

HERITAGE IMPACT ASSESSMENT

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

prepared for

AURECON South Africa (Pty) Ltd

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MR 00268 Malgas, Swellendam
Malgas, Swellendam – Overberg District Municipality, Western Cape

Executive summary

Aurecon South Africa (Pty) Ltd appointed *vidamemoria* to conduct a heritage impact assessment for a expansion of existing borrow pits located along MR00268 at km 40.0 and 46.65 approximately 40 km south-east of Swellendam in Overberg District Municipality, Western Cape. *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct necessary palaeontological specialist study and Madelon Tusenius (Natura Viva CC) to conduct necessary archaeological impact assessment. 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).

No fossil remains of any kind were recorded at the two study sites during field assessment and palaeontological sensitivity of these two sites is rated as very low. A few isolated quartzite artefacts were observed at both sites in a disturbed secondary context and are therefore of low archaeological heritage significance. Archaeological investigation revealed impact of proposed borrow pit expansion should be low in terms of archaeological resources. No further specialist palaeontological or archaeological studies are required and expansion should be allowed to proceed.

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) **to expand existing borrow pits along MR 00268 near Swellendam**, Overberg District Municipality. NID dated 03 January 2011 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 15 February 2012 (**case ref 120203JL05**) requested a *heritage impact assessment limited an archaeological scoping report and a palaeontological scoping report with an integrated set of recommendations* (Refer Annexure A). *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct the necessary palaeontological specialist study (dated June 2012) and Madelon Tusenius (Natura Viva CC) to conduct necessary archaeological impact assessment (dated June 2012) under supervision of Dr Lita Webley (ACO Associates) 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

It is proposed to re-excavate and extend two existing borrow pits along MR 00268, situated approximately 40 km south-east of Swellendam in the Overberg District Municipality, Western Cape. At **km 40.0** borrow pit is to be located on a gently, southward-sloping pediment that was developed through a former elevated alluvial terrace. Vegetation is regrown grasses, part natural and part introduced by cultivation of the veld. At **km 46.65** proposed extension is located on a very gently, eastward-sloping pediment far from any ephemeral water course. Vegetation is disturbed coastal fynbos heavily infested with Rooikrans and other aliens. MR00268/40.0/0.02R lies on Farm Oudekraal in private ownership of J.C. de Wet ; MR00268/46.65/0.15L on Farm Melkhoutrivier in private ownership of J. Kemp Borrow pit co-ordinates at km 40.0 are 34° 19' 39.00" S, 20° 35' 18.96" E and at km 46.65 are 34° 21' 55.80" S, 20° 37' 45.84" E

