HERITAGE SCREENER

CTS Reference Number:	**CTS15_037**
Client:	**CSIR**
Date:	**12 November 2015**
Title:	**SKA Phase 1 SEA Heritage Screener**

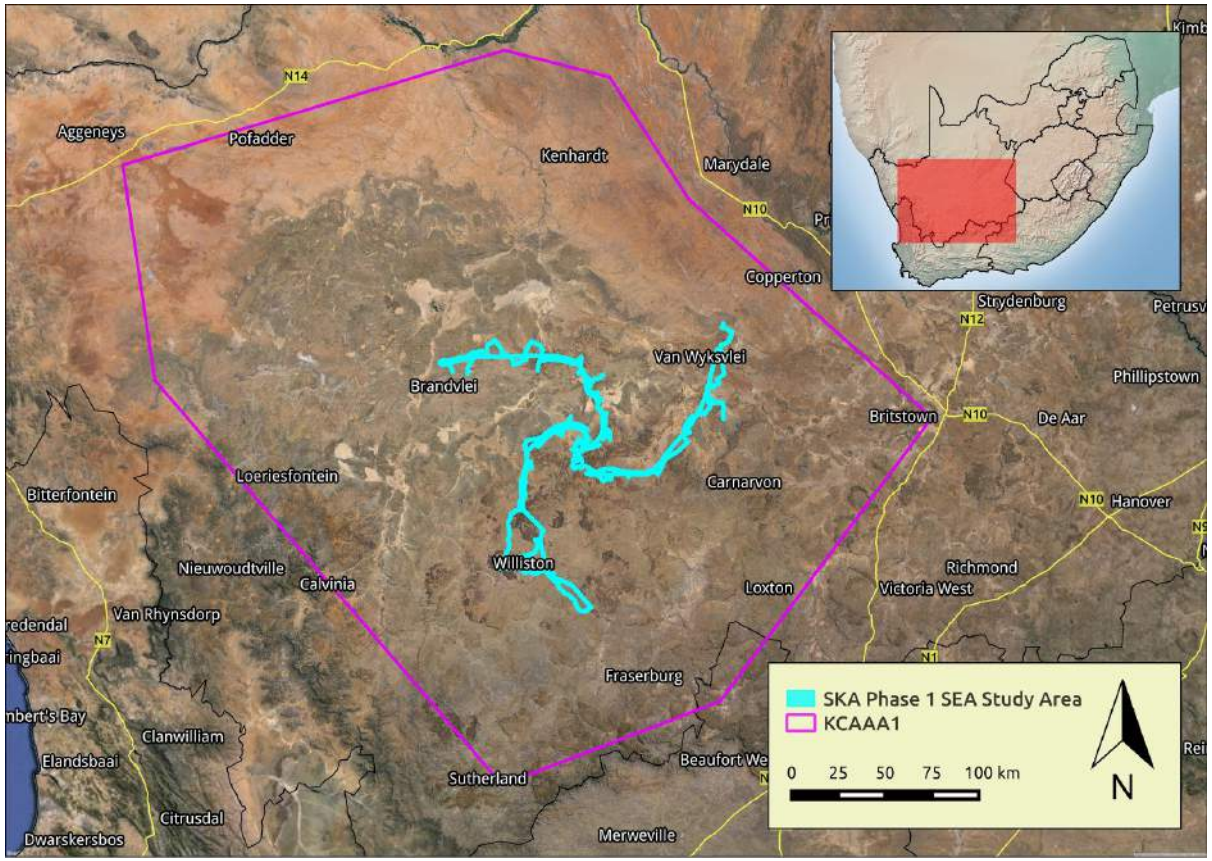

Figure 1. Satellite image with SKA Phase 1 SEA Study Area and KCAAA1 indicated.

CEDAR TOWER SERVICES

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1. Introduction

Strategic Integrated Project 16 has been identified as the construction of the South African component of the Square Kilometre Array Radio-Telescope (SKA) program. The SKA project is an international enterprise which proposes to build the largest and most sensitive radio telescope in the world. The SKA project is a multi-billion Rand programme implemented in a phased approach. Phase 1 of the SKA will expand the MeerKAT project by increasing the receptors from 64 to 197 (see Appendix 5.1 for list of SKA stations).

