HERITAGE IMPACT ASSESSMENT

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

prepared for

NADESON Consulting Services

29 August 2012

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CK 2006/049087/23

DR 2262, Cederberg

Clanwilliam District – West Coast District Municipality, Western Cape

Executive summary

Nadeson Consulting Services appointed *vidamemoria* to conduct a heritage impact assessment for the expansion of existing borrow pits *located along DR 2262 approximately 31 km east of Clanwilliam* in the West Coast 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).

Gydo mudrocks are highly weathered and contain little fossil material of value. The palaeontological sensitivity of all three sites is thus rated as low and no further specialist fossil studies or mitigation is recommended. No archaeological remains were observed at any of the proposed extension sites and sites are thus considered to be of low archaeological significance. No further archaeological studies or mitigation is recommended, as there will be no direct impact on archaeological heritage resources. No further specialist palaeontological or archaeological studies are required and expansion should be allowed to proceed.

1. Introduction

Nadeson Consulting Services on behalf of the *WCPA: Department of Transport and Pubic 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 DR 2262 near Clanwilliam**, West Coast District Municipality. NID dated 10 November 2011 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 18 November 2011(**case ref 111115JB25**) 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 August 2012) and Madelon Tusenius (*Natura Viva CC)* to conduct necessary archaeological impact assessment (dated August 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^2*. 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

Site location and description

It is proposed to re-excavate and extend three existing borrow pits along the DR2262 between the R364 Pakhuis Pass to Botterkloof Pass road in the northern Cederberg region to the east of Clanwilliam, Western Cape. At **km 16.42** borrow pit is located on the farm Mertenhof 586 on the east side of the road 3 km south south west of the Biedouw Valley. At **km 11.13** borrow pit is located floor of the Biedouw Valley 2.3 km north of Mertenhof farmstead. **At km 7.48** borrow pit is located within the road reserve on Farm Nodewee 141 overlooking the Biedouw Valley. Not much vegetation occurs in the existing borrow pit areas and land is not utilized for any specific purpose. At km 16.42 borrow pit co-ordinates are 32º 10' 36.1" S, 19º 10' 34.4" E, at km 11.3 are 32º 08' 16.8" S, 19º 11' 03.5" E and at km 7.48 are 32º 07' 04.0" S, 19º 10' 28.4" E.