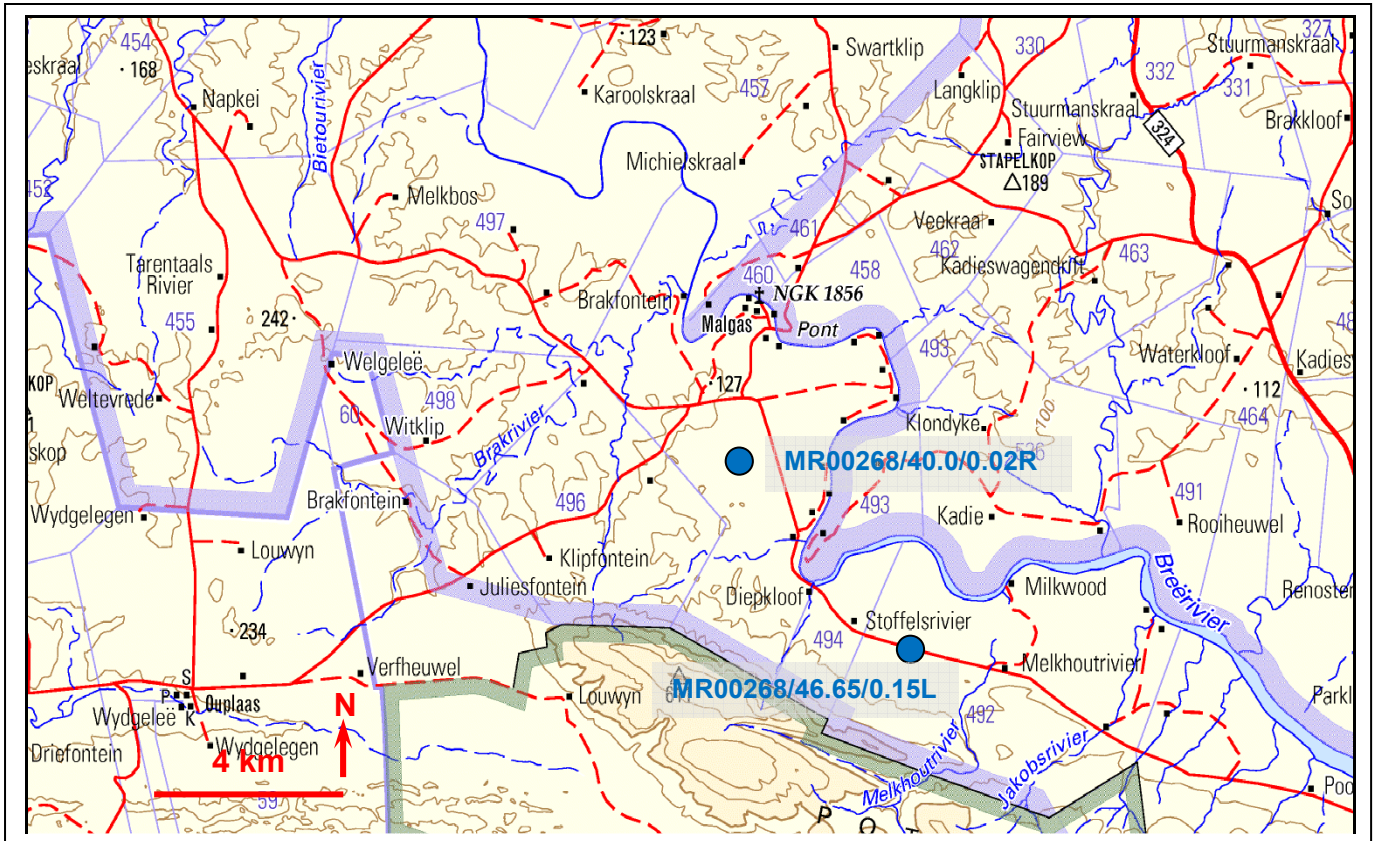


Figure 1: Extract from topographical sheet 3429 Riversdale (extracted Almond 2012: 2)



Figure 2: At km 40.0 view towards the south showing the ploughed Tertiary alluvial gravels (Tusenius 2012: 8)



Figure 3: At km 46.65 View towards the east across the existing (Tusenius 2012: 11)

