

# HERITAGE IMPACT ASSESSMENT

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

prepared for

NADESON Consulting Services

29 August 2012

vidamemoria heritage consultant  
3<sup>rd</sup> Floor · Guarantee House · 37 Burg Street · Greenmarket Square  
P O Box 50605 Waterfront · 8002 · Cape Town  
021 424 4244 (8432) cell: 082 330 4066 · quahnita@vidamemoria.co.za



CK 2006/049087/23

OPO 5958 Cape Winelands

Montagu – Cape Winelands District Municipality, Western Cape

## Executive summary

Nadeson Consulting Services appointed *vidamemoria* to conduct a heritage impact assessment for a proposed borrow pit located along OPO 5958 approximately 30 km northwest of Montagu in Cape Winelands District Municipality, Western Cape. *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct necessary palaeontological specialist study (dated August 2012). 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).

Mudrocks of the Middle Devonian Klipbokkop Formation (Upper Bokkeveld Group) elsewhere are well-known for their Middle Devonian fish fauna and vascular plants. However, the Klipbokkop sediments in the study area are highly cleaved and show no evidence of potentially fossiliferous ferruginous nodules, therefore considered to be of low palaeontological sensitivity. 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 proposed pit should be allowed to proceed.

## 1. Introduction

Nadeson Consulting Services 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) to develop a proposed borrow pit along OPO 5958 near Montagu, Cape Winelands District Municipality. NID dated 03 January 2012 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 15 February 2012 (case ref 120130JL28) 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 March 2012) 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 m<sup>2</sup>. 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

Section 1	Introduction provides background, site location, description of proposals and result of consultation	pg 2
Section 2	Identification of heritage resources, assessment of significance and heritage indicators	pg 6
Section 3	Assessment of impacts	pg 7
Section 4	Discussion and recommendations	pg 8
Annexure A	Interim comment from HWC	
Annexure B	Mine plan	
Annexure C	Methodology for the preparation, operation and closure of borrow pit	
Annexure D	Palaeontological specialist study conducted by Dr John Almond, Natura Viva CC	

## Site location and description

Proposal involves expansion of a small existing borrow pit OP5958/0.74/R/100 (proposed new borrow pit adjacent to an existing pit) is located in the Koo Region of the Western Cape approximately 30 km northwest of Montagu. This potential source of wearing coarse gravel for the DR1402 road is situated on a small hill adjacent to the road OP5958. Apart from on the gravel road running through the site, indigenous shrubs are found across the site. At one stage gravel material was taken from this area, evident by small (insignificant) stockpiles of material. Land is not utilized for any specific purpose and surrounding context is cultivated lands and mountainous terrain. Portion 2 of farm Leeuhoek No. 54 is in private ownership of Jakkalsvlei Plase (Pty) Ltd. Borrow pit co-ordinates are 33° 39' 32.1" S, 19° 50' 28.1" E

