

C. GEOLOGY

Field Note C6f. The Enon Formation – Northeast extension

The Enon Formation deposits were mapped in 1987 (J Malan and J Theron) and the Soutpansvlakte Basin (or Valley) was defined, as shown in Figure 1.

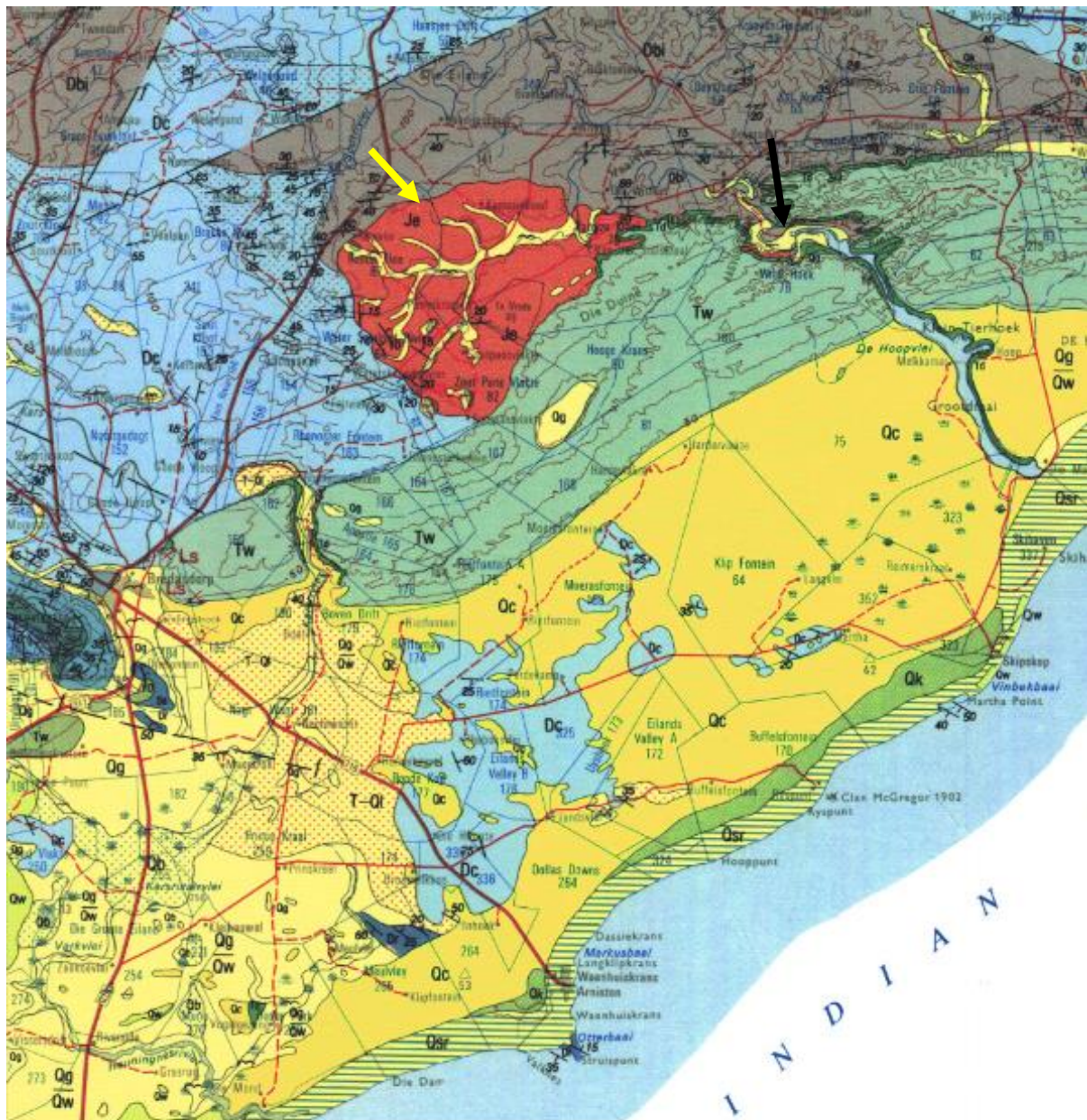


Figure 1. Geology map (3420, Riversdale, 1:250,000, 1993) showing the Soutpansvlakte Basin (yellow arrow). Black arrows point to other locations where Enon deposits were found (in the Salt River Gorge).

