



SITE SENSITIVITY VERIFICATION

**IKHEPHU FEEDLOT DEVELOPMENT
IN KHOWA (ELLIOT), SAKHISIZWE LOCAL MUNICIPALITY AND
CHRIS HANI DISTRICT MUNICIPALITY IN THE EASTERN CAPE**

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1. INTRODUCTION

Ikhephu Co-Operative (Ikhephu) proposes to develop a feedlot in Khowa (Elliot), under the jurisdiction of Sakhisizwe Local Municipality (SLM) and Chris Hanu District Municipality (CHDM). The development will fall on Erf 1 of Elliot owned by SLM. The Ikhephu Feedlot has an existing footprint developed by CHDM and is accessed through a gravel road with a boundary fence intact on all sides, however, the site cannot be utilized to full capacity due to design issues.

The current facility infrastructure includes:

- 3 camp feedlot meant to house 450 animals.
- A steel storage structure,
- Some water infrastructure.
- And incomplete offices.

The proposed design will include:

- Feedlot to house 1 500 head of cattle in camps not exceeding 150 head of cattle (15m² / animal) with feeding troughs and water reticulation
- Load, and off-load facility
- Vehicle weigh bridge
- Animal handling facility
- Receiving pen
- An isolation pen
- Water supply infrastructure,
- Feed storage shed (Existing)
- Grain storage silo (2 x 30 ton), and hammer mill,
- Vehicle storage / workshop facility (18 x 40 m steel structure)
- Office facilities
- The design will have to make provision the control of run-off water, waste lagoons, disposal of solid waste, toilets and facilities for labour force and internal roads.



Provision will be made for future expansion to 2 000 head of cattle in camps not exceeding 200 head of cattle (20 m² / animal). Surrounding land uses are a mix of agricultural, open land and a regional road, R52 leading to Barkly East.

The project entails an Integrated Environmental Authorisation application process by way of a Basic Assessment and General Authorisation for the proposed development¹.

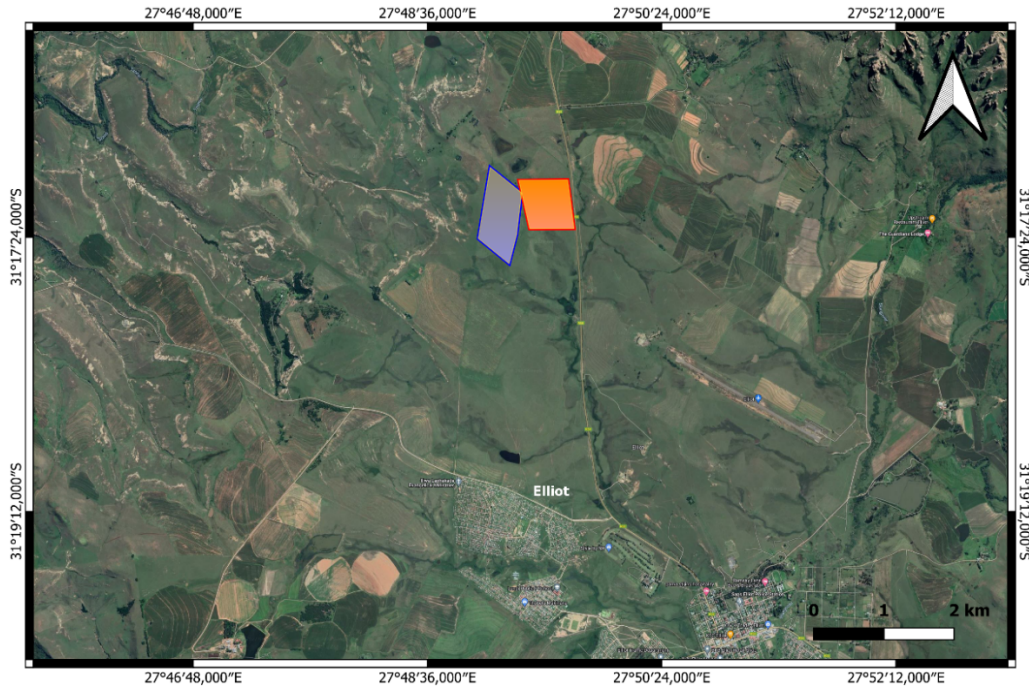


Figure 1: Aerial image of the proposed Ikhephu Feedlot Development in Khowa (Elliot) in the Eastern Cape. The current feedlot is indicated in orange and the proposed development is indicated in purple.

