



BM GEOLOGICAL SERVICES

Cel: +27(0)12 2689 777

Postal Address: P.O. Box 13755

E-mail: barrymillstead@gmail.com

Hatfield

0028

Republic of South Africa

A LETTER OF RECOMMENDATION FOR THE EXEMPTION OF A FULL PHASE 1 PALAEOLOGICAL HERITAGE IMPACT ASSESSMENT

IN RESPECT OF

**TWO AREAS KNOWN AS THE SLINGERS FONTEIN PROJECT AND
KOOKERS GRAFS VLAKTE PROJECT LOCATED WITHIN TASMAN
PACIFIC LIMITED'S PROSPECTING RIGHT AREA KNOWN AS SITE 45**

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DR B.D. MILLSTEED *Pr.Sci.Nat*

1..Description of the project area:

The project area comprises two areas within Tasman Pacific Limited's Prospecting Right area know as Site 45 in the Northern Cape. These areas are referred to, herein, as the Slingers Fontein and the Kookers Grafs Vlake Projects (Figure 1).

GPS co-ordinates of the corner points defining the two project areas are as follows:

Table 1. Slingers Fontein Project area corner points (WGS84) (see Figure 2 for location):

Corner point	Latitude	Longitude
1	-31.5492511727	21.9701862487
2	-31.5458401223	21.9802235516
3	-31.5587546078	21.9872943324
4	-31.5668586100	21.9999353304
5	-31.5785086049	22.0051563380
6	-31.5792920666	22.0054622754
7	-31.5816904891	21.9982955757
8	-31.5807286862	21.9956819340
9	-31.5849900598	21.9829550731
10	-31.5871817118	21.9819384608
11	-31.5890752939	21.9763980574
12	-31.5819482861	21.9730082159
13	-31.5763531661	21.9738846914
14	-31.5750477844	21.9777600056
15	-31.5686843121	21.9746791855
16	-31.5660762160	21.9752251364
17	-31.5652699398	21.9776520621

Table 2. Kookers Grafs Vlake Project area corner points (WGS84) (Figure 3 for location):

Corner point	Latitude	Longitude
1	-31.4787866448	22.0149940694
2	-31.4651938948	22.0148473976
3	-31.4650893025	22.0243341668
4	-31.4776364206	22.0244708175
5	-31.4783722839	22.0232587903
6	-31.4787028694	22.0218728879

The aerial extent of the two project areas is approximately:

1. Slingers Fontein Project = 797 ha
2. Kookers Grafs Vlake Project = 135.2 ha

2 Description of the projects:

Tasman Pacific Minerals Limited is the holder of a Prospecting Right known as Site 45. Application has been made to amend the approved Environmental Management Plan (EMP) and Prospecting Work Programme (PWP) to allow drilling upon two areas within Site 45. These two areas are identified in the draft amended EMP as the Slingers Fontein and the Kookers Grafs Vlake Project areas (Figure 4). These two areas constitute a relatively small proportion of the entire Prospecting Right area (which totals 48,073 ha), and are the only areas where disturbance of the land surface (i.e. invasive prospecting) is allowed within the draft amended EMP.

The borehole drilling activities on either site will be conducted in the same manner, but utilizing differing numbers of boreholes over different aerial extents. Drilling will be predominantly conducted using reverse circulation percussion drill rigs, but will include a very small proportion (approximately 5%) of diamond drill holes. The maximum diameter of these holes at the earth's surface will be approximately 5½ inches (or 14cm).

Drilling is planned to occur in two phases. Phase 1 drilling will be spaced out over a 100m x 100m grid. The intent of Phase 1 drilling is to delineate the lateral extent of uranium/molybdenum mineralisation in the subsurface. Should such mineralisation be identified the Phase 2 drilling will take place on a more

closely spaced 50m x 50m grid. Phase 2 drilling will occur only in the immediate vicinity of the mineralisation.

Trenching, pitting or test mining activities are not allowed to occur and are specified as such in the approved and amended Prospecting Work Programmes. Thus, there will be no significant disturbance of the land surface or excavations occurring during the exploration outlined in the amended EMP.

