

HERITAGE IMPACT ASSESSMENT

submitted in terms of section 38(8) of the National Heritage Resources Act

prepared for

AURECON South Africa (Pty) Ltd

28 May 2014

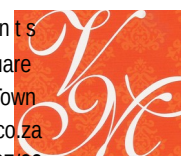
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MR 356 Eden

Vanwyksdorp – Eden Municipality, Western Cape

Executive summary

Aurecon South Africa (Pty) Ltd appointed *vidamemoria* to conduct a heritage impact assessment for an existing borrow pit located along MR 356 approximately km 4.4 southeast of Vanwyksdorp in Eden District Municipality, Western Cape. *Vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct necessary palaeontological specialist study (dated May 2014). Heritage impact assessment is submitted for comment in terms of Section 38(8) of the NHRAct as a component of an Environmental Management Programme (EMProg in terms of Mineral and Petroleum Resources Development Act 49 of 2008) to be submitted to the Department of Mineral Resources (DMR).

Well-consolidated potentially fossiliferous fluvial sediments, is to be excavated into marginal marine sediments of the Karies Formation (Upper Bokkeveld Group). Important Middle Devonian fossil assemblages of fish, plants, non-marine bivalves and trace fossils have been recorded elsewhere from this stratigraphic unit. However, the Upper Bokkeveld sediments in the study area are highly weathered and cleaved, so their palaeontological sensitivity is correspondingly very low. The palaeontological sensitivity of the borrow pit site was therefore considered to be of low significance. Proposed intervention would not result in a detrimental heritage impact, yielding social and economic benefits without a negative impact on heritage resources.

1. Introduction

Aurecon South Africa (Pty) Ltd on behalf of the WCPA: Department of Transport and Public Works appointed Quahnita Samie (*vidamemoria*) to conduct a Notification of Intent to Develop (NID) application in terms of Section 38(1) of the National Heritage Resources Act (Act 25 of 1999) **for an existing pit along MR 356 near Vanwyksdorp, Eden District Municipality**. NID dated 11 September 2013 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 23 October 2013 (**case ref 131011TS32**) requested 'a heritage impact assessment consisting of a palaeontological study' (Refer Annexure A). *Vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct the necessary palaeontological specialist study (dated May 2014) as incorporated within this assessment.

The proposed action triggers Section 38(1) (c)(a) *activity that will change the character of a site exceeding 5 000 m²*. This assessment report is submitted for comment in terms of Section 38(8) of the NHRAct as a component of an Environmental Management Programme (EMProg) in terms of the Mineral and Petroleum Resources Development Act (49 of 2008) to be submitted to the Department of Mineral Resources (DMR). Notification as previously submitted to HWC (dated 31 May 2011) and response (dated 20 June 2011) confirmed the approach to be undertaken in submitting borrow pit notifications to HWC.

Structure of assessment

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Site location and description

Proposal is for an extension of an existing borrow pit located along the unsealed MR 356/38.3/0.1L approximately 4.4 km southeast of Vanwyksdorp, Eden District Municipality. The pit is located in fairly flat to gently sloping terrain to the south of an east-west trending range of low hills 3 km south of the Grootrivier. Semi-desert grass and succulents surround the borrow pit. The site is situated on MR356 Road Reserve in private ownership Eden Municipality. Borrow pit co-ordinates are 33°47'5.15"S, 21°28'18.93"E

