MEMORANDUM

TO: Director of Planning **YOUR REF:** P22-1127

ATTN: Nicholas Popovich

FROM: Director of Environment **DATE:** 28 April 2023

SUBJECT: Barrington Bennett & Luz Amelia Martinez de Wood

50ft deep (2.3 million cubic yards) commercial quarry

Block: 43A Parcels: 419 & 422

This review is provided by the Director of the Department of Environment (DoE) under delegated authority from the National Conservation Council (section 3 (13) of the National Conservation Act, 2013).

In accordance with Section 43 of the National Conservation Act, the National Conservation Council (NCC) has determined that an Environmental Impact Assessment (EIA) is required for the proposed quarry.

Given the type of development (i.e. a quarry), the scale, and the location of the project, the proposed quarry was screened for an EIA as outlined in Schedule 1 of the National Conservation Council's Directive for EIAs issued under Section 3(12)(j) and which has effect under Section 43(2)(c) of the National Conservation Act. The EIA Screening Opinion (enclosed) concluded that the proposed quarry does require an EIA.

It is noted that the Central Planning Authority (CPA) has an Aggregate Policy which was approved by Cabinet and has been in force since 2004. The CPA's Aggregate Advisory Committee (AAC) held a meeting on Friday 17 March 2023 to discuss this application and we have reviewed the AAC's Review dated 20 April 2023. It is our understanding that the AAC has recommended that approval should not be granted based on the Aggregate Policy's Aggregate Reserves Threshold indicating that there is currently a sufficient supply of aggregate at licenced quarries to meet demand.

If the CPA is minded to agree with the advice of the AAC and refuses the application for the proposed quarry, the National Conservation Council supports this decision.

If the CPA is minded to disagree with the advice of the AAC and consider the application, then the application must be adjourned until an EIA is conducted in accordance with Section 43(1) of the NCA and the National Conservation Council provides consultation under Section 41(3) and/or Section 41(4) of the NCA given the presence of the Meagre Bay Pond Protected Area to the southeast of the proposed quarry and the potential of the quarry to cause adverse effects to the Protected Area.

In accordance with the National Conservation Council's Directive for EIAs, the proponent (Barrington Bennett & Luz Amelia Martinez de Wood) shall have a period of up to 28 days to respond in writing to confirm whether they wish to proceed with the EIA or withdraw the application. The period shall commence following notification from the CPA to the Applicant as to their decision.



Screening Opinion for a Quarry for Barrington Bennett and Luz Amelia Martinez de Wood on Block: 43A Parcels: 419 and 422 03 February 2023

Executive Summary

The National Conservation Council's (NCC) Directive for Environmental Impact Assessments (EIAs) notes that all activities listed in Schedule 1 will be considered against the screening criteria outlined in the Directive to determine whether an EIA may be required – quarries are included on that list.

The proposed quarry has a total area of 35.55 acres with a proposed area of excavation of 28.64 acres and is directly adjacent to the Meagre Bay Pond Protected Area. The proposed quarry is proposed to have a total yield of 2,315,000 cubic yards based on an estimated depth of 50 feet below Mean Sea Level. Submissions show a berm of an unspecified width and height being proposed around the eastern and southern boundaries of the quarry. The intention of the berm is to prevent the direct run-off of sediment into the Meagre Bay Pond Protected Area. The submissions state that the size and specifications of the berm will be determined by consultations with the Department of Environment (DoE). There is also a 4-foot wide shelf within the quarry lake. The proposed quarry is intended to be accessed using a 30-foot access road which connects to the southern boundary of Block 43A Parcel 422. The quarry works are being proposed in 6 phases over a 3-year period starting from the south of the parcels and progressing north. It is proposed that the quarry will be later used to produce renewable energy using floating solar panel arrays within the quarry lake.

Meagre Bay Pond is one of Cayman's oldest protected areas. The pond and a 300-foot wide band of mangroves around its margin were originally protected as an Animal Sanctuary in 1976. The Meagre Bay Pond Protected Area Management Plan was adopted by Cabinet on 15 February 2022. The goals of the management plan which are relevant to this application are:

- To establish separation between waters of the protected area and adjacent submerged quarries,
- To preserve the protected area water level's ability to overflow and discharge after extreme rain episodes,
- To thereby facilitate natural regeneration of Black Mangrove forest and other wetland communities around the pond, and
- To recover and maintain the historical seasonal patterns of diversity and abundance of bird life and other native species in the protected area.