3. Possible palaeontological impacts of the projects:

The major possible palaeontological impacts of the proposed exploration project are the crushing and moving of palaeontological specimens from their original location. These two outcomes may occur as a result of the fossils being drilled through by the drill rig or as a result of vehicle wheels passing over the fossils. However, as outlined below this is not a significant probability. Similarly, there is a very small possibility of a fossil actually being drilled through by the drilling rig.

The possible impacts, as outlined above, are mitigated by the fact that Tasman Pacific has indicated in their amended EMP document that an Environmental Control Officer (ECO) will be appointed who will be on site during the conducting of the drilling. That ECO will be the site geologist and, as such, will have professional training sufficient to allow them to recognise the presence of fossils should any be encountered during the movement of vehicles across the land surface.

The amended EMP states that vehicular movements will be restricted to a defined system of tracks (twin spoor pads only, as no new graded roads will be constructed). Both these tracks and the sites of the proposed boreholes will be inspected by the ECO before their initial usage and should any fossil material be identified the track would be diverted around the material or the borehole relocated to avoid damage. The discovery would then be reported to a suitably qualified professional palaeontologist for appraisal and possible excavation.

4. Reasons why a Palaeontological Impact Assessment is not required:

The drilling activities will take place upon sediments of the Davids Kolk Member of the Balfour Formation (Adelaide Subgroup, Beaufort Group). Accordingly, it may be expected that the strata may contain vertebrate

representatives of the *Tapinocephalus* Assemblage Zone (Rubidge *et al.*, 1995) and plants of the *Glossopteris* flora. However, the vertebrate fossils of the Beaufort Group are normally rare occurrences at the surface. This situation is also true of plant fossil assemblage sites; but where they do occur they tend to be distributed over a sufficiently wide area that the amount of damage done by a borehole or vehicle wheel would not be significant (considering the small percentage of the land surface that will be affected directly by these activities).

The above generalisation concerning the scarcity of Beaufort Group fossils has been substantiated in the field as I (in my capacity as an independent consultant, the holder of a Ph.D in Palaeontology and significant professional experience as a palaeontologist in South Africa) have personally visited the two proposed drilling project areas and extensively traversed them by foot. During those investigations only one fossiliferous locality was identified (Figure 1; Latitude - 31.567081, Longitude 21.984305). Thus, the likelihood of any palaeontological material being destroyed or moved as a result of the proposed prospecting activities is remote due to the scarcity of material.

The single fossiliferous locality that was located is of no scientific significance as it consists of broken and predominantly allochthonous fragments of post-cranial vertebrate bone (Figure 5) spread over an area of approximately 50m x 20m. These fossil fragments appear to originate from a single bed of mud-chip conglomerate (but this cannot be ascertained with certainty) and have been disseminated across the land surface by erosion and subsequent sheet wash down the hill slope. The fragmentary nature of the fossils as well as the absence of cranial material would make identification almost impossible and even if this could be achieved, the allochthonous location of the material denies them scientific significance.

There are no known or historical fossil sites of significance or scientific importance (e.g. Geosites or the locations of the sites of historically important collecting activities) located within either project area that would require specific preservation.

Given the above information I feel that it can fairly be motivated that there is no need for a full Phase 1 Palaeontological Impact Assessment to be conducted on either of the two project areas.

5. References

Rubidge, B.S., Johnson, M.R, Kitching, J.W., Smith, R.M.H., Keyser, A.W. and Groenewald, G.H. (1995). An introduction to the Biozonation of the Beaufort Group. - In: Rubidge, B.S. (ed), *Biostratigraphy of the Beaufort Group (Karoo Supergroup)*. South African Committee for Stratigraphy Bisotratigraphic Series, **1**, 46 pp.