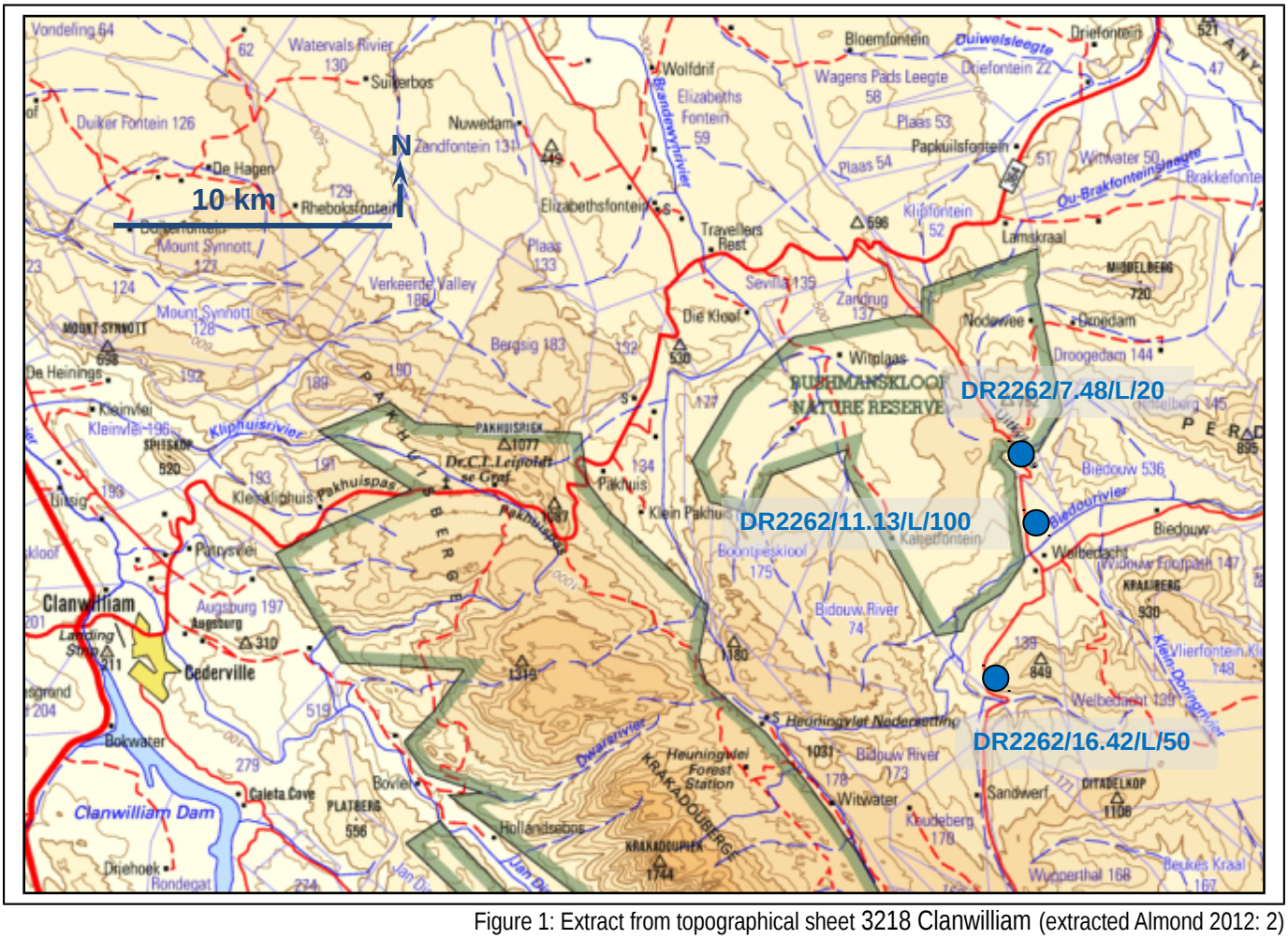

Figure 1: Extract from topographical sheet 3218 Clanwilliam (extracted Almond 2012: 2)

Figure 2: View north across pit at km 7.48 (July 2011)

Figure 3: View northeast across pit at km 11.13 (July 2011)

Figure 4: View northeast across pit at km 16.42 (July 2011)

Figure 5: Aerial view of existing borrow pit locations along DR 2262 (Google earth image, August 2012)

Figure 6: Aerial view of pit at km 7.48 (Google earth image, August 2012)

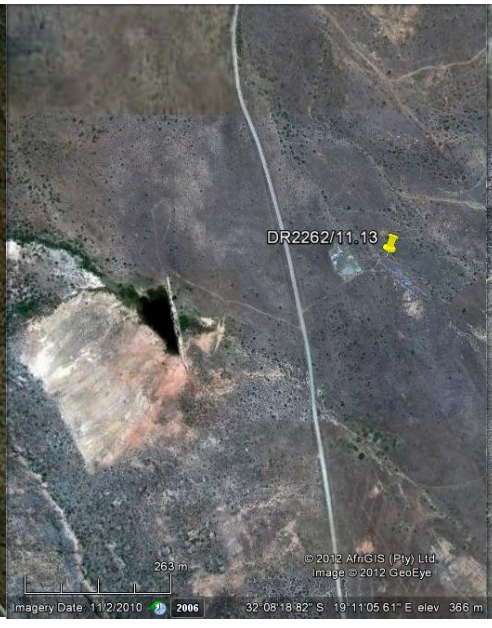

Figure 7: Aerial view of pit at km 11.13 (Google earth image, August 2012)