Quarrying was noted as a severe threat to biodiversity in Meagre Bay Pond in the Management Plan.

Given that Meagre Bay Pond Protected Area is in hydrological continuity with the site and with the Central Mangrove Wetland to the north, and that there has been an adopted Management Plan which identifies quarrying

as degrading the protected area, the Department of Environment is of the opinion that the proposed quarry requires an EIA.

The EIA is required to address potential significant adverse effects from the proposed quarry on terrestrial ecology and hydrogeology, especially on the Meagre Bay Pond Protected Area. The proposed quarry must be designed in such a way as to reduce adverse effects on a protected area under the National Conservation Act. The EIA must ensure that the proposed quarry is in accordance with the Meagre Bay Pond Management Plan which has been adopted by Cabinet.

In addition, a key goal of the EIA process is to ensure that an Environmental Management Plan is developed and implemented. The Environmental Management Plan will contain mitigation measures for noise and air quality (dust).

Introduction

The process for determining whether an EIA is needed is a statutory process that is governed by the National Conservation Act (NCA). This first stage, where the relevant authorities decide if a development is one requiring an EIA (i.e. requires an EIA), is called screening.

The National Conservation Council's (NCC) Directive for Environmental Impact Assessments (EIAs) issued under section 3(12)(j) and which has effect under section 43(2)(c) of the NCA, notes that all activities listed in Schedule 1 will be considered against the screening criteria outlined in sections 2 to 3 of Schedule 1 of the Directive to determine whether an EIA may be required. The proposed quarry falls within Schedule 1, i.e. excavation and extractive operations including marine dredging, quarries, extraction of minerals, deep drillings (including geothermal drilling), extraction of petroleum, natural gas or ores, an installation for the disposal of controlled wastes from mines and quarries.

The screening criteria include:

- The type and characteristics of a development;
- The location of a development; and
- The characteristics of the potential impact.

These screening criteria have been considered with respect to the proposed quarry to determine whether an EIA is required.

The Site

The site is located at Block 43A Parcels 419 and 422, along the northwest boundary of the Meagre Bay Pond Protected Area (see Figure 1). It has an area of 35.55 acres and is predominantly characterised by seasonally flooded mangrove wetlands. It is contiguous with the Central Mangrove Wetland, forming part of its southern extent. The site is located to the east of a complex of submerged quarries. Part of the southern extent is located directly adjacent to both the Meagre Bay Pond Protected Area and an existing, operational quarry.

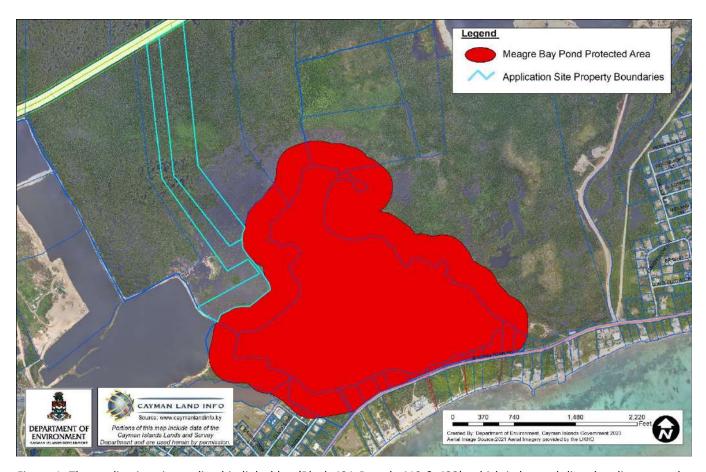


Figure 1: The application site outlined in light blue (Block 43A Parcels 419 & 422), which is located directly adjacent to the Meagre Bay Pond Protected Area shown in red.

Meagre Bay Pond is one of Cayman's oldest protected areas. The pond and a 300-foot wide band of mangroves around its margin were originally protected as an Animal Sanctuary in 1976. The Animal Sanctuary designation was transitioned to a Protected Area designation under the National Conservation Act 2013.

In 2004, Hurricane Ivan, tracking along the south coast of Grand Cayman, caused extensive mangrove death around Meagre Bay Pond. By this time, industrial quarrying below the water level had commenced nearby to the west of the Protected Area. In subsequent years, this quarry zone expanded dramatically, and by 2008, excavations had reached right up to the boundary of the sanctuary, leading to hydrological changes in the pond and concerns that its value to wildlife may be deteriorating as a result.

