

RECOMMENDED EXEMPTION FROM FURTHER PALAEOLOGICAL MITIGATION:

Residential and Mixed Use development of Erf 17 and Erf 1480 Hankey, Weston Settlement, Kouga Municipality, Eastern Cape Province

John E. Almond PhD (Cantab.)
Natura Viva cc, PO Box 12410 Mill Street,
Cape Town 8010, RSA
naturaviva@universe.co.za

October 2010

The Kouga Municipality are planning the rezoning and subdivision of Erf 17 and Erf 1480, Hankey, in the Kouga Municipal area, Eastern Cape Province, to provide additional residential and mixed use erven and associated infrastructure in the Weston residential area (Fig. 1).

According to the 1: 250 000 geological map 3324 Port Elizabeth (Council for Geoscience, Pretoria) the study area just west of the Gamtoos River is entirely underlain by colluvial to fluvial sediments of the Enon Formation (Uitenhage Group, Je in Fig. 2). This unit consists largely of coarse, reddish-brown hued conglomerates and subordinate lenticular sandstones that were deposited by turbulent rivers and gravity-driven processes in fault-bound basins in Late Jurassic to Early Cretaceous times (Haughton *et al.* 1937, Du Toit 1954, Dingle *et al.* 1983, Toerien & Hill 1989, Le Roux 2000, Shone 2006).

Several authors (e.g. Toerien & Hill 1989, Le Roux 2000) refer to records of fossil wood from the Enon Formation, apparently – but mistakenly - based on the early sheet explanation by Haughton *et al.* (1937). In some cases this may refer to fossil plant material from the younger (Early Cretaceous) Kirkwood Formation (“Wood Beds”) which is recorded from several localities in the Gamtoos Basin. Rare and fragmentary fossil wood specimens are recorded from conglomeratic facies of the Uitenhage Group in the Algoa Basin (Dingle *et al.* 1983, p. 117 and refs. therein) but there are no substantiated records of petrified wood or other fossils within the Enon Formation *sensu stricto* in the Gamtoos Basin itself (McLachlan & McMillan 1976, Dingle *et al.* 1983). While fragments of transported wood as well as rolled vertebrate bones and teeth (e.g. of dinosaurs) might occasionally be preserved here, especially in association with the finer-grained sandstone interbeds, the overall palaeontological sensitivity of the Enon Formation in the Gamtoos Basin and elsewhere is low to very low (Almond *et al.* 2008).

It is concluded that the proposed housing development does not pose a significant threat to local fossil resources and specialist palaeontological mitigation of this project is not warranted.

Should substantial fossil remains be exposed during construction, however, the ECO should safeguard these, preferably *in situ*, and alert SAHRA as soon as possible so that appropriate action (e.g. recording, sampling or collection) can be taken by a professional palaeontologist.



Dr John E. Almond
Palaeontologist
Natura Viva cc

REFERENCES

- ALMOND, J.E., DE KLERK, W.J. & GESS, R. 2008. Palaeontological heritage of the Eastern Cape. Interim SAHRA technical report, 20 pp. Natura Viva cc., Cape Town.
- DINGLE, R.V., SIESSER, W.G. & NEWTON, A.R. 1983. Mesozoic and Tertiary geology of southern Africa. viii + 375 pp. Balkema, Rotterdam.
- DU TOIT, A.L. 1954. The geology of South Africa (3rd edition). 611 pp, 41 pls, geological map insert.
- HAUGHTON, S.H., FROMMURZE, H.F. & VISSER, D.J.L. 1937. The geology of portion of the coastal belt near the Gamtoos Valley, Cape Province. An explanation of Sheets Nos. 151 North and 151 South (Gamtoos River), 55 pp. Geological Survey / Council for Geoscience, Pretoria.
- LE ROUX, F.G. 2000. The geology of the Port Elizabeth – Uitenhage area. Explanation of 1: 50 000 geology Sheets 3325 DC and DD, 3425 BA Port Elizabeth, 3325 CD and 3425 AB Uitenhage, 3325 CB Uitenhage Noord and 3325 DA Addo, 55pp. Council for Geoscience, Pretoria.
- McLACHLAN, I.R. & McMILLAN, I.K. 1976. Review and stratigraphic significance of southern Cape Mesozoic palaeontology. Transactions of the Geological Society of South Africa. 79: 197-212.
- SHONE, R.W. 2006. Onshore post-Karoo Mesozoic deposits. In: Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J. (Eds.) The geology of South Africa, pp. 541-552. Geological Society of South Africa, Marshalltown.
- TOERIEN, D.K. & HILL, R.S. 1989. The geology of the Port Elizabeth area. Explanation to 1: 250 000 geology Sheet 3324 Port Elizabeth, 35 pp. Council for Geoscience, Pretoria.