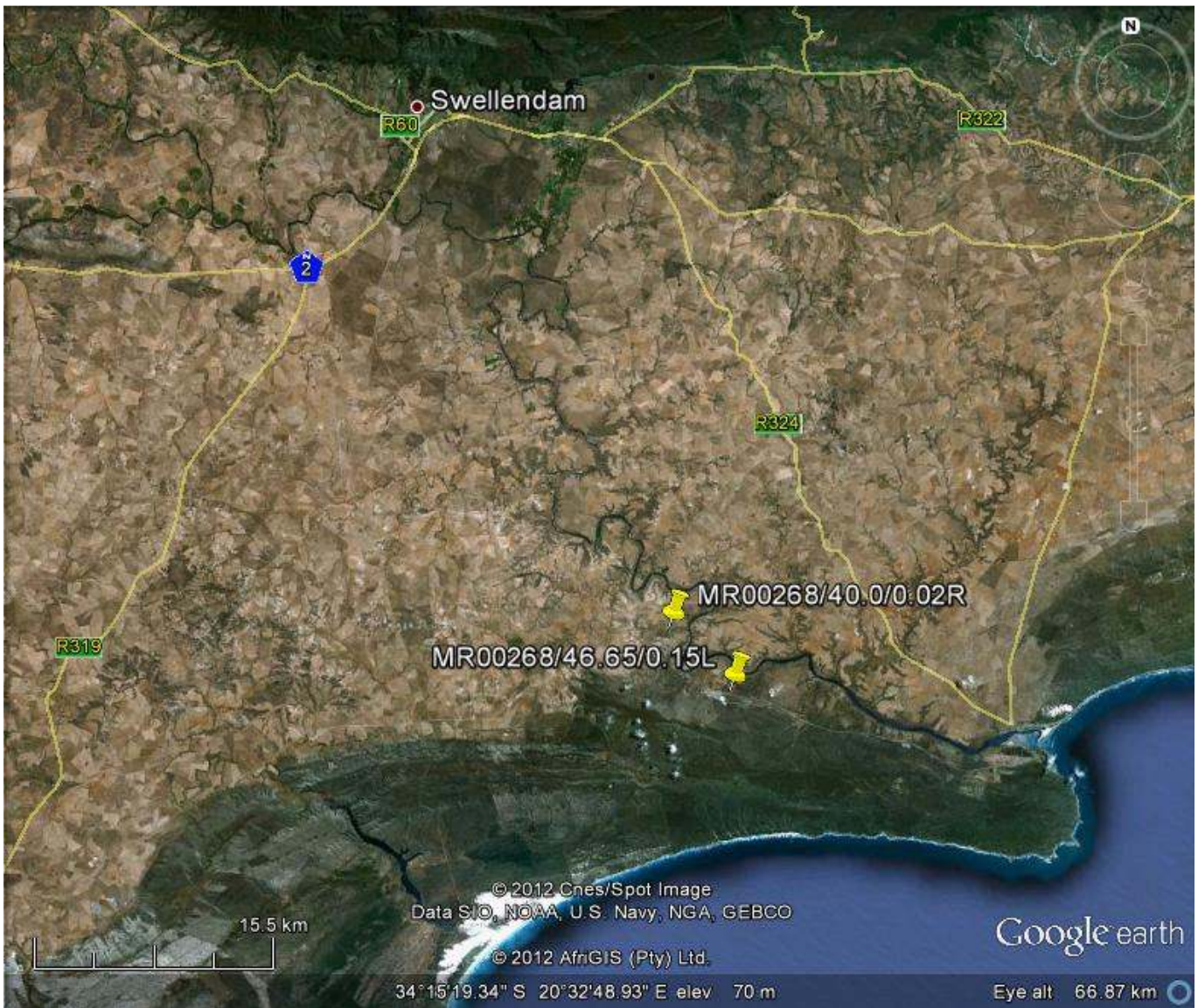


Figure 4: Aerial view of existing borrow pit location (Google earth image, June 2012)



Figure 5: Aerial view of existing borrow pit at km 40.0 (Google earth image, June 2012)



Figure 6: Aerial view of existing borrow pit at km 46.65 (Google earth image, April 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 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 borrow pit located at **km 40.0 and 46.65 along MR 00268** will be used for the re-gravelling so as to benefit road users in terms of road safety and user economy as well as to minimise maintenance-related disruptions.

Summary of borrow pits		
	at km 40.0	at km 46.65
Expropriation area	15 600 m ²	24 600 m ²
Borrow pit area	120 x 220 m	400 x 100 m
Maximum depth	2.5 m	1.7 m
Material description	Ceres supergroup shale	Ceres supergroup shale
Proposed usage after rehabilitation	Cultivable field	Stock watering feature
Volume of material to be sourced	35 000 m ³	28 000 m ³

Trial pit investigations and sampling were conducted by Aurecon at four proposed borrow pits considered as potential sources of material. Two 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.