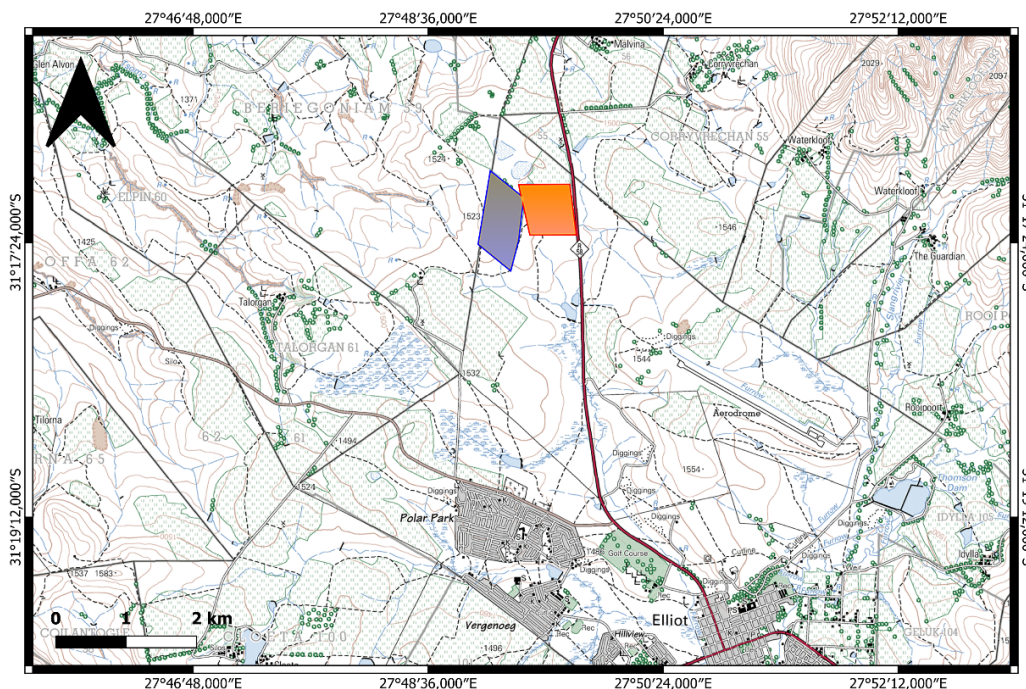


Figure 2: Locality Map of the proposed Ikhephu Feedlot Development. The current feedlot is indicated in orange and the proposed development is indicated in purple.

In terms of the National Environmental Management Act, 1998 (Act 107 of 1998), as amended (NEMA) Environmental Impact Assessment (EIA) Regulations [4 December 2014, Government Notice (GN) R982, R983, R984 and R985, as amended], various aspects of the proposed development may have an impact on the environment and are considered to be listed activities. These activities require authorisation from the regional Competent Authority (CA), namely the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), prior to the commencement thereof. One (1) application for EA for the proposed development will be submitted to the DEDEAT, in the form of a BA process, in terms of the NEMA EIA Regulations of 2014.

In accordance with GN 320 (20 March 2020)¹ of the NEMA, prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (i.e., Screening Tool). Mrs Elize Butler, as the Palaeontology Specialist, has been commissioned to verify the palaeontology sensitivity of the Ikhephu Feedlot Development project site under Schedule A this specialist protocol.

¹ GN 320 (20 March 2020): Procedures for The Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation



2. SITE SENSITIVITY VERIFICATION METHODOLOGY

The Palaeontology Sensitivity Verification was undertaken by the following methodology:

- The site sensitivity is established through the National Environmental Web-Based Screening Tool
- The Site is mapped on the relevant Geological Map to determine the underlying geology of the development
- Then the site is mapped on the South African Heritage Resources Information System (SAHRIS) PalaeoMap, and the Sensitivity of the proposed development established.
- Other information is obtained by using satellite imagery and
- Palaeontological Impact Assessments and Desktop Assessments of projects in the same area are studied.
- No site visit has been undertaken

3. OUTCOME OF SITE SENSITIVITY VERIFICATION

The proposed Ikhephu Feedlot Development in the Eastern Cape is depicted on the 1: 250 000 Aliwal North 3026 Geological map (1983) (Council of Geoscience, Pretoria). The western margin of the project is underlain by Jurassic dolerite (Jd, red; proposed new feedlot development) while the eastern margin of the development (current feedlot) is underlain by the Late Triassic Molteno Formation (T_{Rm}, orange) of the Stormberg Group (Karoo Supergroup) with a very small portion in Quaternary alluvium (yellow, single bird figure) (**Figure 3**). The PalaeoMap of the SAHRIS indicates that the Palaeontological Sensitivity of Quaternary alluvium is Moderate, that of Jurassic dolerite is Zero as it is igneous in origin, while the Palaeontological Sensitivity of the Molteno Formation is Very High (Almond and Pether, 2009; Almond *et al.*, 2013; **Figure 4**).