Dr B.D. Millstead

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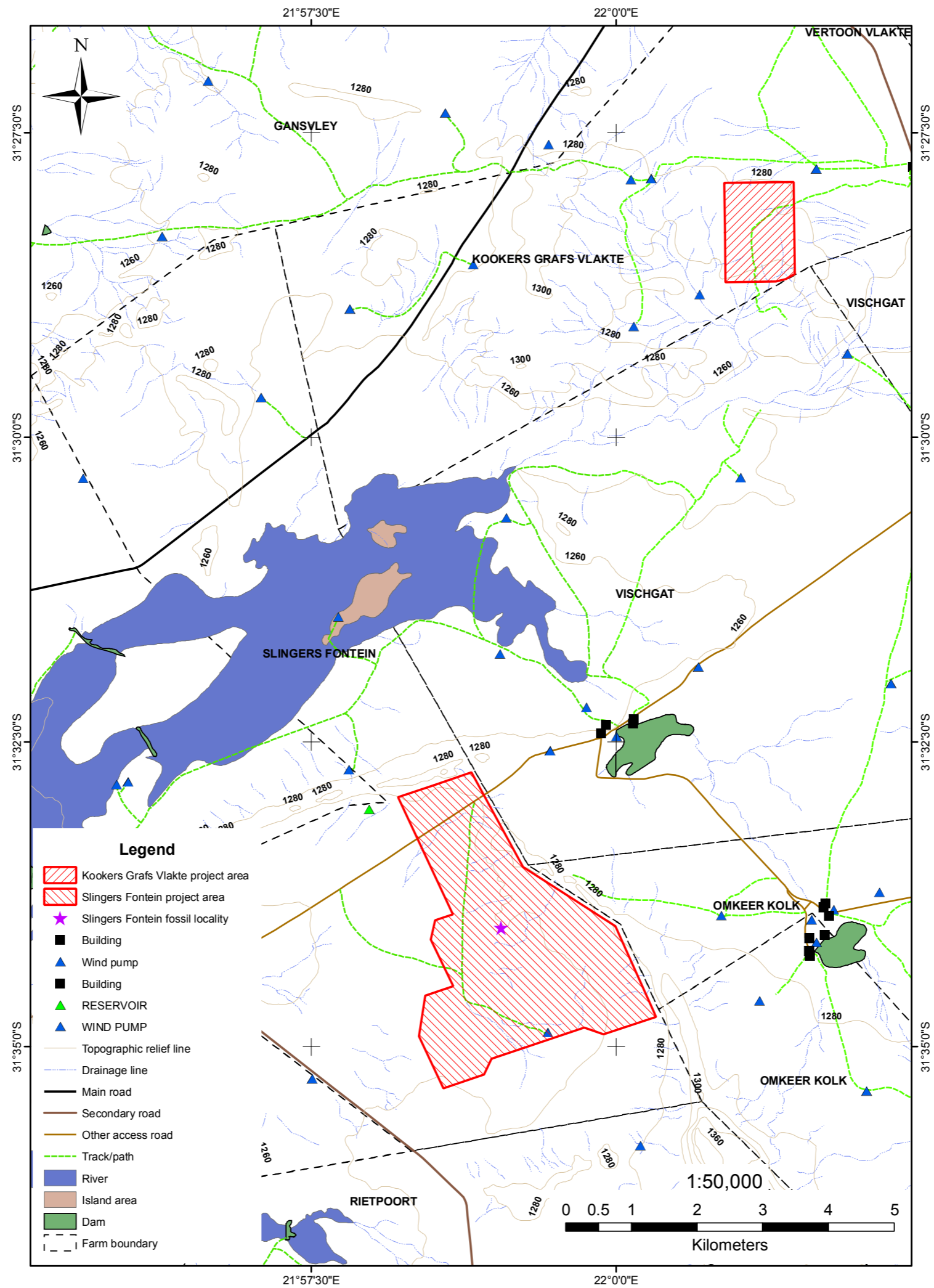


Figure 1. A topographic map showing the location of the Slingers Fontein and Kookers Grafs Vlakte projects in relation to each other within Tasman Pacific Minerals' Prospecting Right area known as Site 45.