The Meagre Bay Pond Protected Area Management Plan was adopted by Cabinet on 15 February 2022. The goals of the management plan which are relevant to this application are:

- To establish separation between waters of the protected area and adjacent submerged quarries,
- To preserve the protected area water level's ability to overflow and discharge after extreme rain episodes,
- To thereby facilitate natural regeneration of Black Mangrove forest and other wetland communities around the pond, and
- To recover and maintain the historical seasonal patterns of diversity and abundance of bird life and other native species in the protected area.

Quarrying was noted as a severe threat to biodiversity in Meagre Bay Pond in the Management Plan.

In addition, an objective within this plan is to restore near-natural hydrology to Meagre Bay Pond through the following actions:

- Establish Quarry Rim Elevation Standards,
- Enforce Quarry Rim Elevation Standards on all quarries in the Central Mangrove Wetland,
- Require raising quarry roads above to the elevation standard,
- Assess ability of Meagre Bay Pond to overflow into the Central Mangrove Wetland, and
- Add high water overflow culverts into the adjacent quarry if necessary.

It is noted that there was a previous application for a quarry for these parcels (Block 43A Parcels 419 and 422) under the applicant name Maurice Bloom in April 2018. The Meagre Bay Pond Management Plan was adopted by Cabinet in 2022, which is four years after the EIA Screening Opinion was issued for the Maurice Bloom quarry application in April 2018. Therefore, the regulatory environment has changed and the Management Plan has further outlined threats to the protected area and actions which must be taken to safeguard the pond.

Proposed Quarry

Description of the Proposed Quarry

The proposed quarry has an area of 28.64 acres (of the 35.55 acres site) and is directly adjacent to the Meagre Bay Pond Protected Area as shown in Figure 1. The proposed quarry is projected to have a total yield of 2,315,000 cubic yards based on an estimated depth of 50 feet below Mean Sea Level.

Sheet 3 of the plan of the proposed quarry depicts a berm of an unspecified width and height around the eastern and southern boundaries of the quarry. The Quarry Operations Plan letter states that the berm will be "at a size and specifications that will be determined with consultations with the Department of Environment". It is noted that the applicant's goal is to use the berm to prevent the overflow of stormwater and direct run-off of sediment from the quarries into Meagre Bay Pond. There is also a 4-foot wide shelf within the quarry lake.

The Quarry Operations Plan letter states that the quarry works are being proposed in 6 phases over a 3-year period starting from the south of the parcels and progressing north. It is anticipated that the proposed quarry will be accessed using a 30-foot access road which connects to the southern boundary of Block 43A Parcel 422.

The submission indicates that the excavated material will be stockpiled on the south portion of Block 43A Parcel 422. It is noted that this section has been designated as a proposed quarry extension from Block 43A Parcel 346 but that no application has been submitted for the extension to date. The proposal states that if the quarry extension happens sooner than anticipated then the stockpiling of material will occur on the east side of the quarry adjacent to the access road.

The Quarry Operations plan letter states that the site rehabilitation for the proposed quarry will include the quarry being converted to provide renewable energy through the use of floating solar panel arrays within the quarry lake.

No further information has been provided as of the date of this Screening Opinion.

Characteristics of Potential Impact

The baseline conditions, the potential impact of the proposed quarry and any likely significant effects have been qualitatively assessed for each of the below environmental aspects.

Terrestrial Ecology and Site Hydrology

The site is located along the North West boundary of the Meagre Bay Pond Protected Area and is almost certainly in hydrological continuity with the pond. The site is part of the Central Mangrove Wetland. Meagre Bay Pond is a seasonally important feeding resource for both resident and migratory water birds, due to the pond's high biological productivity. Alone and in combination with the much more extensive Central Mangrove Wetland, this Protected Area meets the criteria for designation as a Ramsar site. Should this level of protection be approved for this wider area, it will assist in meeting the Cayman Islands' commitments under the Ramsar Convention, the Convention on Migratory Species and the Convention on Biological Diversity.

The seasonal drying of Meagre Bay Pond Protected Area is one of the main reasons for its designation as an Animal Sanctuary. When the water level of Meagre Bay Pond decreases, there is a concentration of fish in the shallower water leading to an aggregation of resident and migratory water and shore birds. The natural phenomenon of mass aggregations of birds has not recently been witnessed at Meagre Bay Pond and it is considered by the Department that this may be due to the inability of Meagre Bay Pond to appropriately drain.