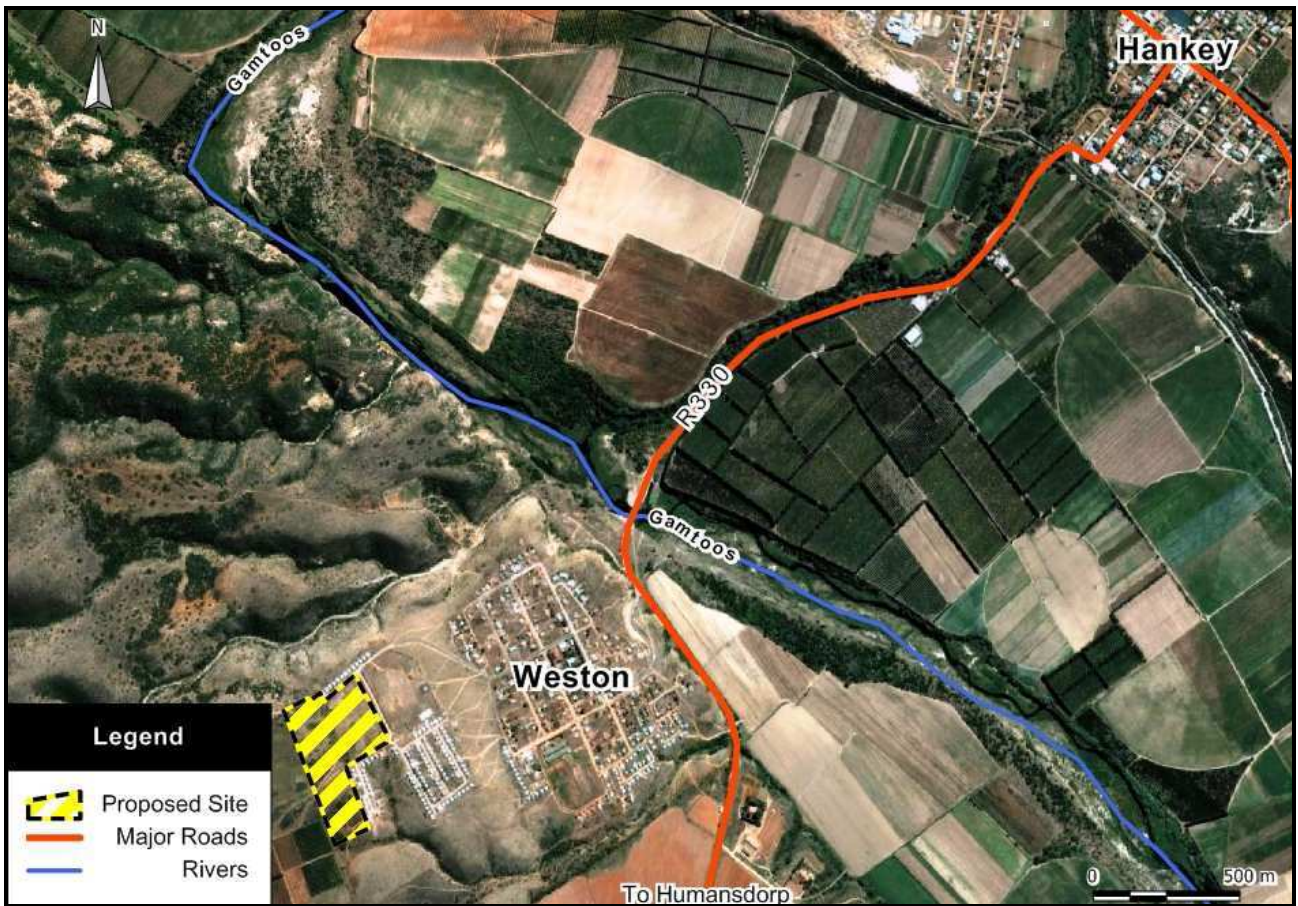


Fig. 1. *Google Earth*[®] satellite image showing the location (area shaded by yellow lines) of the proposed housing development on the western outskirts of Weston near Hankey, Gamtoos Valley, Eastern Cape Province (Map kindly provided by Public Process Consultants, PE). Note typical gullied, hilly country underlain by the Enon Formation on the western bank of the Gamtoos River.