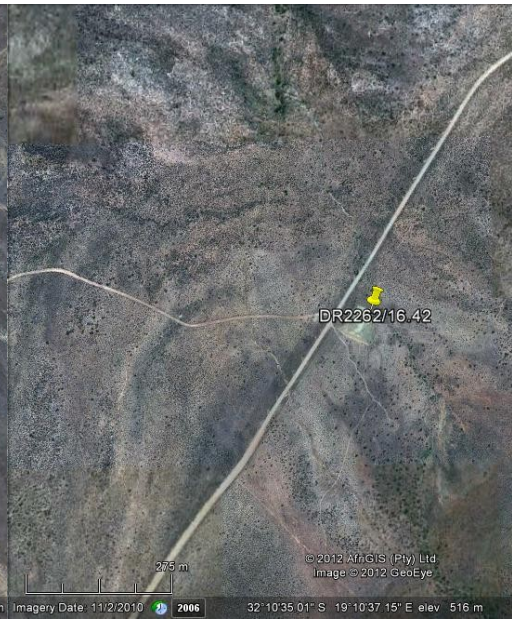

Figure 8: Aerial view of pit at km 16.42 (Google earth image, August 2012)

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 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 7.48, 11.13 and 16.42 along DR 2262** 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 7.48	**at km 11.13**	**at km 16.42**
Expropriation area	3 580 m^2	5 200 m^2	3 480 m^2
Maximum depth	3.4 m	1.8 m	3.8 m
Material description	Marine mudrocks and sandstones of Gydo Formation (Lower Bokkeveld Group)	Marine mudrocks and sandstones of Gydo Formation (Lower Bokkeveld Group)	Marine mudrocks and sandstones of Gydo Formation (Lower Bokkeveld Group)
Proposed use after rehabilitation	Re-vegetation	Re-vegetation	Re-vegetation
Volume of material to be sourced	7 160 m^3	7 800 m^3	6 600 m^3

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

West Coast 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 borrow pit once material has been removed
- Heavy vehicles accessing the DR2262 used by farmers and local residents
- Dust pollution
- Disturbance to Telkom antenna

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. All three pits under consideration are excavated into marine mudrocks and sandstones of the Gydo Formation (Lower Bokkeveld Group) that are well known in the northern Cederberg region for their rich fossil heritage especially shelly invertebrates and trace fossils from the Early Devonian Period. However, Gydo mudrocks at km 16.42 are highly weathered and contain little fossil material of value. Only sparse shelly invertebrates and low diversity trace fossil assemblages occur at km 11.13 and borrow pit at km 7. is excavated into sandstone-rich successions high up in the Gydo Formation that are typically fossil-poor, apart from shallow marine trace fossils associated with storm-deposited sandstones (Almond 2012: 1, 11).

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. No archaeological remains were observed at any of the proposed extensions even though many archaeological sites, particularly rock art sites, have been recorded in the northern Cederberg. No rocky outcrops were located in the immediate vicinity of the affected areas so there is unlikely to be any direct impact on painting sites (Tusenius 2012: 13).

Heritage significance

A previous desktop basic assessment of the pits assessed palaeontological heritage sensitivity as high due to the presence of potentially fossiliferous sediments of the Lower Bokkeveld Group (Gydo Formation). However, Gydo mudrocks at km 16.42 are highly weathered and contain little fossil material of value. Only sparse shelly invertebrates and low diversity trace fossil assemblages occur at km 11.13 and borrow pit at k m 7.48 is excavated into sandstone-rich successions high up in the Gydo Formation that are typically fossil-poor, apart from shallow marine trace fossils associated with storm-deposited sandstones. The palaeontological sensitivity of all three sites is thus rated as low (Almond 2012: 11). Affected sites are considered to be of low archaeological despite the surrounding area providing a significant archaeological context (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.

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: site rehabilitation would 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.

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.

Gydo mudrocks are highly weathered and contain little fossil material of value. The palaeontological sensitivity of all three sites is thus rated as low and no further specialist fossil studies or mitigation is recommended (Almond 2012: 11).

No archaeological remains were observed at any of the proposed extension sites and sites are thus considered to be of low archaeological significance. No further archaeological studies or mitigation are recommended for these particular pits as there will be no direct impact on archaeological heritage resources (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 (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 investigationsand 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 (August 2012): *Archaeological impact assessment*
- vidamemoria (November 2011): *Notification of Intent to Develop*