

HERITAGE IMPACT ASSESSMENT

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

prepared for

AURECON South Africa (Pty) Ltd

25 April 2012

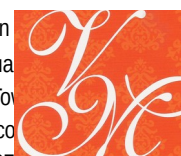
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Divisional Road 01797 Bitou

Keurboomstrand - Eden District Municipality, Western Cape

Executive summary

Aurecon South Africa (Pty) Ltd appointed *vidamemoria* to conduct a heritage impact assessment for a proposed borrow pit located along Divisional Road 01797 in Bitou approximately 8.5km northeast of Plettenberg Bay in the Eden District Municipality, Western Cape. *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct necessary palaeontological specialist study (dated March 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).

Assessment revealed that the contextual and intrinsic heritage significance of the site is low, with exposed Bokkeveld mudrocks highly cleaved and deeply weathered 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 the proposed borrow pit 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) for a **proposed borrow pit located along Divisional Road 01797 in Bitou, Eden**. NID dated 14 September 2011 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 12 October 2011 (**case ref 11928JB22**) 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 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

Proposed borrow pit site lies along *Divisional Road 01797* in *Bitou* approximately 8.5km northeast of Plettenberg Bay at Keurbomstrand, Western Cape. The proposed site is located approximately 500m northeast of an existing borrow pit on land owned by South African National Roads Agency Ltd (SANRAL). Site co-ordinates are 33° 59' 55.32"S 23° 25' 39.36"E.



Figure 1: Extract from topographical sheet 3322 Outshoorn (extracted Almond 2012: 2)

Surrounding land use includes agriculture, forestry and wilderness. Proposed site is located within densely vegetated terrain of a disused forestry plantation. Several protected and conservations areas are located in the Bitou Municipality to the north of proposed site. The site has a steep gradient to the north and a west-draining non-perennial stream is located approximately 250m north of the site. The land on which the proposed borrow pit is located is not being actively used and there are no buildings on or near the site. The land on which the proposed borrow pit is located and that surrounding it is dominated by natural Southern Afrotemperate Forest vegetation. Geology is dominated by shale of the Gydo Formation (Bokkeveld Group, Cape Supergroup) deemed suitable as gravel wearing course (Galliers Jan, 2011).



Figure 2: View eastwards across proposed pit area. The N2 trunk road is hidden to the south of excavated area (rhs)