The Enon Formation deposits in the Soutpansvlakte Basin and the Salt River Gorge are shown in greater detail in the geology field sheets of 1984, by J Malan (Figures 2 and 3).

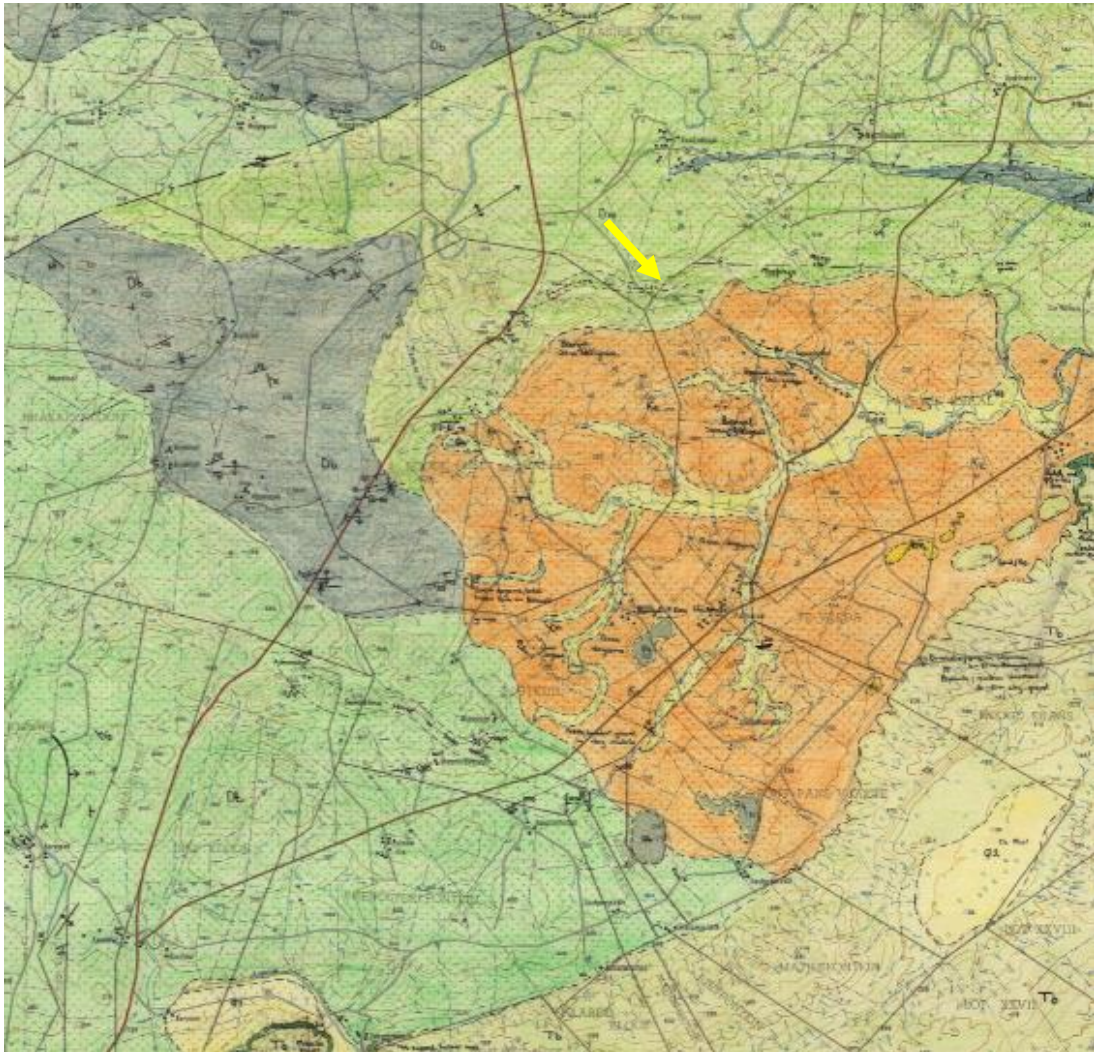


Figure 2. Geology map (field sheet 3420 AD 1:50,000, 1984) showing the Enon Formation deposits (orange) in the Soutpansvlakte Basin (yellow arrow).