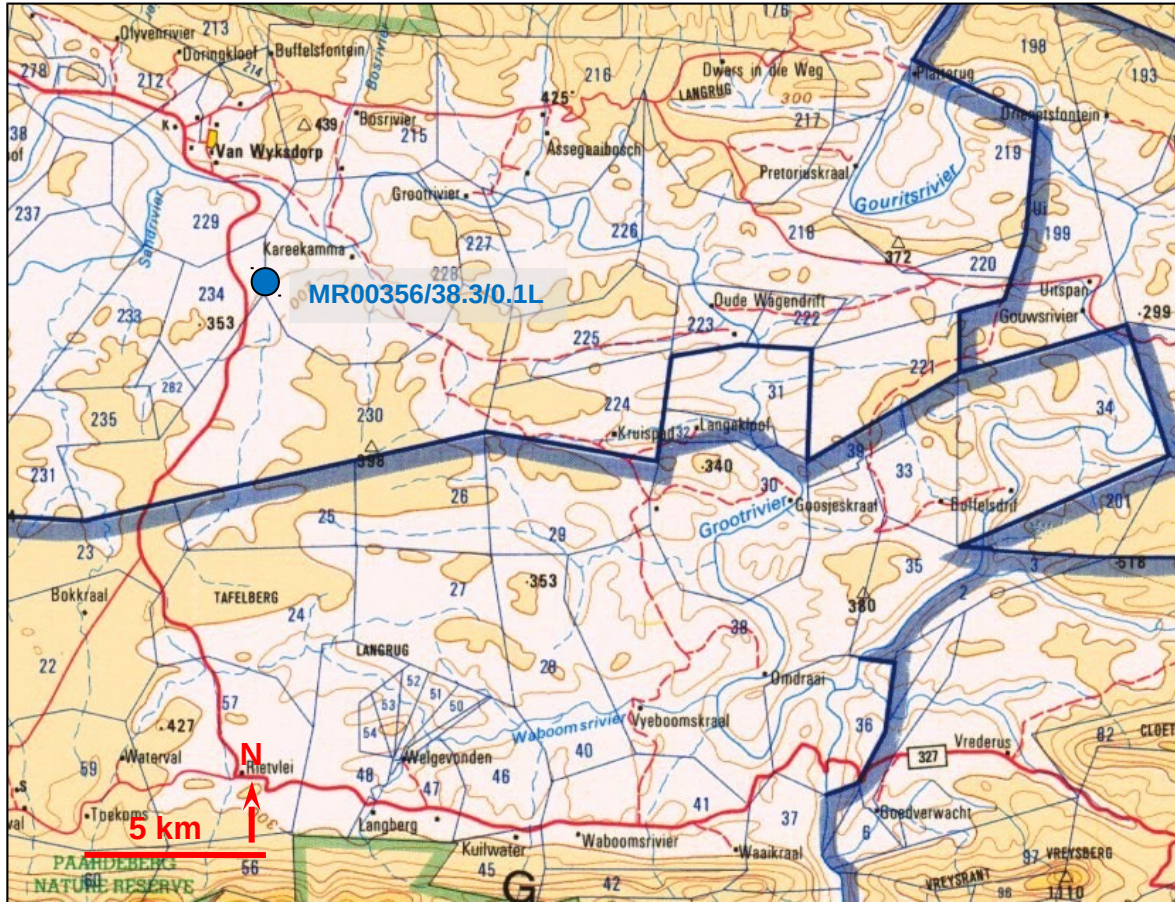


Figure 1: Extract from topographical sheet 3220 Ladismith (Almond 2014: 2)



Figure 2: View across the flat-lying borrow pit study area showing pale grey-brown silty alluvial soils with low hills of Karoo Formation rocks in the background (Almond 2013: 4)