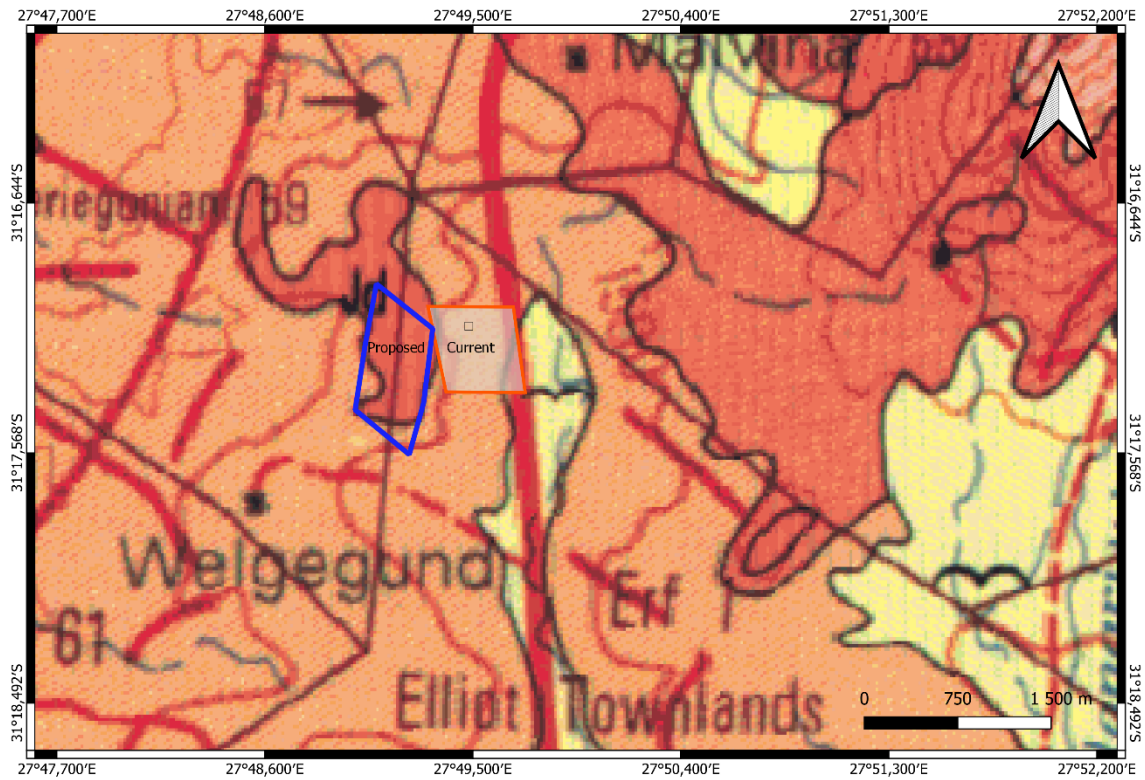
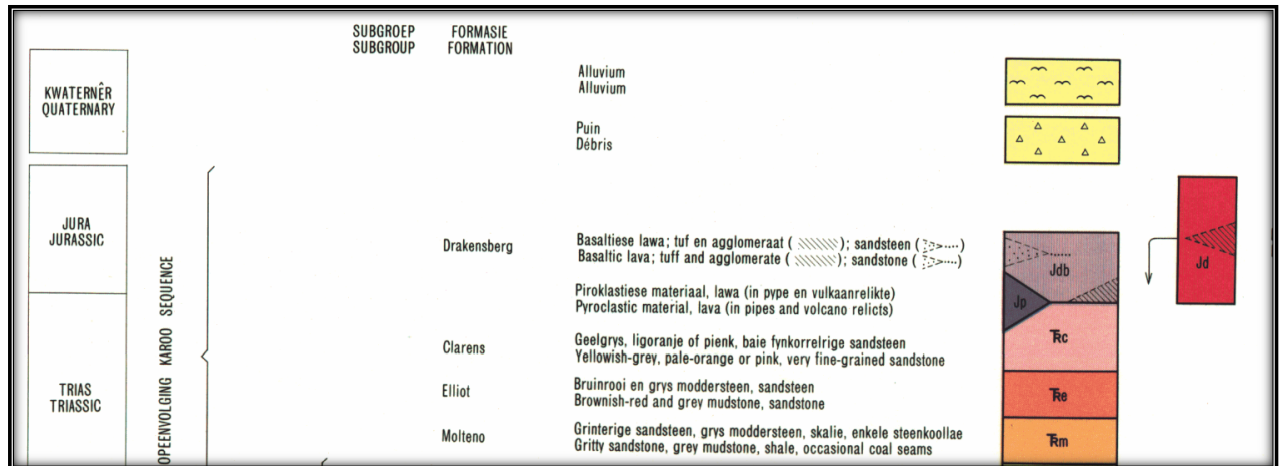


