

NATURA VIVA cc
Natural History Education, Tourism, Research

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LETTER OF EXEMPTION FROM FURTHER PALAEOLOGICAL STUDIES:
PROPOSED MAINSTREAM SOLAR PARK NEAR DOUGLAS, NORTHERN CAPE
PROVINCE

This letter supplements a previous palaeontological heritage desktop screening assessment of the proposed solar project by Almond (2011). This study concluded that:

Provided that the development footprint lies outside the outcrop area of the Prince Albert Formation (if actually present) and the various bodies of alluvial gravels, the significance of the proposed development in fossil heritage terms is low and a reasoned application to SAHRA for exemption from further specialist studies or permit applications is warranted.

After consideration of additional documents relating to this project, notably the Preliminary Geotechnical Investigation by Mainstream Renewable Power (Technical Services – Civil Engineering) (March 2012), it is recommended here that an exemption from further palaeontological specialist studies is appropriate for this project, pending the discovery of significant fossil remains during the construction phase.

The motivation for this recommended exemption is as follows:

- The buildable area identified for the solar park is confined to a small strip along the southern margin of the study area that lies over 1km away from the present course of the Orange River and outside the potentially sensitive Karoo Supergroup outcrop area;
- Although “Shale (Ecca Group)” in the area is mentioned in passing in the geotechnical report, there is no evidence for *in situ* laminated mudrocks of the potentially sensitive Prince Albert Formation within the buildable area;
- Due to the hard nature of the ground, only drilled pile foundations or shallow concrete spread foundations are recommended for the PV panel installations, and shallow spread foundations for the substation. These components of the development, as well as cable trenches of <1m depth, are unlikely to have a significant impact on buried fossil heritage since the top 1-2m of the substratum is

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palaeontologically insensitive Kalahari sands, gravels and hardpan calcrete.

It is noted that calcretised gravels (sandy gravel and cobbles) were encountered at depths of around 1-2m below surface in test pits within the study area. These are interpreted as older alluvial gravels of the Orange River and are potentially fossiliferous (*e.g.* Tertiary mammalian bones and teeth. Please refer to the previous desktop study and references therein). Illustrations of material excavated from test pits show that well-rounded fluvial pebbles and cobbles are present in some areas. Given the small scale of the proposed excavations for the solar park project, the likely impact on any buried fossil heritage within the gravels is considered to be small.

The ECO responsible for this development should be alerted to the possibility of valuable fossil remains (notably vertebrate bones, teeth, petrified woods) being exposed during the construction phase. If this occurs, the fossil material should be safeguarded, preferably *in situ*, and SAHRA alerted so that any appropriate mitigation actions (recording, sampling *etc*) can be taken by a professional palaeontologist. The palaeontologist responsible for mitigation work will need a valid fossil collection permit from SAHRA.



Dr John Almond
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REFERENCE

ALMOND, J.E. 2011. Proposed Mainstream solar park near Douglas, Northern Cape Province. Palaeontological specialist study: preliminary desktop screening assessment, 27 pp. Natura Viva cc, Cape Town.

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