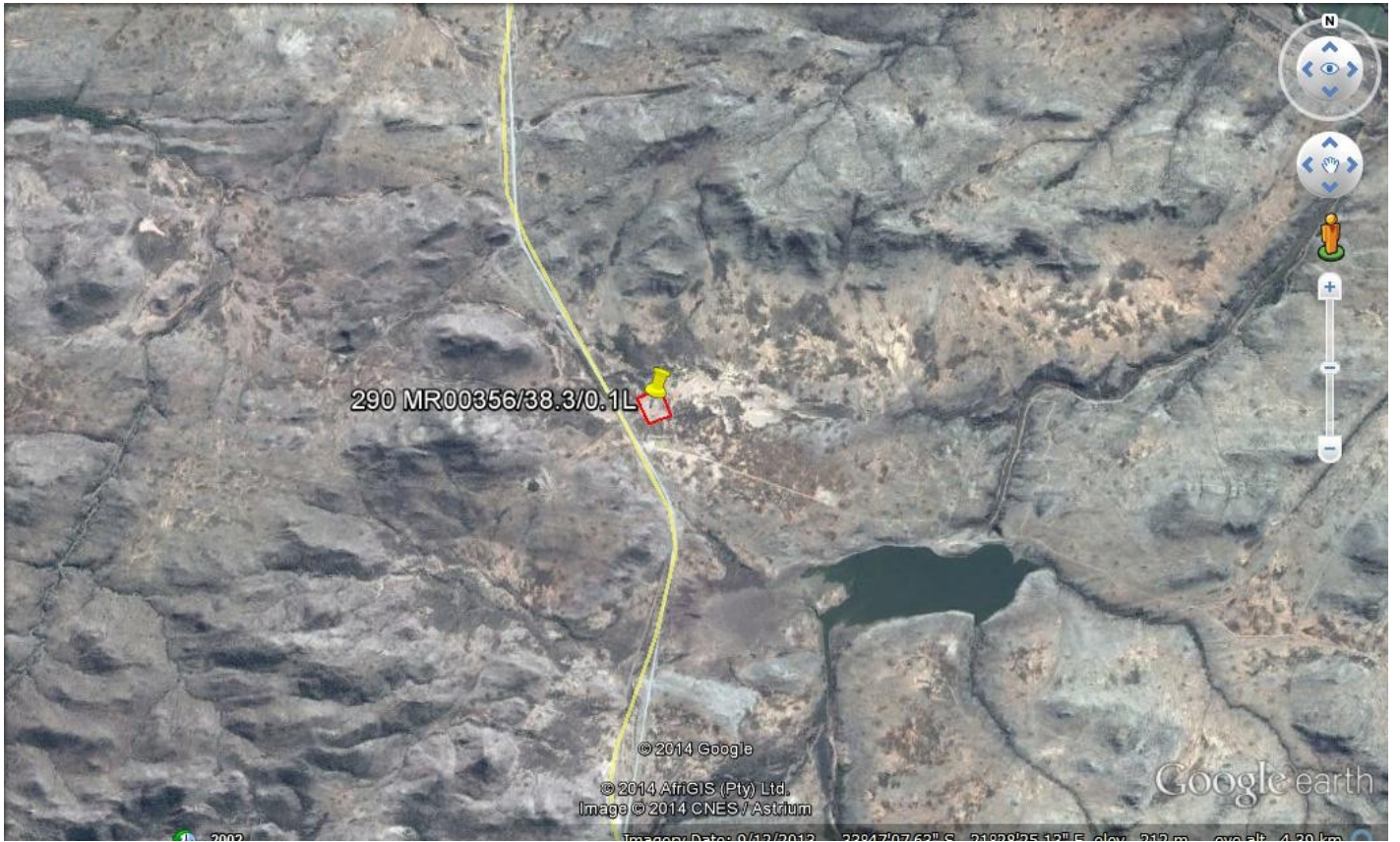


Figure 3: Site context and borrow pit location (Google earth, May 2014)



Figure 4: Aerial view of borrow pit and preliminary pit area (Google earth, May 2014)

Description of proposals

In terms of the Minerals and Petroleum Resources Development Act, all mining activities including extraction of material from borrow pits and quarries requires authorisation from the Department of Mineral Resources (DMR). Where the WCPA: Dept Transport and Public Works is undertaking the maintenance and / or upgrading of roads under its control, no application needs to be submitted for a mining right or permit, however, as per provisions of Section 106(2) of the MPRDAct, they are required to prepare and submit an EMProg to DMR for their approval prior to the extraction of any material from a proposed borrow pit or quarry. According to the MPRDAct, mineral resources are in the custodianship of the State, where WCPA would temporarily acquire the right to mine the borrow pits, subject to approval by the DMR.

For a gravel road to be able to carry traffic safely and effectively an upper layer of gravel known as a wearing course, which meets specific technical requirements, has to be placed on the prepared roadbed. With time, the wearing course is eroded away by both traffic and the elements. This wearing course needs to be replaced in order to continue to deliver a safe and functional surface to road users. Implementation of regravelling activities requires extraction of suitable materials from identified material sources. During decommissioning, working areas are rehabilitated and revegetated. Material excavated from the proposed borrow pit will be used for re-gravelling of portions of road **MR 356 at km 38.3** to benefit road users in terms of road safety and user economy as well as to minimize maintenance-related disruptions.