Therefore, there are two main interruptions to the natural Meagre Bay Pond Protected Area hydrological regime. The first is the prevention of the movement of water north through the Central Mangrove Wetland when the water level is high in Meagre Bay Pond. The second is water overflow from the quarries into the pond, preventing Meagre Bay Pond Protected Area from drying out. The overall effect is that Meagre Bay Pond is wetter, not becoming seasonally dry, potentially expanding as the surrounding mangrove buffer drowns from a higher water level, and potentially becoming more saline from the influx of brackish water.

There are also water quality impacts. The water in the quarries is brackish but Meagre Bay Pond is typically near-freshwater as the main source of water is rainfall. When the brackish water from the quarries overflows into Meagre Bay Pond and then evaporates, it can concentrate the salt and increase the salinity in the pond. There is some evidence to suggest that white mangroves (*Laguncularia racemosa*) around Meagre Bay Pond are becoming salt stressed.

If the proposed quarry does not have adequate environmental controls, it may exacerbate and worsen the changes to the hydrological regime of Meagre Bay Pond.

Addressing the changes and degradation of the Meagre Bay Pond Protected Area is not as straightforward as including a berm around the proposed quarry. The Department does not hold sufficient information on the hydrological regime of Meagre Bay Pond to adequately predict the effect of the proposed quarry. While a berm may address the issue of water overflowing from the quarry into Meagre Bay Pond, it may worsen the ability of Meagre Bay Pond to drain north by blocking water movement across the proposed quarry. As shown in Figure 2 below, there is a road and a beach ridge to the south of Meagre Bay Pond, preventing any surface water run-off from travelling south. Although the area to the north of Meagre Bay Pond is at a low elevation, there appear to be dry islands at a slightly higher elevation along the north. These are noted in Figure 2 as subtle dark green islands north of the pond. There are no dry islands at the application site and it is probable that this is the easiest path for surface water to flow, allowing Meagre Bay Pond to drain to the north.

It appears that the southern part of the site is becoming part of Meagre Bay Pond itself. Although outside of the designated Protected Area, the southern part of the site is very wet and appears to have surface water connectivity with Meagre Bay Pond. There also appears to be a lower density of trees, indicating drowning and/or die-off of

the mangroves. As the drainage regime of Meagre Bay Pond Protected Area is being impacted, it seems likely that the site's drainage regime is being impacted too.

Therefore, if this area was to become a quarry and the quarry was to be surrounded by a berm, it may cause a significant adverse effect on the Meagre Bay Pond Protected Area.

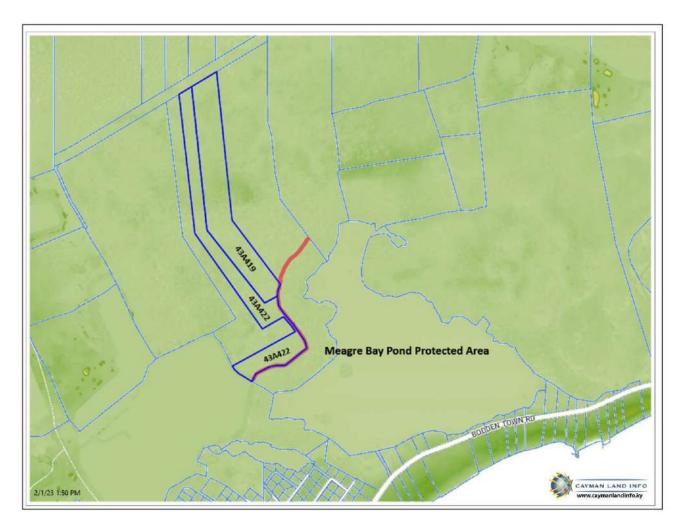


Figure 2: The application site outlined in dark blue, appears to be an area of low elevation where water is likely to flow through between Meagre Bay Pond and the Central Mangrove Wetland. The red line shows a part of the boundary of the Meagre Bay Pond Protected Area that is directly adjacent to the application site. The light green is an area of low elevation and the darker green is a higher elevation (Source: Cayman Land Info).

As identified in the Management Plan, the existing quarries are already adversely impacting the Protected Area. It is highly likely that the introduction of a new quarry may result in new significant adverse effects and may amplify existing risks to Meagre Bay Pond Protected Area for terrestrial ecology. **An EIA is required to address these impacts.**

Air Quality - Dust

Although there is no current monitoring data for air quality in this area, anecdotal evidence suggests that there are nuisance dust emissions on the roads and surrounding areas near existing quarries in Cayman. The nature of

the extraction processes and haulage of material offsite may cause dust to be created onsite and offsite on vehicular routes. Additional dust may also be created by processing activities.