Overberg 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:

At km 40.0:

- Follow legal requirements with regard to investigation, planning, expropriation, operation, and rehabilitation of site
- Please keep the land owner informed of developments
- The site must be rehabilitated into a cultivatable field
- The site must be self-draining

At km 46.65:

- Follow legal requirements with regard to investigation, planning, expropriation, operation, and rehabilitation of site
- Please keep the land owner informed of developments
- The site must be rehabilitated into an approved stock watering feature

2. Heritage resources

Identification of heritage resources

Proposed site and immediate context do not fall within conservation or protected heritage areas. 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. Refer to Annexure D report dated June 2012. The proposed new borrow pit at km 40.0 is in an area characterised by Bokkeveld sandstones that are highly folded, cleaved, quartz veined and weathered. Bokkeveld bedrocks are mantled with thick gravelly colluvial deposits of very low palaeontological significance, including reworked quartzitic cobbles from nearby Tertiary High Level Gravels. The existing large gravel pit at km 46.65 overlies weathered quartzitic fluvial sandstones of the Rietvlei Formation (uppermost Table Mountain Group) that are overlain by a thick layer of ferruginised gravels. No fossil remains of any kind were recorded at the two study sites during field assessment. (Almond 2012: 1).

Madelon Tusenius conducted archaeological field assessment and provided report identifying and assessing archaeological resources, associated impact, assessment of significance and recommendations regarding any mitigation required. Only a few quartzite artefacts were found amongst the cobbles of the ploughed Tertiary alluvial gravels at km 40.0, surprising given the availability of suitable raw material in the area and would thus indicate a generally low density of archaeological material in the immediate area. At km 46.65 extension only three artefacts were observed in a disturbed context (Tusenius 2012: 12 - 13).

Heritage significance

The proposed new borrow pit at km 40.0 will be excavated into mudrocks and impure sandstones of the Ceres Subgroup (Lower Bokkeveld Group) that elsewhere are well known for their rich fossil heritage from the Devonian Period. However, the Bokkeveld sandstones exposed in this area are highly folded, cleaved, quartz veined and weathered, and their palaeontological sensitivity is correspondingly very low. The palaeontological sensitivity of both sites is rated as very low (Almond 2012: 10). Sparse material at both sites was in a secondary context and are therefore of low archaeological heritage significance (Tusenius 2012: 13).

The context within which the site lies is identified as possessing low intrinsic heritage value. 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 archaeological and 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. Sites and 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: At **km 40.0** the intention is to re-create a self-draining, cultivatable field at an average elevation 2,5m below current ground level. It is expected that there should be an acceptable seed bank in the topsoil and this would be kept aside for rehabilitation. Topsoil and vegetation stripped during site clearance would be spread evenly across the borrow pit area. The area excavated as part of previous borrow pit activities would be ripped and also covered with a layer of topsoil.

At **km 46.65** the intention is to create a stock watering feature and therefore stockpiled topsoil from newly developed areas should be carefully stockpiled for later redistribution over the entire worked out areas, after the completion of any one phase of exploitation of the resources in this pit, to re-create an attractive, grassed hollow in the ground that temporarily holds water.

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.

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. 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 suitably experienced engineer monitors the preparation, operational and decommissioning of the borrow pit so as to ensure that mitigation and rehabilitation measures are adhered to.

No fossil remains of any kind were recorded at the two study sites during field assessment. The palaeontological sensitivity of these two sites is rated as very low and no further palaeontological heritage studies or mitigation are recommended (Almond 2012: 10).

Sparse archaeological material found at both sites was in a secondary context and are therefore considered to be of low archaeological heritage significance. No significant impact on such resources is expected if the proposed pit and extension of the existing borrow pit are developed (Tusenius 2012: 13).

No further archaeological and palaeontological heritage studies or mitigation are recommended and no impact on heritage resources is expected should the proposed development proceed. Overall status of the impact is considered as low.

Recommendations

It is therefore recommended that:

1. expansion of exiting borrow pits 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 (June 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*
- Tusenius M (June 2012): *Archaeological impact assessment*
- vidamemoria (January 2012): *Notification of Intent to Develop*