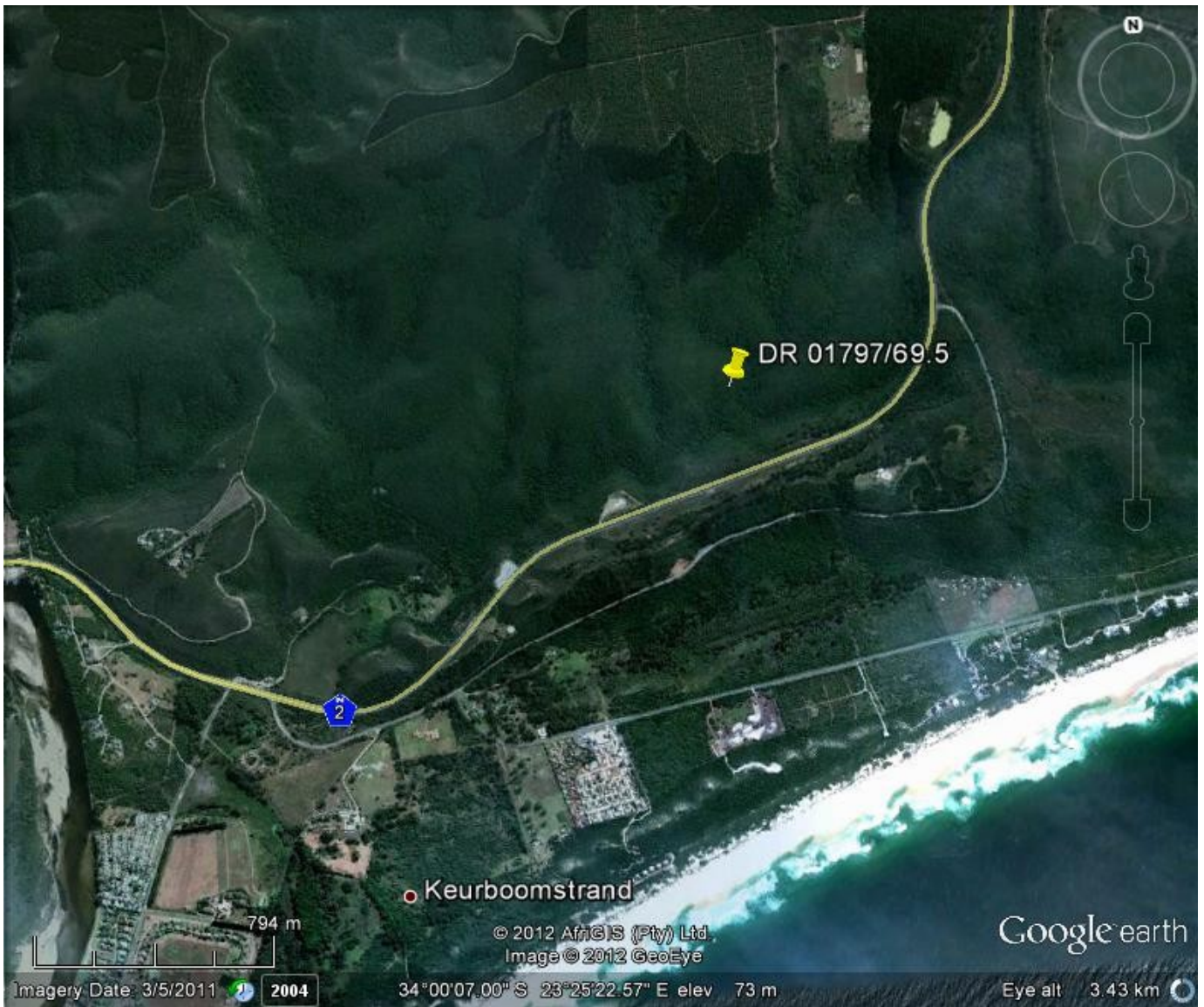


Figure 3: Aerial view of proposed borrow pit location (Google earth image, April 2012)



Figure 4: Looking east from existing pit to site of proposed site north of the N2 highway (March 2011)



Figure 5: Bokkeveld shale to be mined from proposed pit (March 2011)

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 the **re-gravelling of portions of road DR01797 km 0.0 to 4.87** so as to benefit road users in terms of road safety and user economy as well as to minimise maintenance-related disruptions. Proposed borrow pit will be utilised for the sourcing of approximately 4 870m³ of wearing course gravel for use in the regravelling of DR01797. It is estimated that approximately 116 159m³ of gravel wearing course is available from this pit, hence it will serve as a strategic source of material for future regravelling or upgrade projects. The end-use of this borrow pit would be to landscape the area to enable re-integration into the surrounding agricultural land.

Summary of borrow pit	
Borrow pit area	200 x 80 m
Maximum depth	8m
Material description	Bokkeveld shale
Proposed usage after rehabilitation	Re-vegetation
Volume of material to be sourced	4 870m ³
Volume of material available	116 159m 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 attached as Annexure B. Methodology for the preparation, operation and closure of borrow pit is outlined in Annexure C.

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.

No heritage related comments and / or concerns were received.

Requests / concerns of owner: work must be kept neat and tidy and worked according to an agreed management plan

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. Refer to Annexure D report dated March 2012. Site investigation revealed that Bokkeveld mudrocks exposed in pit 01797/69.5 are highly cleaved and deeply weathered. It is likely that most or all the fossils originally present within these rocks have been completely destroyed by cleavage and weathering. Those that have survived will be highly distorted and poorly preserved, with high levels of disruptive secondary mineralisation. Palaeontological sensitivity is correspondingly low.

No archaeological resources were identified and the site has been identified to possess low archaeological significance (Manhire and Patrick September 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. Palaeontological sensitivity has been identified as low and no further heritage resources were identified.

Heritage significance

A previous desktop assessment site assessed palaeontological heritage sensitivity as high due to presence of potentially fossiliferous mudrocks of the Lower Bokkeveld Group (Almond, 2012: 1). The site however is excavated into mudrocks of the lower Gydo Formation that elsewhere is well known for its rich fossil heritage especially shelly invertebrates from the Devonian Period. The Bokkeveld mudrocks have been found to be highly cleaved and palaeontological sensitivity is rated as very low (Almond, 2012: 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: The proposed 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 proposed borrow pit. The site has been sufficiently recorded and requires no further recording before borrow pit activity occurs.

Visual impact: Due to the proximity of the site to the national road, potential visual impacts may occur. However, the mine plan makes provision for a natural berm between the pit and the road, which would mask the mining operations, minimise the visual impact and assist in decreasing dust blowing onto the main road. Medium – 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. The proposed site is located on a steep north-dipping slope and in order to avoid sediment or rock falling down the slope damaging vegetation and contributing to stream silting, mining will leave a berm of soil intact on the northern edge of the pit. 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. During rehabilitation, the topography would be finished off so that the sides of the borrow area are no steeper than 1:5. The slope changes would be finished off so that flowing curves that blend with the surrounding landscape are formed in preference to sharp angles. 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.

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 proposed site. Measures outlined should be adhered to in order to minimise potential negative impacts. Possible visual impact from the N2 will be mitigated by a berm of material left intact, effective implementation of the rehabilitation process, attainment of stable slopes and acceptable revegetation. 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.

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. No further palaeontological heritage studies or mitigation are recommended for this project (Almond 2012: 6). 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 (March 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 (May 2011): *Draft environmental management programme, summary report and mine plan*
- Galliers R M (January 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 (September 2011): *Notification of Intent to Develop*