A regular and persistent nuisance may affect local amenities. The degree of nuisance experienced depends on the rate of deposition, and is discernible at two levels:

- Nuisance experienced when the dust cover is sufficient to be visible when contrasted to an adjacent clean surface, such as when a finger is wiped across the surface. This is particularly annoying when it occurs regularly over long periods; and
- Severe nuisance experienced when the dust cover is perceptible without a clean reference surface for comparison. This usually occurs over short periods during very dusty conditions and the level of concern and potential for nuisance is normally directed related to the number and proximity of receptors.

Nuisance complaints are usually associated with periods of peak deposition, occurring during particular weather conditions. There is a "normal" level of dust deposition in every community and it is only when the rate of deposition is high relative to the norm that complaints tend to occur. The effects of dust on a community will therefore be determined by three main factors:

- The short-term dustiness during periods of dry weather;
- The frequency or regularity with which these occur; and
- The duration of the site activities that contribute to dust.

Therefore, increasing the amount of quarrying activity and the number of vehicular trips with loaded material is likely to increase the effects of dust on a community and may increase the degree of nuisance. Compared to the 2010 population, according to the Economics and Statistics Office, Bodden Town recorded the highest growth rate at 40.8% in the 2021 census of population and housing. Therefore, there is an increasing number of residential receptors in the surrounding area of the site.

The proposed quarry will likely exacerbate the existing nuisance issues given the application contains no discussion of control measures. An EIA is required to address these impacts and mitigation is likely to include a Dust Management Scheme which shall be agreed upon prior to development commencing and implemented throughout the lifespan of the quarry working.

Noise and Vibration

There is no relevant information readily available that quantifies the baseline acoustic environment at locations surrounding the proposed quarry. Although there are no residential receptors directly adjacent to the quarry, there are existing residential populations around Bodden Town. There are also existing quarrying activities within a relatively open and flat landscape where sound could potentially travel long distances. As outlined above for air quality, the population of Bodden Town has grown 40.8% in the 11 years from 2010 to 2021 and is likely to continue to increase, introducing additional residential receptors near the quarrying activities. The working processes, extraction, processing and exportation which will be conducted on-site as part of the proposed quarry may have the potential to have an effect on the surrounding area in terms of noise. A noise assessment will assess the potential levels of noise generation and provide suggestions of suitable mitigation activities to be undertaken should they be required. **An EIA is required to address these impacts.**

Conclusions

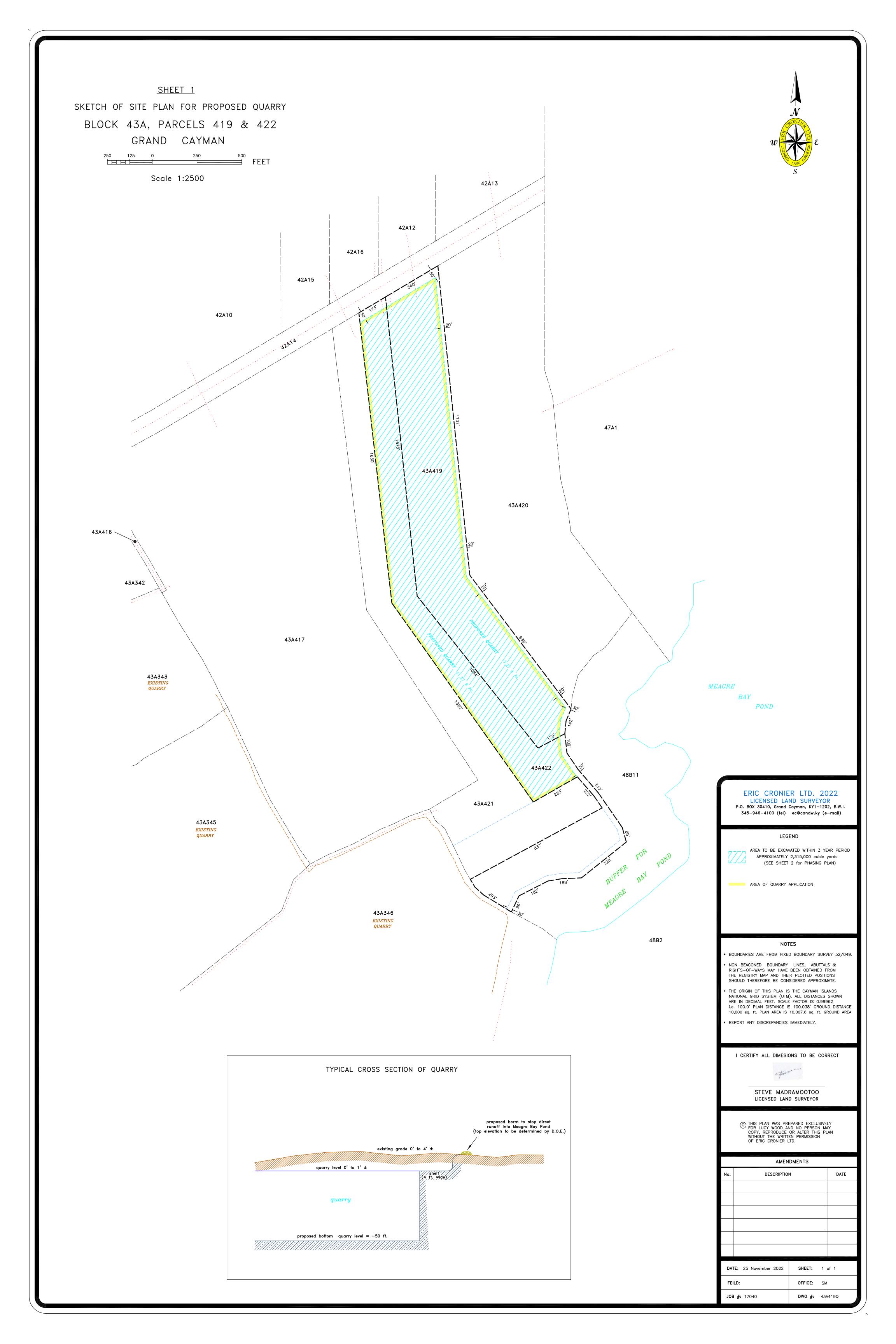
The DoE recommends that the proposed quarry be the subject of an EIA.

