



## **ENVIRONMENTAL PLANNING AND DESIGN CC**

# **NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION, MINE PERMIT APPLICATION AND WATER USE LICENSE APPLICATION FOR THE PROPOSED SAND MINING OPERATION ON THE UMZUMBE RIVER, PORTION 19 OF THE FARM LUCAS 2626 ET AND REMAINDER OF THE PORTION 1 OF THE FARM FAIRVIEW 15590, HIBBERDENE, UGU DISTRICT MUNICIPALITY, KWAZULU-NATAL**

## **BACKGROUND INFORMATION DOCUMENT**

**SEPTEMBER 2014**

### **A. BACKGROUND**

Environmental Planning and Design have been commissioned to undertake the Basic Impact Assessment process, Mine Permit application process and Water Use Licensing process for a proposed sand mining operation on the Umzumbe River.

The process is being undertaken according to the Relevant Authorities requirements in terms of Government Notices No. R 543 and R 544 both of which were published in Government Gazette 33306 on the 18<sup>th</sup> June 2010, under sections 24 and 44 of the National Environmental Management Act (Act 107 of 1998), as amended. The proposed development is listed as an activity, which may have a detrimental effect on the environment and as such is required to follow a process, which includes the preparation of a Basic Assessment Report including public participation.

This document provides pertinent background information, so as to enable Interested and Affected Parties to raise comments or issues of concern regarding the proposed activity and thus facilitate the scoping process.

### **B. APPROVING AUTHORITY**

Documentation will be submitted to the KwaZulu Natal Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) for adjudication in accordance with the requirements of the legislation outlined in A. The proposed activity will also require a mining permit application to the Department of Mineral Resources and a Water Use License application to the Department of Water Affairs.

### **C. LOCATION OF THE DEVELOPMENT**

The proposed new sand mining operation will be located along the Umzumbe River, on Portion 19 of Lucas 2626 ET and Remainder of Portion 1 of Fairview 15590, between Woodgrange and Umzumbe.

Approximate coordinates of the centre of the proposed development site are: 30°36'9.00"S, 30°32'35.00"E. See Figure 1.







**Figure 2: Map indicating 200m setback distance from the national road N2 Bridge**



**Figure 3: Map showing proposed 4.6 hectares site – the site extends 180m across the river and 260 m along the river on southern bank. The final site layout will be determined in consultation with Interested and Affected Parties and relevant authorities through the Basic Assessment process**

## **E. BRIEF DESCRIPTION OF THE AFFECTED ENVIRONMENT**

### **E1 REGULATORY ISSUES**

The site is located within an area classified as an estuary in accordance with the 5 metre contour classification system, although an estuary is traditionally classified in terms of salinity levels, and this may or may not apply in this instance. The site is located within the KwaZulu-Natal Coastal Belt ecosystem which is classified as a Threatened Ecosystem type.

### **E2 TOPOGRAPHY**

The site is located within the Umzumbe River floodplain. The proposed mining site is located along an alluvial floodplain 1.5 km upstream from the river mouth. A wide wandering single channel dominates the entire floodplain. The active channel ranged from 70 to 140 m in width, with banks up to 2.4 m high. The low-flow channel has a shallow braided pattern, with a plane or flat sand bed. The river channel is in an aggradational state due to increased sediment inputs from the catchment. Large sand bars and inset benches are present along the southern bank, whereas the northern bank shows signs of erosion that is associated with lateral migration. The channel bed, sandbar and inset

bench are dominated by coarse sand (57 – 67%), whereas the banks are dominated by medium and fine sand (60 % combined). Both river bed and bank sediments are non-cohesive due to the low silt and clay content (<5%), making them prone to erosion as a result of onsite and offsite disturbance.

### **E3 SURROUNDING LAND USE**

The direct surrounds of the proposed site have been intensively used for sugarcane production and rural housing. Large quantities of sand have been mined 3.5 km upstream of the proposed site. Several dirt roads exist, increasing the slope-channel connectivity. Higher up in the catchment rural housing and localised farming dominates the landscape, with a well-developed road network. A relatively small dam (with a length of 1 km) and a plantation are located in the headwaters. The land use in the area of the proposed development is agriculture in the form sugar cane farming on the north bank of the uMzombe River and formal and informal rural housing with subsistence agriculture on the south bank. A number of access roads and cane tracks are present on the north bank, while access to the south bank is limited to pedestrian access.

### **E4 ECOLOGY**

A specialist vegetation study was undertaken at the outset of the project. The study found that the site of the proposed activity is within a very dynamic section of the river and the position of the channel has moved repeatedly within the floodplain over the last 10 years. This has resulted in a limited floral diversity. In addition, the current land use practices of the area (farming and rural dwellings) has further reduced the diversity of the general area. Disturbance in the area has led to invasion by alien plants, and riparian pioneers such as the alien Spanish Reed (*Arundo donax*) are common.