Figure 3. Geology map (field sheet 3420AD 1:50,000, 1984) showing the Enon Formation deposits (orange) in the Soutpansvlakte Basin (yellow Arrow) and the Salt River Gorge (black arrows).

The area north of the Hard Dunes is all Bokkeveld shales. The Bokkeveld shales can easily be seen in road and river cuts and in open fields (Figures 4) The Enon formation sediments can be easily distinguished from the shales (Figure 5).



Figure 4. Bokkeveld shales in an open field.



Figure 5. Enon Formation sediments in an open field.

During this study the author has noticed that the Enon Formation deposits are not confined to the Soutpansvlakte Basin and the Salt River Gorge but can be found, covering large areas in other locations in the Study Area, on hills and in valleys on elevations, which are higher than that of the Soutpansvlakte Basin.

Some of the Enon sediments can be discerned by their reddish colour from satellite imagery taken when the fields are bare (Figure 6), as crops mask the reddish colour (Figure 7).



Figure 6. Enon Formation sediments have reddish colour.



Figure 7. Crops obscure the red colour of the Enon Formation sediments.

The Enon Formation deposits are found on Bokkeveld hill tops and slopes (Figures 8 and 9).



Figure 8. Enon Formation deposits on a shale hill slope, in Oulandshoek, east of the Soutpansvlakte Basin.



Figure 9. Enon Formation deposits (left) on a shale hill (right, typically with aloes), in Oulandshoek, east of the Soutpansvlakte Basin. A heap of Enon Formation clasts, collected from the field, is seen in the middle of the photo.

The Enon Formation deposits are also found north and east of the Soutpansvlakte Basin, in valleys (Figures 10 and 11), ravines (Figures 12 and 13) and holes and dams dug by farmers (Figure 14).



Figure 10. Enon Formation deposits in a valley northeast of the Soutpansvlakte Basin.



Figure 11. Enon Formation deposits in a valley, northeast of the Soutpansvlakte Basin. The two Milkwood trees in the middle of the photograph are indicative of the Enon Formation deposits (they do not grow where there are only shales (see Appendix Y)).



Figure 12. Enon Formation deposits in a ravine, northeast of the Soutpansvlakte Basin. The forest is indicative of the Enon Formation, as these trees do not grow on Bokkeveld Shales.



Figure 13. Enon Formation deposits in a ravine.



Figure 14. Enon Formation deposits in a hole dug by farmers.



Figure 15. Enon Formation deposits in a dam dug by farmers.

The above photographs show just a few of many locations where the deposits of the Enon Formation – in some areas very thin - were mapped north and east of the Soutpansvlakte Basin. The valley and the extensions are shown below on satellite images (Figures 16 to 19).



Figure 16. Generalised boundaries of the Soutpansvlakte Basin.



Figure 17. Enon Formation deposits north of the Soutpansvlakte Basin, at elevations of up to 130 m (between Witkop in the east - yellow arrow) and Baadjieskraal in the west – white arrow).



Figure 18. Enon Formation deposits north-east of the Soutpansvlakte Basin (between Brakfontein in the south and Plaatjieskraal in the north).



Figure 19. Enon Formation deposits east of the Soutpansvlakte Basin (the Kathoek Farm buildings are at the centre of the image).

Views of some of the valleys containing the Enon Formation deposits are shown in Figures 20 and 21.



Figure 20. Enon Formation deposits in valleys north of the Soutpansvlakte Basin. View to the south. The distant hills are the Hard Dunes.



Figure 21. Enon Formation deposits in valleys north of the Soutpansvlakte Basin. View to the south. The distant hills are the Hard Dunes.

Mapping the exact extent of these deposits from satellite images is not always accurate, as the Bokkeveld hills are in many places higher than these deposits, and erosion of the Bokkeveld shales hills has resulted in the mixing and overlapping of these formations. Farming operations also resulted in disturbing the natural boundaries between the formations.