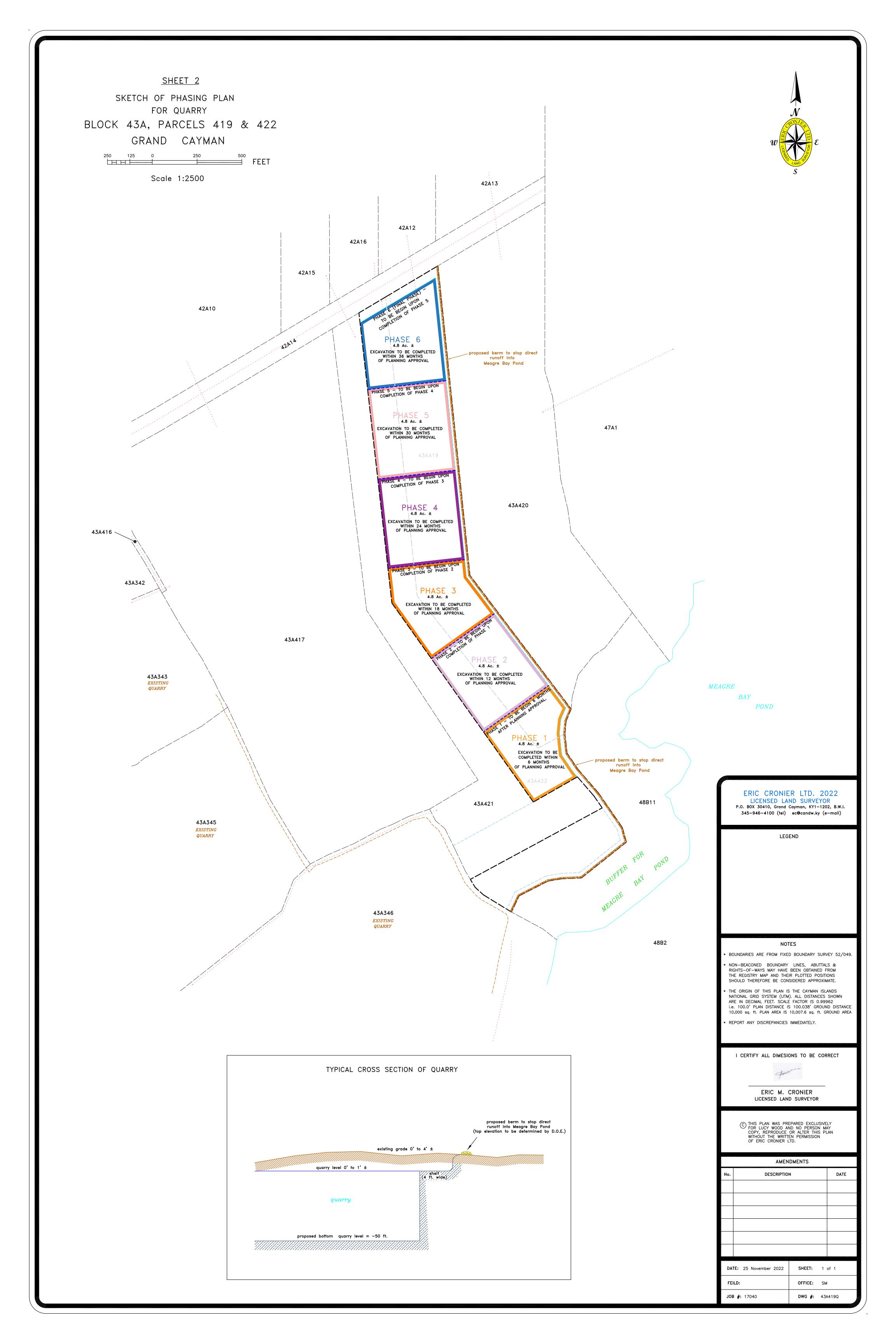
The EIA is required to address potential significant adverse effects from the proposed quarry on terrestrial ecology and hydrology and hydrogeology, especially in the Meagre Bay Pond Protected Area. The proposed quarry must be designed in such a way as to reduce adverse effects on a Protected Area under the National Conservation Act. The EIA must ensure that the proposed quarry is in accordance with the Meagre Bay Pond Management Plan which has been adopted by Cabinet.