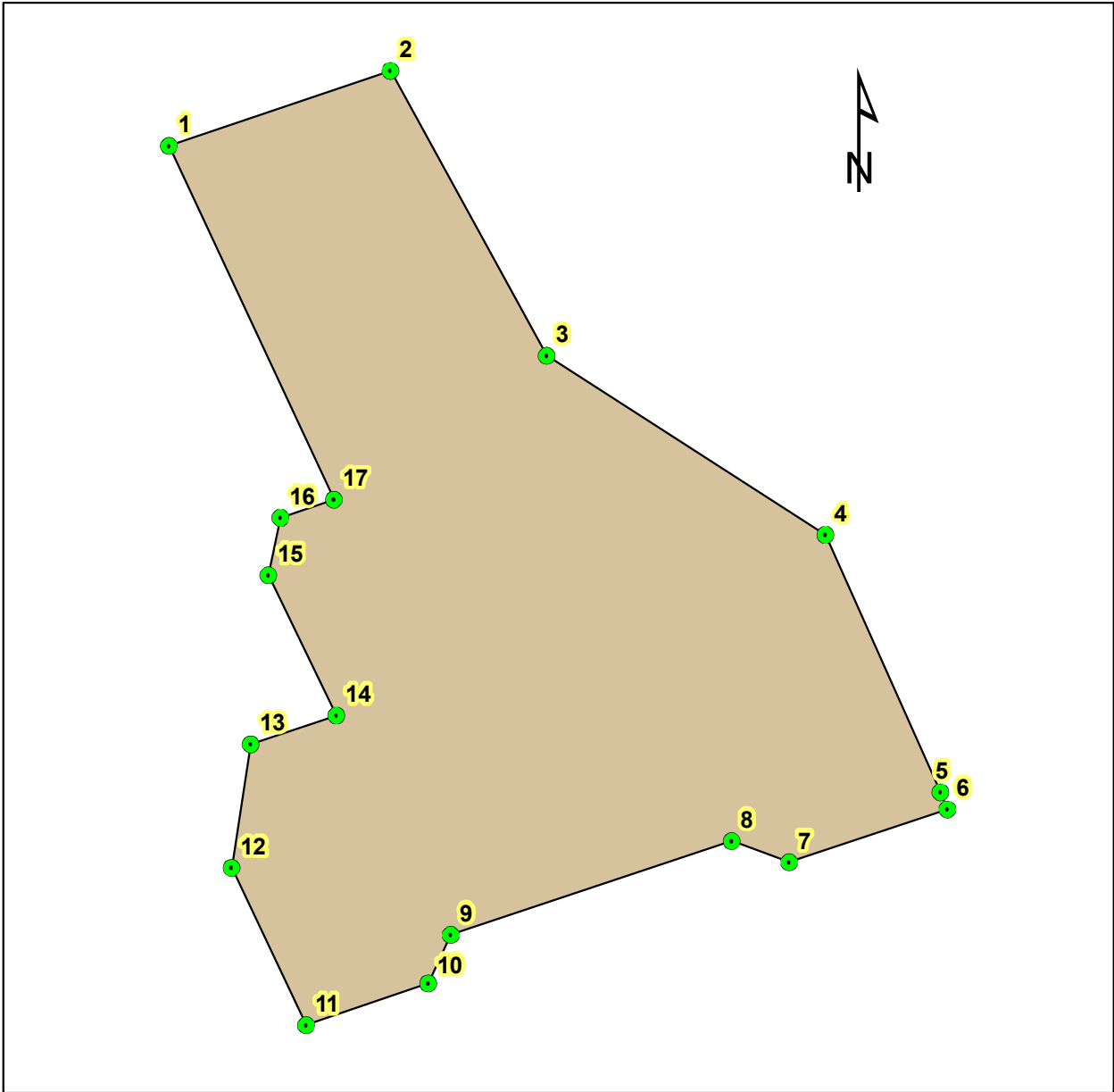


Figure 2. Figure indicating the location of the numbered corner points appearing in Table 1 and which define the Slingers Fontein project area.

