Palaeontological Heritage Assessment for Rosedale Housing Development

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September 2010

Geology and Palaeontology

The area destined for development is geologically underlain by strata of the Kirkwood Formation. The Kirkwood Formation, together with the Sundays River and Enon Formation forms part of the Uitenhage Group. The Uitenhage Group sediments were laid down in one of a number of small coastal basins created by stretching and tearing of the crust during the final breakup of the supercontinent Gondwana during the early Cretaceous, 140 to 120 million years ago.

The Kirkwood Formation is South Africa's primary source of Cretaceous Dinosaur fossils. It was in Kirkwood Formation rocks, on the banks of the Bushman's River that South Africa's first dinosaur discovery was made in 1845 by William Atherstone and his wife. Originally dubbed "Cape Iguanadon" the fragmentary remains have, more recently been shown to be those of a Stegosaurus. Remains of two types of Sauropod Dinosaurs, as well as a Theropod Dinosaur and an Ornithopod Dinosoar have subsequently been collected from Kirkwood Formation strata at various localities. Recent research has also revealed the remains of a primitive lizard, a type of crocodile and a primitive early mammal. These remains are sometimes found in association with fossil logs and chunks of fossil wood, which are fairly common in Kirkwood Formation rocks. Associated mudstones have yielded a range of finely preserved plant leaves and fructifications, including those of a number of species of ferns, cycads and conifers.

Site visit

A site visit was carried out on the 9th of September 2010 to ascertain the potential palaeontological sensitivity of the area. The demarcated and adjacent areas were thoroughly explored with a vehicle and on foot. It was established that the entire area is covered with a thick layer of recent alluvium (see figure 1). Observation of the activities of an informal settler digging a pit latrine, within the area, indicated that soily material extended beyond the depth reached. This was further corroborated by an examination of the stream bed to the north east of the site.

Conclusion

Considering the lack of bedrock outcrops within the area, and the observed depth of alluvium, the area may be considered to be of no apparent palaeontological interest, and it seems unlikely that sedimentary rocks of the Kirkwood Formation will be exposed during the development.

Should bulk service trenches intercept pinkish coloured weathered Kirkwood Formation sediments during layout of the bulk service trenches, the environmental management officer should request that they are left open until inspected by a palaeontologist.

Figure 1: Alluvium deposit