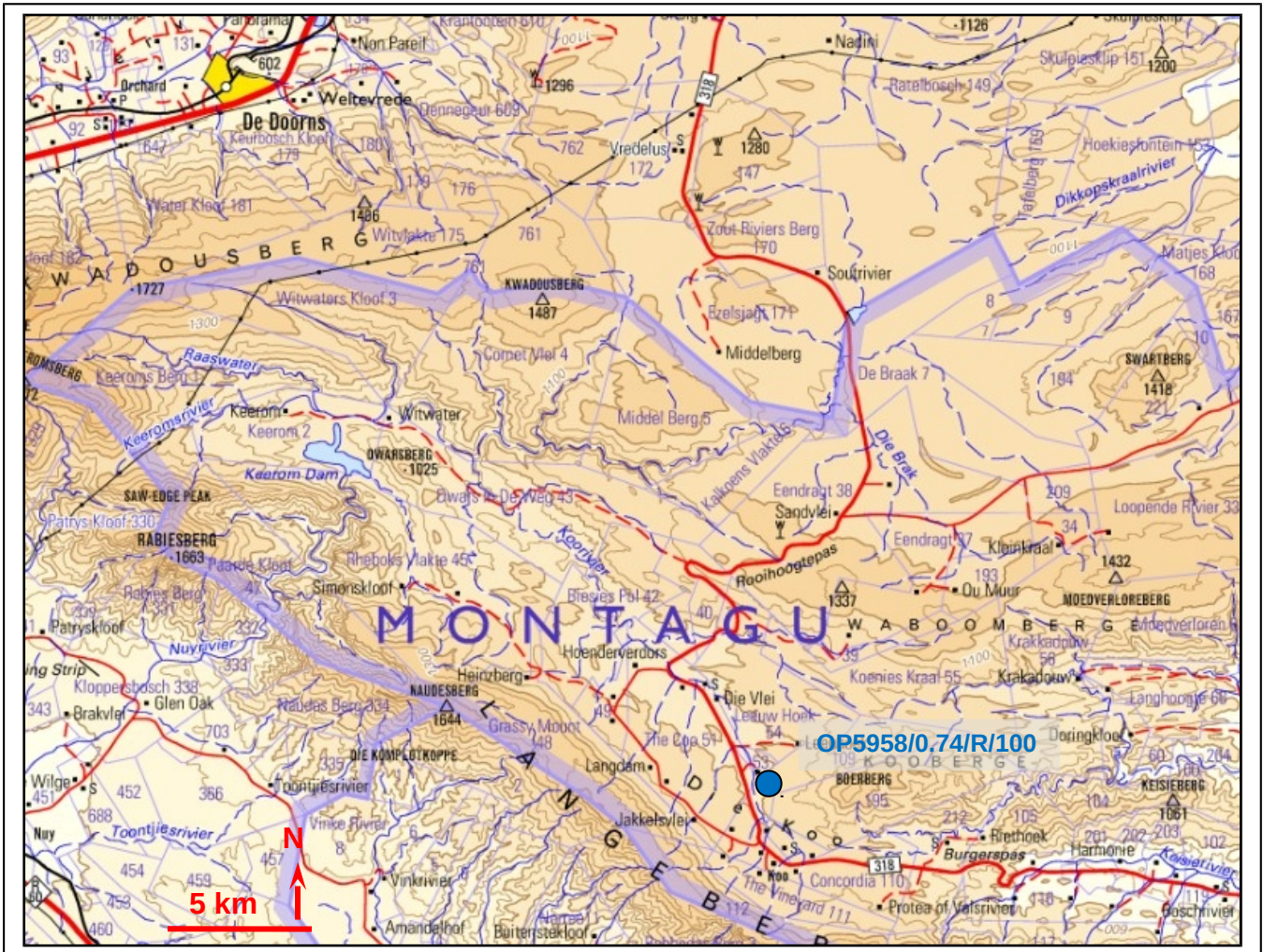


Figure 1: Extract from topographical sheet 3119 Worcester (extracted Almond 2012: 2)



Figure 2: View southwest across borrow pit area (Almond 2012: 5)



Figure 3: View northeast (July, 2011)



Figure 4: Aerial view of existing borrow pit location (Google earth image, August 2012)