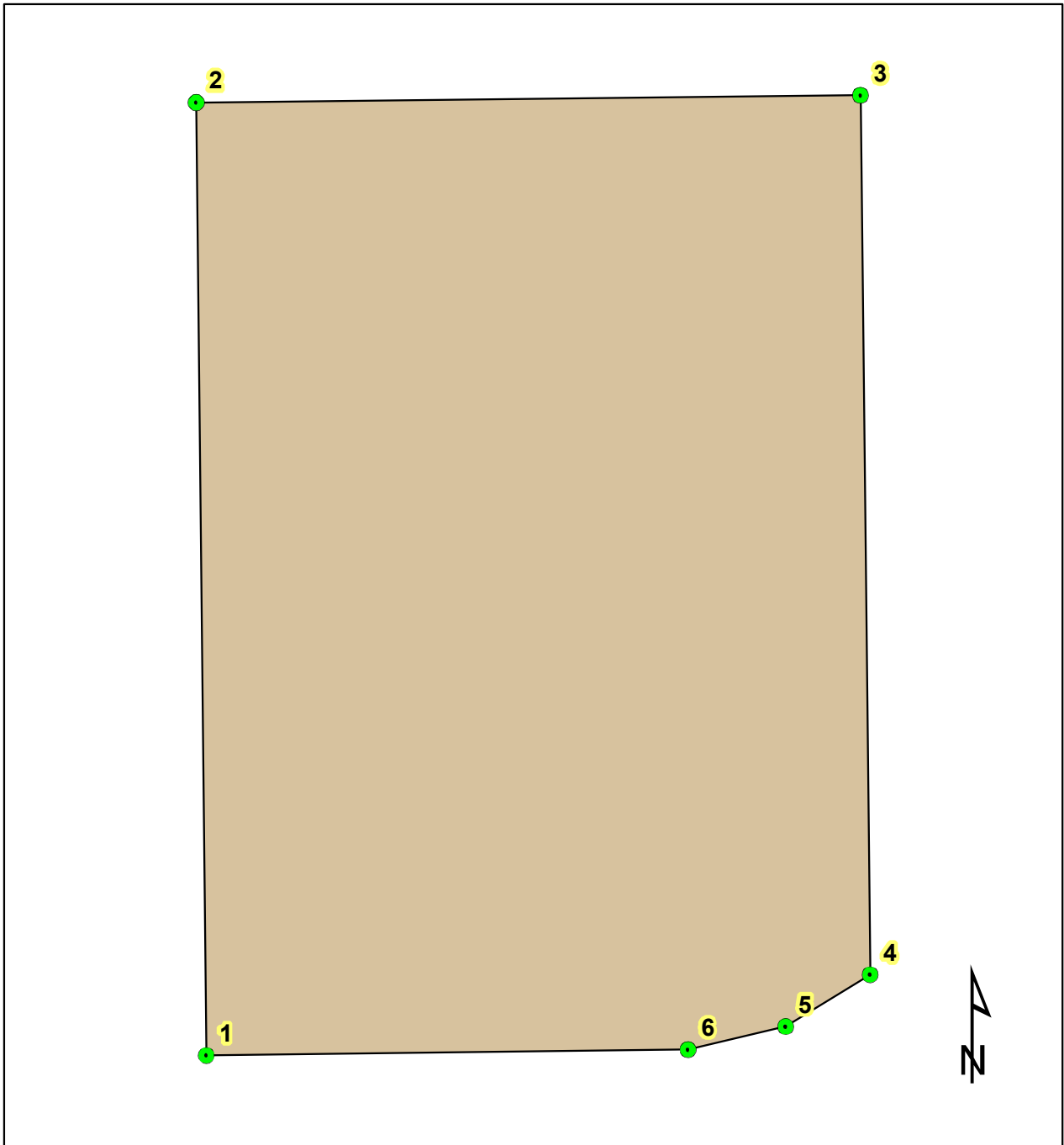


Figure 3. Figure indicating the location of the numbered corner points appearing in Table 1 and which define the Kookers Grafs Vlakte project area.