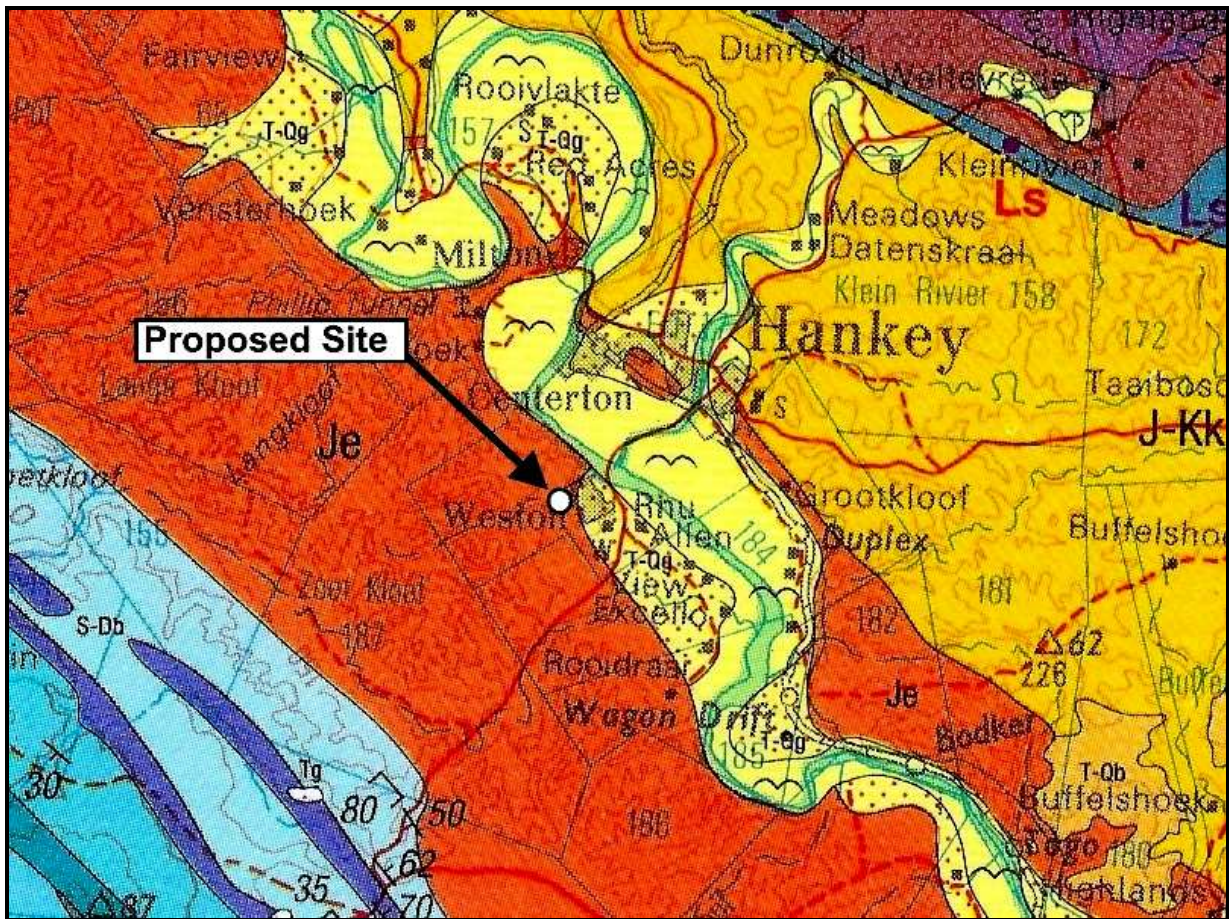


Fig. 2. Extract from 1: 250 000 geological map 3324 Port Elizabeth (Council for Geoscience, Pretoria) showing location of the proposed housing development at Weston (Map kindly provided by Public Process Consultants, PE). Mesozoic geological units mapped in the study region include the Late Jurassic Enon Formation (orange, Je) in the west and the Early Cretaceous Kirkwood Formation (yellow, J-Kk) in the east. Plant fossils, including petrified wood, are common in the latter unit but not in the true Enon conglomerates.

QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

Dr John Almond has an Honours Degree in Natural Sciences (Zoology) as well as a PhD in Palaeontology from the University of Cambridge, UK. He has been awarded post-doctoral research fellowships at Cambridge University and in Germany, and has carried out palaeontological research in Europe, North America, the Middle East as well as North and South Africa. For eight years he was a scientific officer (palaeontologist) for the Geological Survey / Council for Geoscience in the RSA. His current palaeontological research focuses on fossil record of the Precambrian - Cambrian boundary and the Cape Supergroup of South Africa. He has recently written palaeontological reviews for several 1: 250 000 geological maps published by the Council for Geoscience and has contributed educational material on fossils and evolution for new school textbooks in the RSA.

Since 2002 Dr Almond has also carried out palaeontological impact assessments for developments and conservation areas in the Western, Eastern and Northern Cape under the aegis of his Cape Town-based company *Natura Viva cc*. He is a long-standing member of the Archaeology, Palaeontology and Meteorites Committee for Heritage Western Cape (HWC) and an advisor on palaeontological conservation and management issues for the Palaeontological Society of South Africa (PSSA), HWC and SAHRA. He is currently compiling technical reports on the provincial palaeontological heritage of Western, Northern and Eastern Cape for SAHRA and HWC. Dr Almond is an accredited member of PSSA and APHAP (Association of Professional Heritage Assessment Practitioners – Western Cape).

Declaration of Independence

I, John E. Almond, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development project, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.



Dr John E. Almond
Palaeontologist
Natura Viva cc