



WEST COAST FOSSIL PARK

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19 March 2013

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RESPONSE TO ITEMS 10 & 11 NoD HWC

Terms of Reference

The report, "West Coast Fossil Park: Precinct One. Baseline Study: (Section 27(16, 18) NHRA), Farm 1223, Saldanha Bay (West Coast) Municipality. Submitted to Heritage Western Cape by Melanie Attwell and Associates on behalf of the West Coast Fossil Park Trust has reference.

I would like to respond to two issues questions raised in the interim comment from HWC of 30 November 2012:

1. Item 10. Has the course of the palaeo-Berg river been mapped?

Hendey has indicated in various publications where he thinks three distinct positions of the lower course of the palaeo-Berg river might have had its channels within "E" Quarry. (See Appendix 1: Hendey 1980 Fig 26; Hendey 1981 Figs 2, 4, 6, 7, 11). According to him, when the LQSM was deposited the river channel was to the south-east and south of "E" Quarry; so it was not actually exposed in the Quarry itself (Hendey 1981 Fig 6). The second position of the channel was about 500m further north, cutting diagonally across "E" Quarry from north-east to south-west. This channel is associated with Bed 3aS of the MPPM. The third position, slightly north of Bed 3aS, is associated with Bed 3aN (Hendey 1980 Fig 26; Hendey 1981 Fig 6.) and this change might have affected a relatively short section of the river – only maybe as little as the last kilometre from the mouth. The mouth was probably in the same position for both of these channels. (Hendey 1981 Fig 7).

Roberts (See Appendix 2: Roberts *et al* 2011 Fig 4a) depicts the 3aS and 3aN river channels in the same positions as Hendey (1981). In addition, this publication (See Appendix 3: Fig 12 a-d) indicates the changing course of the upper palaeo-Berg river during Pliocene and Early Pleistocene times as it responded to the rising and falling sea-levels.

It is generally agreed (QB Hendey, R Smith, D Stynder, J Compton *pers.comm.*) that much more detailed work on the sediments is required in order to map both the upper and lower reaches of the palaeo-Berg river in more detail and more accurately. Indeed, there is ongoing discussion regarding whether it was the palaeo-Berg river flowing into "E" Quarry or whether the ancient drainage pattern in this region was more like a delta.

2. Item 11. To what extent has mining already occurred beneath the overburden?

I understand that mining beneath the overburden has been extensive (QB Hendey *pers.comm.*). Aerial photographs (see Appendix 4: aerial photo dated 1971) give a clear indication that this is so. According to Brett Hendey (*pers.comm.*) many of the LQSM fossil

sites have been covered by this bank of overburden. These sites were identified by Hendey (1981) as ?river channel, tidal flats, marsh and floodplain. Fossils associated with these sites include pollens; abundant marine, estuarine and freshwater invertebrates and a wide variety of vertebrates. Examples of the more common vertebrates include a tortoise (*Chersina sp.*); francolin (Phasianidae – at least two species); a rhinoceros (*Ceratotherium praecox*); a giant pig (*Nyanzachoerus kanamensis*); a boselaphine antelope (*Mesembriportax acrae*); a seal (*Homiphoca capensis*); and giraffids (*Giraffa sp.*, and *Sivatherium hendeyi*).

Description of proposed intervention

The WCFPT has plans to build a new Museum and Education Centre (Interpretive Centre) on a site east of and close to the existing fossil excavation site. This proposed site (referred to as “Site D” by the architects) is situated on “overburden” comprised primarily of calcareous sand which forms part of the Langebaan Formation which overlies the Varswater Formation.

Mitigatory Measures

Fossils are associated with the Langebaan Formation and hence could potentially be located in the proposed building site and although they would be out of context they would still need to be recorded and collected by an authorised specialist.

A palaeontologist will be required on site prior to excavation to check for surface finds on the overburden and during excavation to monitor the exposure of any finds.

References

Hendey, QB 1980. *Agriotherium* (Mammalia, Ursidae) from Langebaanweg, South Africa, and relationships of the genus. Annals of the South African Museum Vol 81 (1).

Hendey, QB 1981. Palaeoecology of the Late Tertiary fossil occurrences in “E” Quarry, Langebaanweg, South Africa, and a reinterpretation of their geological context. Annals of the South African Museum Vol 84 (1).

Roberts *et al* 2011. Regional and global context of the Late Cenozoic Langebaanweg (LBW) palaeontological site: West Coast of South Africa. Earth-Science Reviews 106 (2011) 191-214.