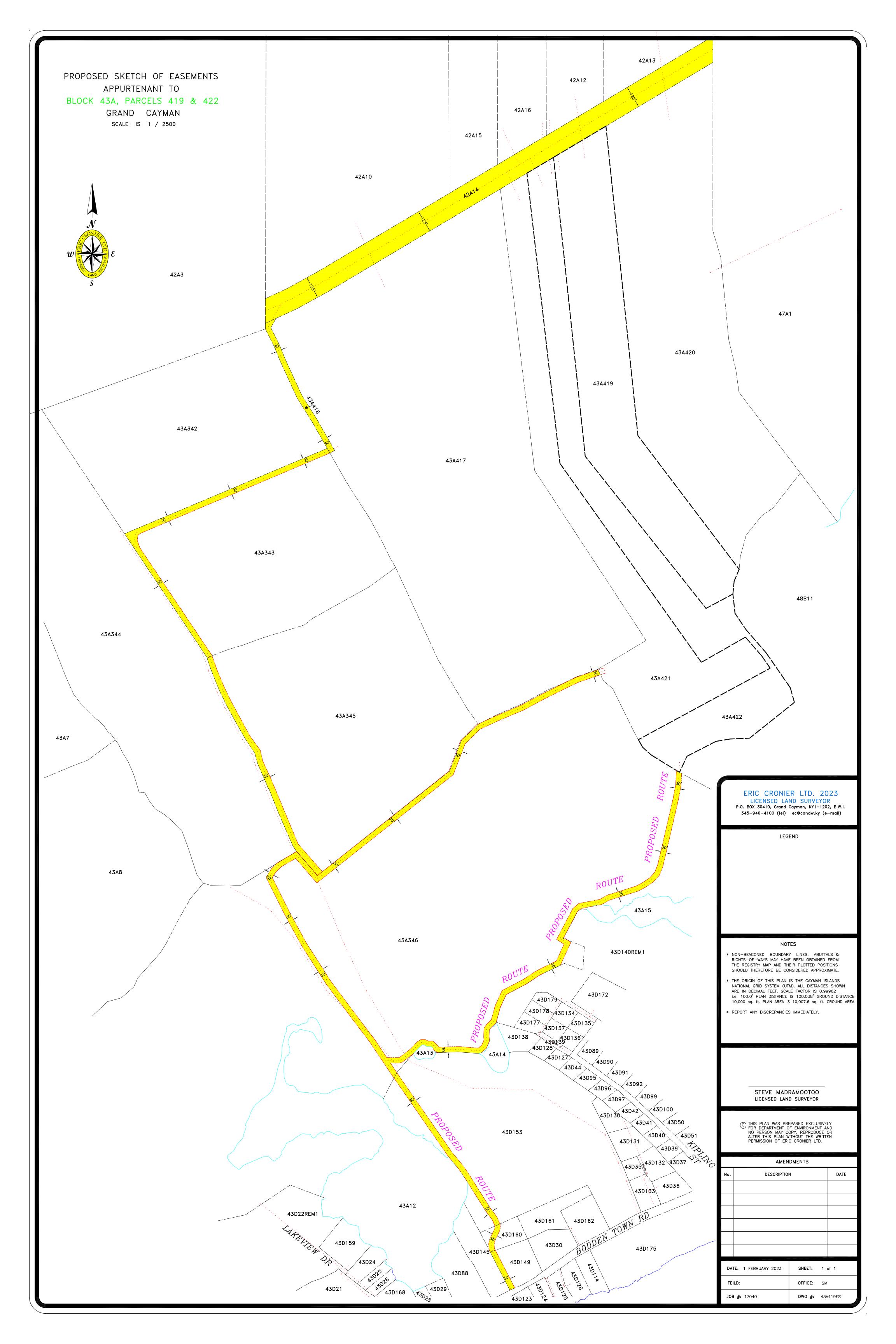
In addition, a key goal of the EIA process is to ensure that an Environmental Management Plan is developed and implemented. The Environmental Management Plan will outline any monitoring that has been identified as necessary and will contain measures to mitigate significant impacts on the Protected Area.