Detailed mapping of the Enon deposits will be undertaken in the future. A generalised map is presented in Figure 22.

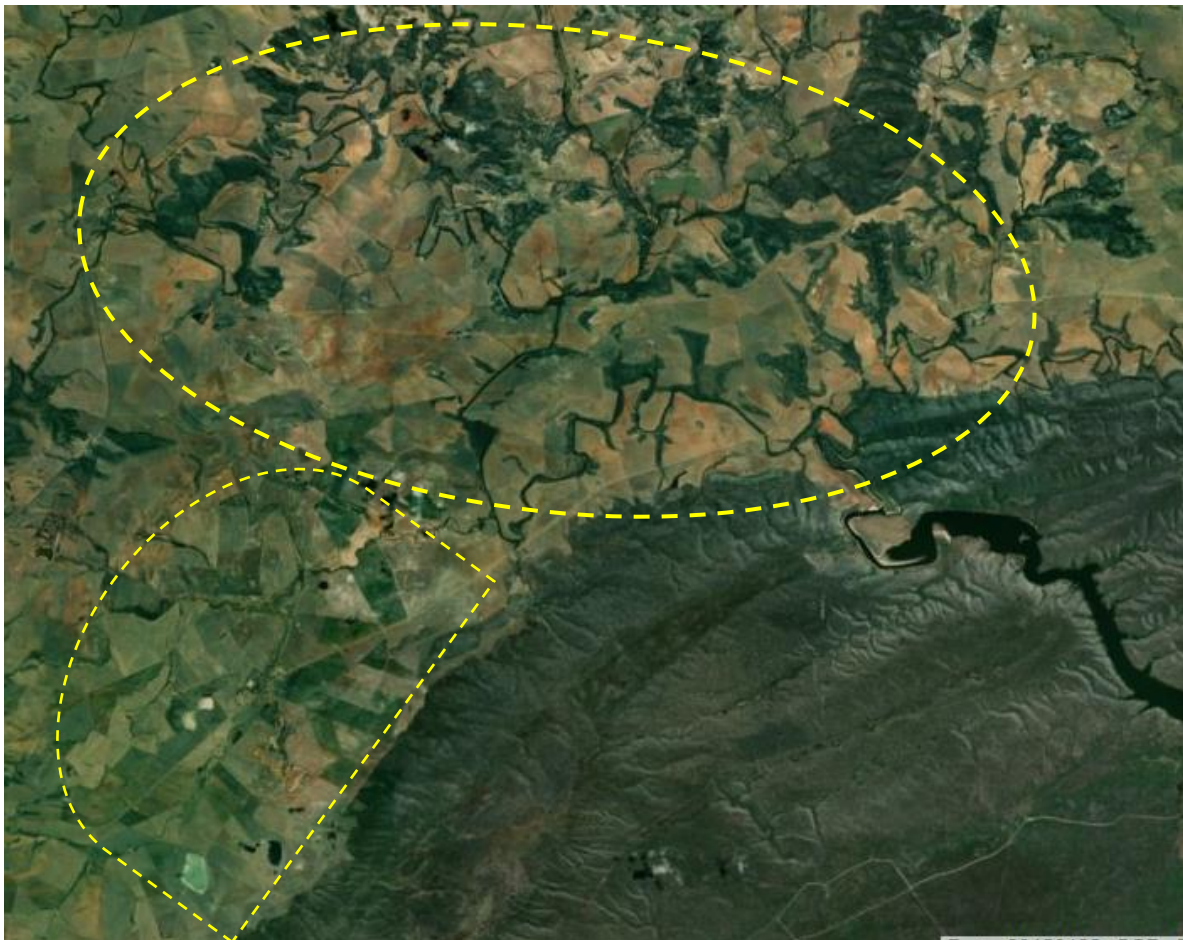


Figure 22. Satellite image showing the approximate boundaries of the Enon Formation deposits in the Soutpansvlakte Basin (dashed half-moon, as in Figure 16) and in the northeast extension (dashed ellipsoid). The deposits in the extension are not continuous but rather in large pockets and lenses.

Lenses and pockets of the Enon Formation deposits have also been documented in several locations west and south of the Soutpansvlakte Basin. See Field Note C6g.