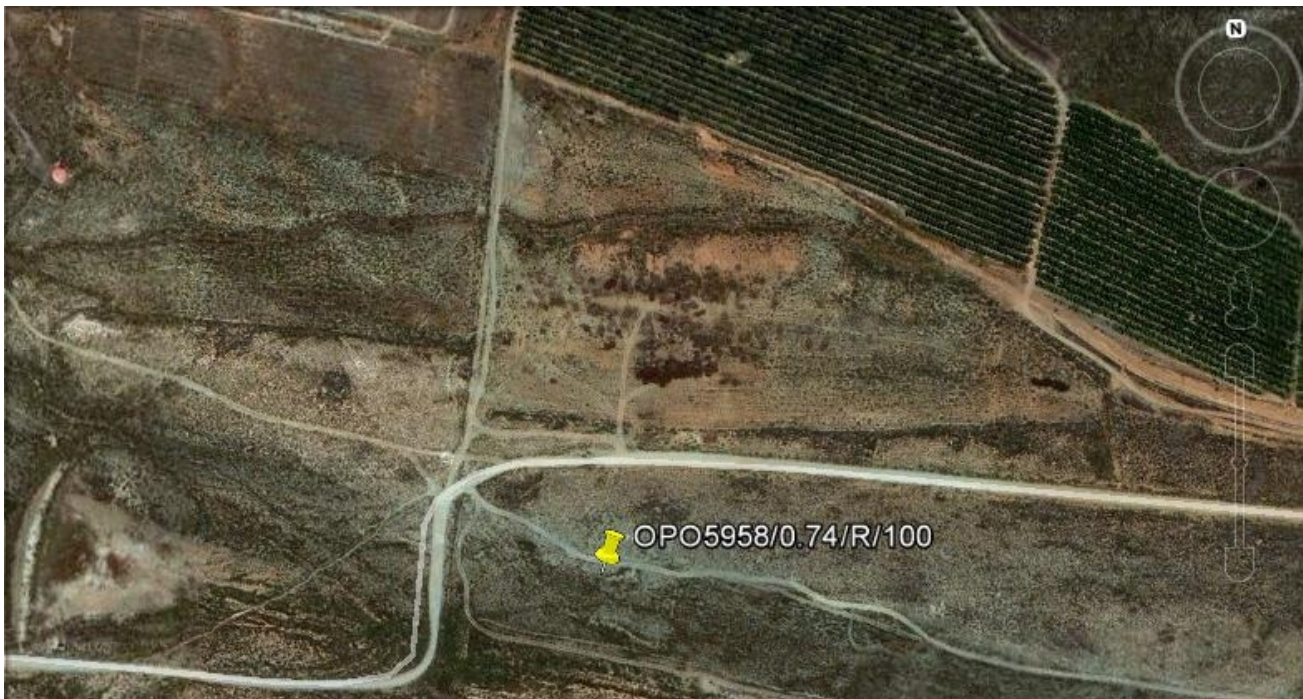


Figure 5: Aerial view of existing borrow pit (Google earth image, August 2012)

## 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 MPRDA, 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 MPRDA, 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 borrow pit located at **km 0.74 along DR OPO 5958** will be used for re-gravelling to benefit road users in terms of road safety and user economy as well as to minimise maintenance-related disruptions. Pit will be utilised for the sourcing of approximately 12 740 m<sup>3</sup> of wearing course gravel. The end-use of this borrow pit would be to re-vegetation.

Summary of borrow pit	
Borrow pit / expropriation area	9 100 m <sup>2</sup>
Maximum depth	3 m
Material description	mudrocks of the Middle Devonian Klipbokkop Formation
Proposed usage after rehabilitation	Re-vegetation
Volume of material to be sourced	12 740 m <sup>3</sup>

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 attached as Annexure B. Methodology for the preparation, operation and closure of borrow pit is outlined in Annexure C.

Cape Winelands 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.

No heritage related comments and / or concerns were received.

### *Requests / concerns of owner:*

- Proper rehabilitation of the borrow pit once the material has been removed.
- Heavy vehicles accessing the OP5958 and gravel road running through the centre of the site
- Dust pollution affecting road users

## 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 small, recently established pit is excavated into non-marine sandstones and mudrocks of the Middle Devonian Klipbokkop Formation (Upper Bokkeveld Group). Elsewhere this formation is well-known for its Middle Devonian fish fauna and vascular plants. However, the Klipbokkop sediments in the study area are highly cleaved and show no evidence of potentially fossiliferous ferruginous nodules.

No archaeological resources were identified and the site has been identified to possess low archaeological significance (Manhire and Patrick December 2011 desktop assessment as contained within NID). 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

A previous desktop basic assessment of the pit by Dr Almond assessed palaeontological heritage sensitivity as high due to the presence of potentially fossiliferous sediments of the Klipbokkop Formation (Upper Bokkeveld Group, Bidouw Subgroup). The palaeontological sensitivity of the site is however considered to be low (Almond, 2012: 7) as Klipbokkop sediments in the study area are highly cleaved and show no evidence of potentially fossiliferous ferruginous nodules.

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 expansion. 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:** It is expected that there should be an acceptable seed bank in the topsoil and this would be kept aside for rehabilitation. Ensure that the aesthetic appearance of the landscape is improved after utilization by smoothing out and contouring the slopes of the borrow pits and preparing the site to accept vegetation before replacing overburden, topsoil and vegetation.

**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.

Klipbokkop sediments in the study area are highly cleaved and show no evidence of potentially fossiliferous ferruginous nodules and palaeontological sensitivity of the site is correspondingly low. Pending the discovery of substantial new fossil material such as shelly fossil, fish or plant remains, no further mitigation of fossil heritage for this borrow pit is recommended. (Almond 2012: 7). Proposed intervention would yield positive benefits without a negative impact on heritage resources.

### Recommendations

It is therefore recommended that:

1. proposed 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 (August 2012): *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 (July 2007): *Minimum Standards For Phase 1 Archaeological Impact Assessment (Aia) Reports*
- vidamemoria (January 2011): *Notification of Intent to Develop*