After considering the Screening Opinion detailed above, the NCC is required to issue its decision to the originating entity on the requirement for an EIA, pursuant to Section 43 (1).

Appendix 1











Notice of National Conservation Council Decision Ref: EIA for a Quarry on 43A 419/422

- 1) The proposed action is a request for Planning Approval by the Central Planning Authority for a quarry on parcels 43A/419 and 43A/422.
- 2) The proposed development is a quarry and so falls within Schedule 1 (those proposed activities which need to be screened to determine if an Environmental Impact Assessment is required) of the National Conservation Council's Directive for Environmental Impact Assessments (EIAs) issued under section 3(12) (j) and which has effect under section 43(2) (c) of the National Conservation Act.
- 3) Whether the proposed quarry would need an Environmental Impact assessment was considered by the National Conservation Council at its preparatory workgroup session of 15 February 2023.
- 4) Council noted a variety of factors, including but not limited to
 - a. The Department of Environment Screening Opinion, which included the site and phasing plans for the proposed quarry.
 - b. The size and location of the quarry, its proximity to the Meagre Bay Pond protected area, the historically established boundary of this protected are and the management plan for the protected area, the probable hydrology of the area and the need to manage the hydrological continuity of the area including with berms as included in the quarry proposal.
 - c. The need to consider the possibility of proposed quarries in the area amplifying existing risks of hydrological changes causing significant adverse effects on the Meagre Bay Pond protected area and its wetland habitats.
 - d. The potential of the quarry operation to produce significant amounts of air, noise and other pollution and the need to manage these risks in an informed manner through an environmental management plan for the proposed quarry operation.
 - e. The similarity in situation between this application and another recently considered quarry application. Including the Aggregate Advisory Committee's opinion, in relation to that and now this quarry proposal, that currently approved quarry volume is sufficient to meet national demand for quarry product.
- 5) Under section 41(3) of the National Conservation Act, 2013, the views of the Council shall be taken into account by the Central Planning Authority when making their decision on the proposed action.
- 6) Council decided that the proposed quarry on parcels 43A419 and 43A422 should be the subject of an Environmental Impact Assessment (EIA).

- a. Council noted that it would be possible for the proponents of quarries in this area to undertake a joint EIA as a potential means for enhancing their applications while also meeting their need to conduct an EIA if they wish for their proposals to receive further consideration by the relevant authorities, and minimising some of their costs through the shared approach to the work.
- 7) This decision would need to be ratified at the next suitable General Meeting of the National Conservation Council.
- 8) It should be communicated to the Central Planning Authority, and by the Central Planning Authority through their usual and sufficient means of communication to the appropriate parties, that the Central Planning Authority or a person aggrieved by a decision of the National Conservation Council may, within 21 days of the date on which the decision of the Council is received by them, appeal against the Council decision to the Cabinet by serving on the Cabinet notice in writing of the intention to appeal and the grounds of the appeal (Section 39 of the National Conservation Act, 2013).

John Bothwell

National Conservation Council **John Bothwell –** Manager, Legislation Implementation & Coordination Unit Secretary, National Conservation Council

Email: John.Bothwell@gov.ky; Conservation@gov.ky

Please see our website www.Conservation.ky