Summary of borrow pit	
Expropriation area	10 000 m ²
Borrow pit	10 000 m ²
Maximum depth	2 m
Material description	Shale of Bokkeveld Group,
Proposed usage after rehabilitation	Re-vegetation
Volume of material to be sourced	11 000 m ³

Trial pit investigations and sampling were conducted by Aurecon at four proposed borrow pits considered as potential sources of material. Three were however excluded from consideration due to environmental concerns and / or unsuitability of material for purpose of regravelling.

The mine plan outlining extent of borrow pit and mining is outlined as Annexure B. Methodology for the preparation, operation and closure of borrow pit is outlined in Annexure B.

Eden District Municipality is to undertake work on behalf of the WCPA. Formal agreements are to be entered into between the landowner and the WCPA, with the municipality managing the site until decommissioning and closure. During decommissioning, the working area will be rehabilitated and revegetated as per the approach outlined in the mining plan. WCPA's liability for the site persists until such time as a Closure Certificate has been issued by the DMR.

Results of consultation

DMR has outlined requirements for public participation in terms of the Minerals and Petroleum Resources Development Act (Act 28 of 2002) for exempted organs of state. This includes liaison with the landowner, notification of the immediate neighbours and either an on-site advertisement or advertisement in the local newspaper. The WCPA has indicated a commitment to developing and maintaining good relations with landowners and therefore landowners concerns are incorporated into the final agreement.

The public consultation process for this project has involved consultation with the landowners and neighbours, and the advertising of the proposed activity in the local newspaper.

Requests / concerns of owner:

- None noted

2. Heritage resources

Identification of heritage resources

Proposed site and immediate context do not fall within conservation or protected heritage areas, and is not located near to or visible from any protected heritage sites. The site does not fall within a historical settlement or townscape and does not contribute towards rural or natural landscape of cultural significance. The site is therefore not considered as an integral component of the cultural landscape.

Dr John Almond conducted a palaeontological field assessment and provided a report outlining geological context, palaeontological heritage and palaeontological sensitivity. The borrow pit is to be excavated into marginal marine sediments of the Karies Formation (Upper Bokkeveld Group). Important Middle Devonian fossil assemblages of fish, plants, non-marine bivalves and trace fossils have been recorded elsewhere from this stratigraphic unit. However, the Upper Bokkeveld sediments in the study area are highly weathered and cleaved, so their palaeontological sensitivity is correspondingly very low. The overlying silty alluvial soils and fine downwasted quartz-rich gravels are apparently unfossiliferous (Almond, 2013: 1).

The near absence of archaeological remains at the proposed extension site indicates that the proposed site is of low archaeological significance (Dave Halkett ACO, September 2013).

The site has no known historical, social, or spiritual significance. No built environment issues and / or cultural landscape issues have been identified. No further heritage resources were identified.

Heritage significance

The Upper Bokkeveld sediments in the study area are highly weathered and cleaved, so their palaeontological sensitivity is correspondingly very low. No further palaeontological heritage studies or mitigation are therefore recommended for this borrow pit project (Almond, 2014: 6).

The context within which the site lies is identified as possessing low intrinsic heritage value. No heritage resources were identified within the immediate context of the site. The proposed development site is transformed and possesses no known historical, social or spiritual significance. No sensitive landscapes were identified. The site is therefore considered to possess a very low level of intrinsic heritage value.

Heritage indicators

Heritage indicators identified aim to ensure that significance would not be adversely impacted on by the proposed development. Indicators concern impact on the cultural landscape, identified heritage resources and visual impact. No sensitive landscapes, archaeological or palaeontological material of significance were identified. Landscaping and rehabilitation of the site should commence as soon as advancing face and sufficient working/loading area moves away from an area that has been mined out.

3. Assessment of impacts

An assessment of the potential development impacts on significance is undertaken using relevant assessment criteria as well as response to indicators. Assessment of impacts on palaeontological significance has been provided as well as consideration of the cultural landscape and assessment of cumulative impacts.