Figure 3: Extract of the 1:250 000 Aliwal North 3026 Geological Map (1993) (Council of Geoscience, Pretoria) indicating the current feedlot in white and orange and the proposed development in blue.



Table 1: Legend to Map and short explanation of the development and surrounding sediments (Modified from the 1:250 000 Aliwal North 3026 Geological map (1983) (Council of Geoscience, Pretoria)



Quaternary	yellow, sing bird figure	alluvium
Drakensberg Formation	Jdb	purple Basaltic lava, tuff and agglomerate and sandstone; Pyroclastic material, lava (in pipes and volcanic relics)
Jurassic dolerite-	Jd-	red
Clarens Formation sandstone	T _{RC}	Yellowish red, pale orange or pink, very fine-grained
Elliot Formation	T _{RE}	Brownish-red and grey mudstone Stormberg Supergroup
Molteno Formation seams	T _{RM}	Gritty sandstone, grey mudstone, shale, and occasional coal

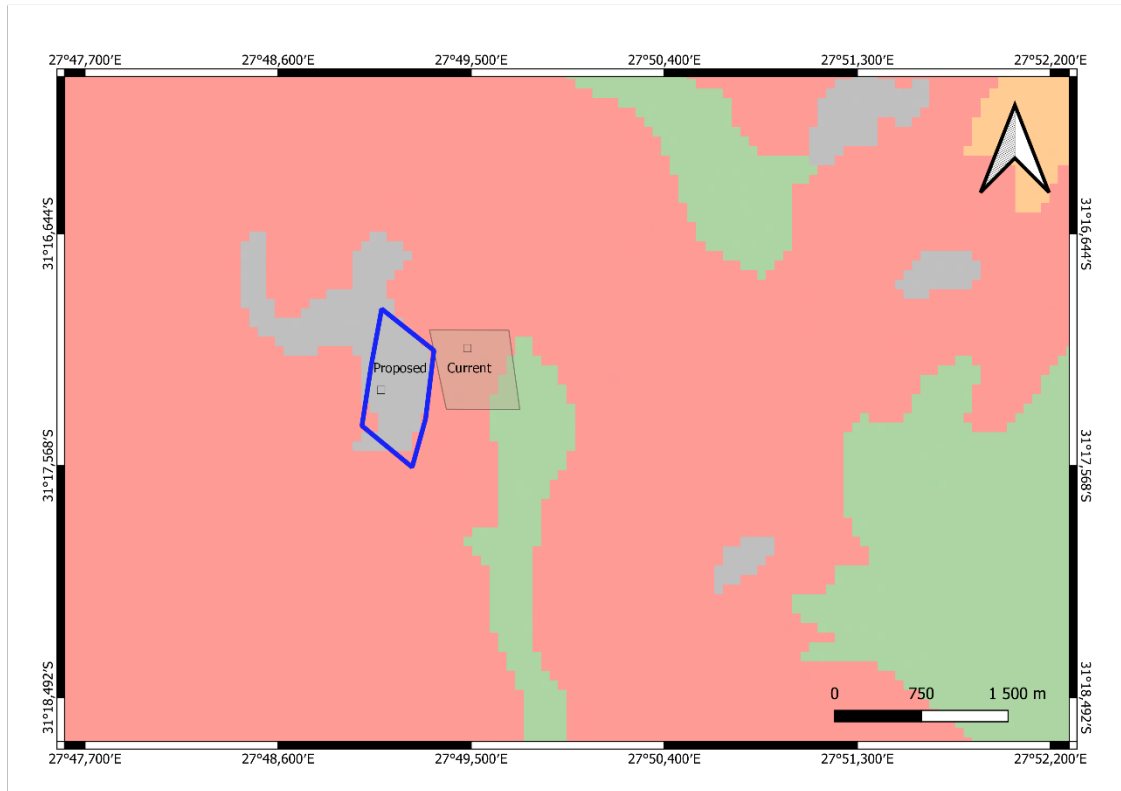


Figure 4: Extract of the 1 in 250 000 SAHRIS PalaeoMap map (Council of Geosciences).