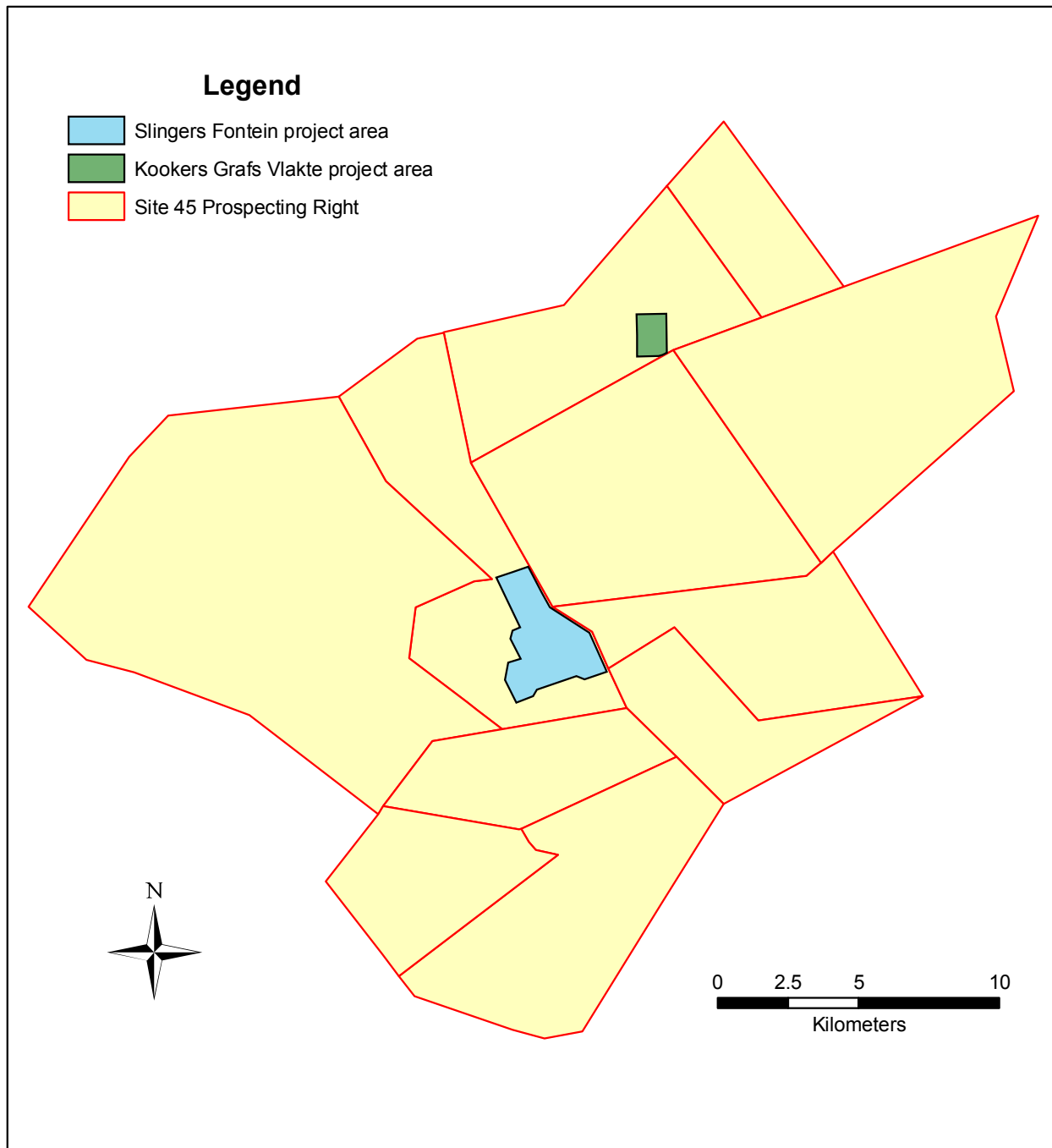


Figure 4. Figure indicating the location of the Slingers Fontein and Kookers Grafs Vlakte project areas within Site 45.



Figure 5. Photograph showing some of the fragments of post-cranial vertebrate bone material identified within a fossiliferous area within the Slingers Fonetin project area. The fossil fragments are identified via red arrows.