Cultural landscape: Expansion of existing borrow pit would not result in a negative impact on the cultural landscape. The landscape within which the site lies possesses low intrinsic heritage value and no heritage resources were identified within the immediate context. The site and its immediate context are considered as being of low heritage significance. No heritage resources will be impacted and the overall status of the impact is considered as low.

Archaeological and palaeontological impact: No impact would occur as a result of the expansion of existing borrow pit. The site has been sufficiently recorded and requires no further recording before borrow pit activity occurs.

Visual impact: Low intensity visual impact is limited to the immediate surroundings and will be limited to operational phase.

Cumulative impact: The proposed moderate intensity intervention lies within a disturbed context with degraded conditions. No new roads would have to be constructed as the borrow pit is accessed directly off main / divisional roads or via existing access tracks. The borrow pit and access tracks would be fenced for the duration of the mining activities. There will be no site buildings located at the borrow pit site. No long-term traffic increase will be experienced. Low impact is associated with impact of increased personnel and cumulative impacts on borrow pit footprint and surroundings.

Site rehabilitation: The final shape of the borrow pit should form convex-concave slopes to emulate the nearest natural hillslope. Slopes should be smoothed and left neat and tidy, then covered with stockpile.

Impact relative to sustainable social and economic benefits: The project will result in social and economic benefits for the local community in terms of service provision and employment opportunities.

The site is considered to possess a very low level of intrinsic heritage value and the overall status of the impact is considered as low.

4. Discussion

During the course of borrow pit excavations, operations should be planned in such a way that the amount of work that will be necessary for the finishing off of the borrow pit is reduced as far as possible. Indiscriminate excavation without due regard for the desired final shape of the borrow pit should not be permitted and should be rectified immediately. Timing of rehabilitation is important as rehabilitation of disturbed areas should ideally be programmed to occur as soon as practically possible following cessation of work in a specific area. The period between cessation of activities associated with mining of materials and the onset of rehabilitation for that area should ideally not exceed 1 month. Rehabilitation operations should ideally be conducted in parallel with extraction. Accordingly, progressive rehabilitation, in which depleted sections of a borrow pit are reclaimed while extraction is ongoing in other sections of the same pit is encouraged.

Site development, operation, mining and closure guidelines outlined with the Environmental Management Programme provides detailed guidance for the preparation, operation and decommissioning of the site. Rehabilitation of old and current working faces has been undertaken to mitigate visual impact to road users. Measures outlined should be adhered to in order to minimise potential negative impacts. It is recommended within the EMProg that an environmental control officer or suitable experienced engineer monitors the preparation, operational and decommissioning of the borrow pit so as to ensure that mitigation and rehabilitation measures are adhered to. Standard safety measures in place would include fencing, access control and fire management.

The Upper Bokkeveld sediments in the study area are highly weathered and cleaved, so their palaeontological sensitivity is correspondingly very low. No further palaeontological heritage studies or mitigation are therefore recommended for this borrow pit project (Almond 2014:6). Proposed intervention would not result in a detrimental heritage impact, yielding social and economic benefits without a negative impact on heritage resources. No further specialist palaeontological studies or mitigation is recommended and expansion be allowed to proceed.

Recommendations

It is therefore recommended that:

1. expansion of existing borrow pit be supported
2. comment be issued that proposed activity may proceed in terms of Section 38(8) of the NHRAct

References:

- Almond John E PhD (May 2014): *Palaeontological specialist study: field assessment & recommendation for exemption from further studies & mitigation*
- ASAPA Aggregate and Sand Producers Association of Southern Africa (30 September 2009): *The issue of borrow pits being used in the aggregate and sand industry* accessed online
- Aurecon / Nadeson JV (July 2011): *Draft environmental management programme, summary report and mine plan*
- Galliers R M (July 2011): *Geotechnical investigations and geological strategic gravel pit summary report* for Aurecon South Africa
- Heritage Western Cape (October 2013): *Minimum Standards For Phase 1 Archaeological Impact Assessment (Aia) Reports*
- vidamemoria (September 2013): *Notification of Intent to Develop*