Proposed development is indicated in blue while the current feedlot is indicated in red. According to the SAHRIS Palaeosensitivity map the proposed development is underlain by sediments with a Very High (red), Moderate (green) and areas of Zero (grey) Palaeontological Significance.



Table 2: Palaeontological Sensitivity (SAHRIS)

Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study; a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA ² will continue to populate the map.

The Sensitivity of rocks in the development is indicated in bold. The colours on the PalaeoMap indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; grey = insignificant/zero

² South African Heritage Resources Agency



MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

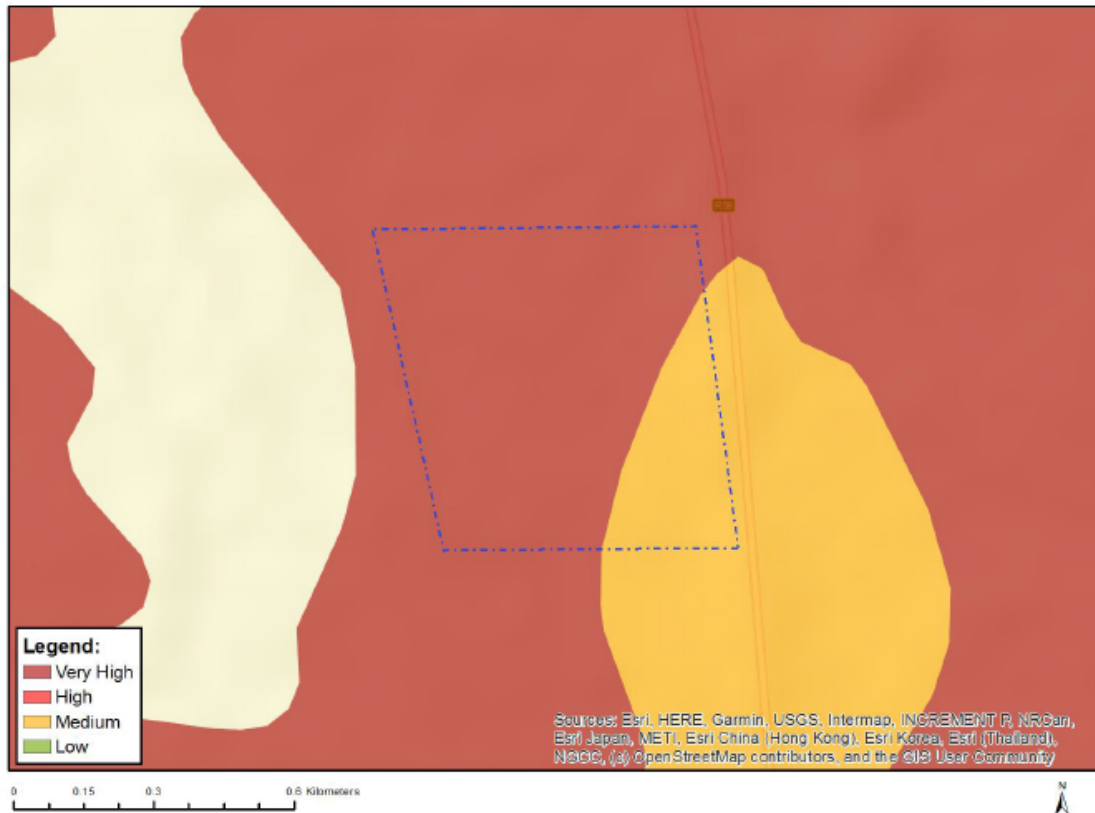
Sensitivity Features:

Sensitivity	Feature(s)
Very High	Features with a Very High paleontological sensitivity

Figure 5: Palaeontological Sensitivity generated by the National Environmental Web-Based Screening indicating the proposed feedlot



MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

Figure 6: Palaeontological Sensitivity generated by the National Environmental Web-Based Screening indicating the current feedlot



4. CONCLUSION

The Site Sensitivities of the proposed development has been verified and it was found that :

According to the SAHRIS Palaeosensitivity map the proposed Ikhephu Feedlot Development in Elliot (Eastern Cape Province) is underlain by sediments with a Very High (red), Medium (green) and areas of Zero (grey) Palaeontological Significance.

And

According to the National Environmental Web-Based Screening tool the Sensitivity of the feedlot development is Very High (red) and Medium (orange). This agrees with the SAHRIS Palaeosensitivity map.