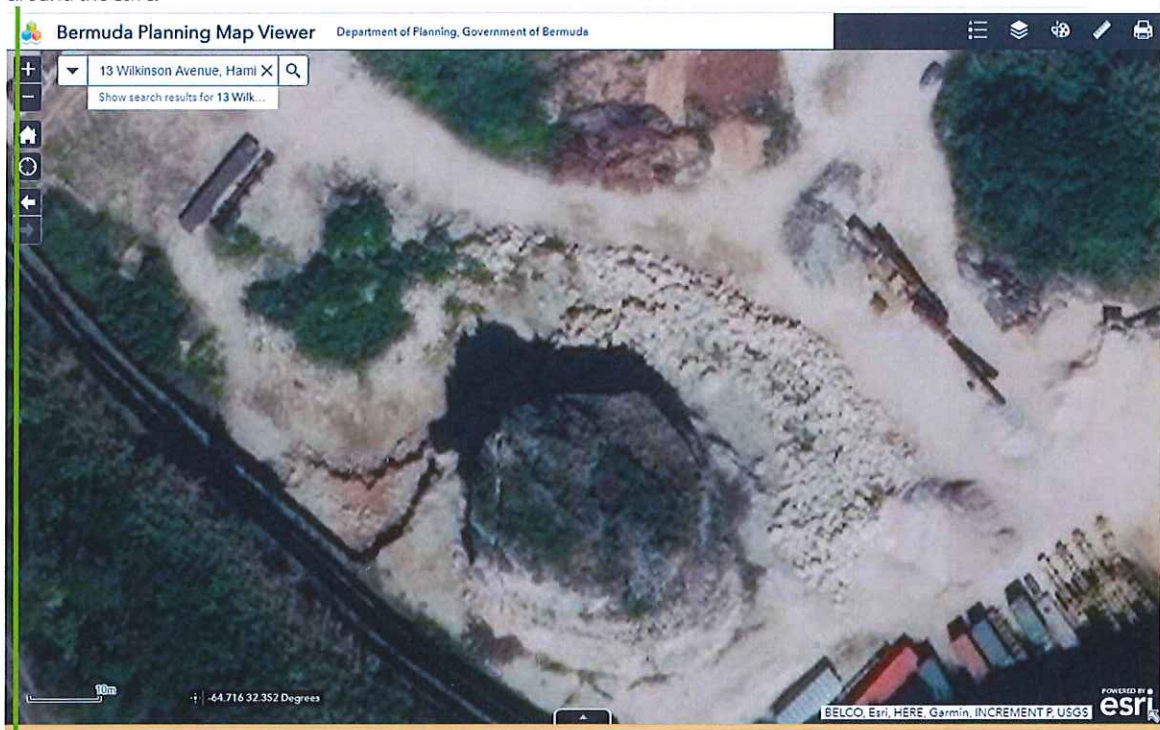


Figure 4 – Aerial photo of Wilkinson Cave retrieved June 8th 2020 from the Bermuda Planning website. As can be seen no reasonable relief was afforded to the cave and quarrying activity continued up until today compromising the integrity of the cave and causing further degradation of the cave and surround.