Present condition of the Umzombe River is rated as C in terms of the GAI EcoStatus rating for both the habitat driver and change in habitat. This rating is defined by Kleynhans (1999) as “moderately modified” with a change/ loss of habitat and biota with basic ecosystem functioning largely unchanged. The changes in drivers were largely the result of increased sediment availability due to large scale farming, frequent burning and increases in runoff and sediment transfer in the catchment. The altered habitat score was mostly influenced by lateral migration and the increase in channel width associated with increased sediment supply. During low flow conditions limited instream habitat is available due to the shallow sandy nature of the river bed. Reeds provide habitat along the lower banks, inset benches and small elongated islands (up to 10 m long) in the channel. Due to limited habitat that is available on the river bed, the edges of the channel (where riparian vegetation is present) become the main refuge for biota. The sensitive areas have been identified as the areas along the banks and inset benches. See Figure 4.

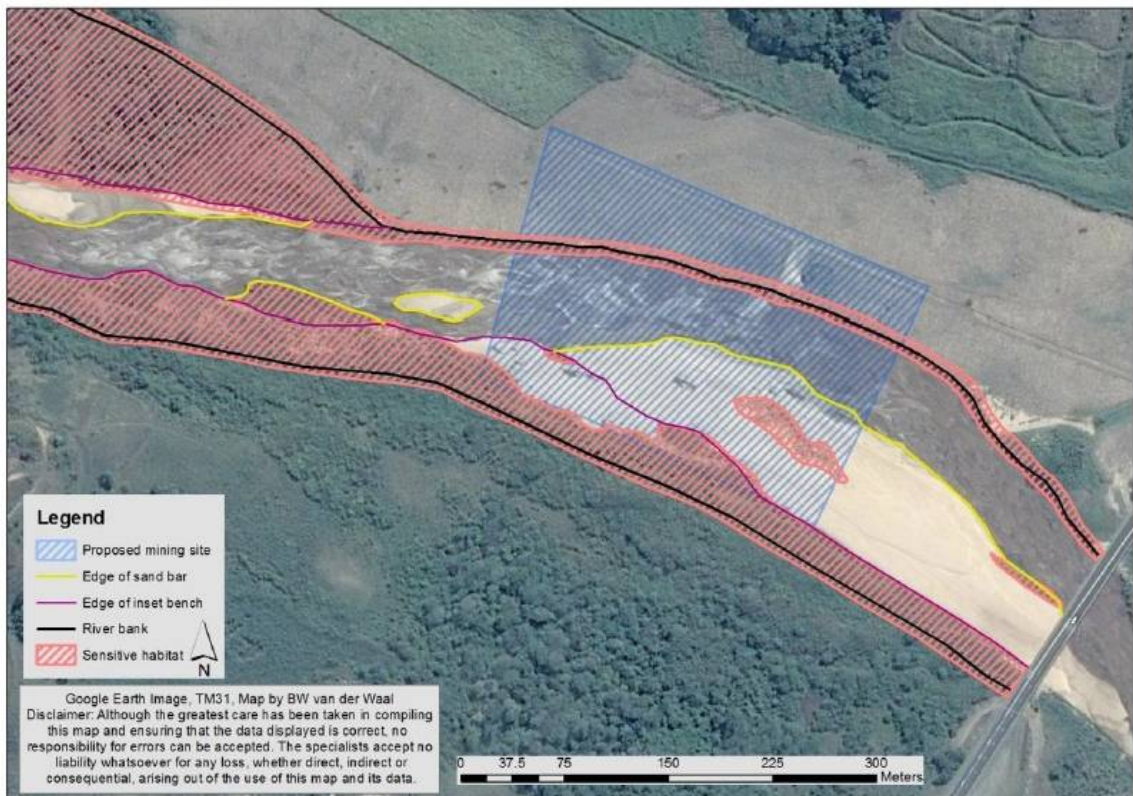
### **F. ALTERNATIVES**

Two alternative technologies have been proposed for the dredging of sand: either an excavator or a floating barge and pipeline. Both alternatives will be assessed as part of the Basic Assessment process. In terms of alternative layouts, Figure 5 below shows the proposed layout, which takes into consideration the application of a 10m buffer to protect the river banks from further impacts.

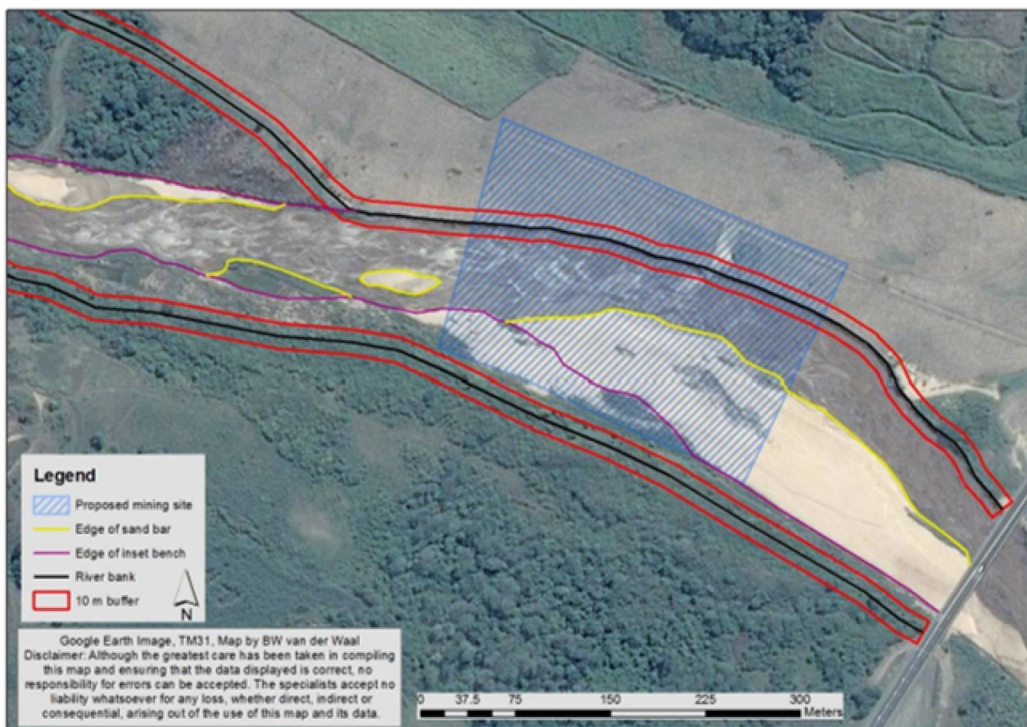
### **G. KEY ISSUES**

The following issues are raised from an initial review of the site and surrounding area. They are not intended to be a comprehensive list but are intended to provide interested and affected parties. These issues will be elaborated on in the Draft Basic Assessment Report and Environmental Management Program (EMPr).





**Figure 4: Map showing sensitive ecological features (pink) identified through the geomorphological study along the Umzumbe River**



**Figure 5: Proposed alternative layout taking cognisance of the 10m river bank buffers**

Impact on water quality– there may be impacts on the water quality in the Umzumbe River associated with operational phase, including potential for leakages from machinery or vehicles and sedimentation from erosion could change the characteristics of the river downstream. A geomorphological study was undertaken upfront to ascertain the potential impact on the Umzumbe River. The study found that due to the low concentration of suspended sediment, downstream impacts would be minimal. The use of the excavator would re-suspend fine material directly in the channel and therefore increase suspended sediment, whereas the barge and pipeline will deposit the sand on the bank, with a portion of the suspended sediment returning to the river as part of the return flow. Using an

excavator would have a greater potential to increase suspended sediment concentration at and downstream of the mining site. Given the lack of silt in the sediment any increase in suspended sediment would be short term or over a short distance. Even very fine sand will settle out quite quickly. It is proposed that continuous monitoring be undertaken of the river banks to check for signs of erosion and potential bank collapse.

Impact on ecology and riparian habitat- As approximately 100 000 m<sup>3</sup> of sand will be mined a year, changes to the river channel and aquatic habitat are likely to occur. The affected section of the Umzumbe River has seen extensive changes in river dynamics in the past as is evident from aerial imagery, and removal of a large volume of silt from the riparian zone could cause the river to switch from its current position. The vegetation study that has been undertaken reports that the vegetation on the site is either cultivated (sugar cane) alien/invasive or of an early seral/pioneer stage, and that removal of the sand from the river (including sandbanks) is unlikely to result in any significant loss of species or habitats, since the sandbanks are recently deposited and newly colonized. The geomorphological study found that the flow pattern is likely to change from a flat shallow braided pattern to a deeper channel with pools during low flow conditions. A positive effect of the mining may be the reduction of sediment in the channel that has been injected into the river as a result of agriculture and increased hillslope-channel connectivity in the catchment. The mining may also create pools and deeper channels that will introduce greater instream habitat diversity. The study also found that the extensive sand mining that is currently taking place higher upstream the uMzumbe River does not seem to have any major upstream or downstream effects (based on aerial image interpretation) on the instream habitat other than in the localised area that is being mined. The low flow channel is narrower and deeper for 400 m upstream of the upper extent of the existing mining site, but the timescale of mining and quantities mined are unknown. The potential for bed lowering and bank collapse can influence up to 8.5 km upstream and 1.5 km downstream from the proposed mining site.

Dust - Dust is likely to arise from the excavation activities associated with the project. As there are no residents, homes or businesses in close proximity to the operation, the impact of dust is not anticipated to be significant.

Noise - The proposed sand mining operation will generate noise from the digging machinery and movement of workers and vehicles on the site. However, there are no residents, homes or businesses in close proximity to the proposed operation.

Traffic – there may be traffic impacts associated with the proposed development. This could result from attracting additional traffic and particularly heavy vehicles into the area.

## **H. CONTACTS**

Please register as an Interested & Affected Party and direct all comments and queries to:

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