The SKA Phase 1 SEA study area is contained within the Karoo Central Astronomy Advantage Area 1 (KCAAA1) (Fig. 1) and comprises the core of the SKA installation and three spiral arms. The SKA Phase 1 SEA study area covers approximately 268 000 hectares. Most of the receptors will be located within the core of the SKA study area. Each of the 3 spiral arms outside of the core SKA area will have receptors and include the necessary access roads, power line and fiber optic connections between receptors.

The purpose of this document is twofold. Firstly, it screens the study area within KCAAA1 by presenting the known heritage sites and heritage surveys previously undertaken in KCAAA1 that are available on SAHRIS. Secondly, it provides the brief for archaeological and palaeontological fieldwork to be undertaken by Cedar Tower Services (CTS), ASHA Consulting and Natura Viva staff in the SKA Phase 1 SEA study area following the screening process.

2. Methodology

The main source of information for this document is the data related to Heritage Impact Assessments (HIAs) and sites recorded on SAHRIS (South African Heritage Resources Information System). SAHRIS was set up by the South African Heritage Resources Agency (SAHRA) in 2012 to act as the National Inventory required under s. 39 of the National Heritage Resources Act (NHRA). The aim of the system is to consolidate and coordinate the information on heritage resources (places and objects) which comprise the National Estate. This includes all site records held by Provincial Heritage Resources Authorities, universities, museums and archives around the country.

SAHRIS currently includes records of:

- sites identified during research curated by the University of Cape Town and the KwaZulu-Natal Museum;
- all permit applications submitted to SAHRA after 2003. Details and documents for these applications have been captured by the Archaeology, Palaeontology and Meteorites Unit at SAHRA. Older permit applications have been digitised and uploaded to SAHRIS but have not yet been extracted into the relevant content types.
- all heritage cases and heritage reports (including HIAs) submitted to the South African Heritage Resources Agency from 1990 to the present, to Heritage Western Cape from 2004 to 2009, to Amafa KwaZulu-Natal from 2012 to the present and most cases for the Eastern Cape Provincial Heritage Resources Authority from 2011 to the present.

2.1. Previous Heritage Impact Assessments and Surveys

All HIAs previously undertaken within KCAA1 were considered and all heritage resources identified within these reports were extracted into SAHRIS and accurately mapped. Each HIA and permit report was also assessed in terms of survey coverage. The extent of the coverage was labelled in three categories, namely low, medium or high - this informed the subsequent determination of overall heritage sensitivity. Two different categories of coverage were considered, one for HIAs excluding the palaeontological component, and one exclusively for Palaeontological Impact Assessments (PIAs).

2.1.1. Coverage for Heritage Impact Assessments excluding palaeontology

The coverage for HIAs, excluding PIAs, was divided as follows:

Low coverage (**red**) refers to:

- desktop studies where no field assessment of the area was undertaken.
- reports where the sites are listed and described but no GPS coordinates were provided.
- reports from the 1990s/early 2000s, with GPS coordinates with low accuracy ratings.
- reports where the entire property was mapped, but only a small/limited area was surveyed (less than 20%).
- reports on SAHRIS which are not properly mapped.

Medium coverage (**orange**) refers to:

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage, such as thick vegetation.

- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover from 20% to 50% of the property.
- reports which are titled “Heritage Impact Assessment” but the team composition did not allow for an assessment of all necessary heritage components. An exception may be made for palaeontology, since the report may have been submitted separately and been assessed independently in terms of coverage.

High coverage (**green**) refers to:

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates and/or site distribution.
- permit reports and specific assessments (e.g. of one building or archaeological site).
- instances where the area is highly disturbed and no HIA would be necessary.

2.1.2. Coverage for Palaeontological Impact Assessments

PIAs were also assigned a coverage based on the outcome of the study already undertaken:

Low coverage (**red**) refers to:

- at the end of the study (typically a desktop or scoping study) the palaeontologist recommended that a full PIA be done.

Medium coverage (**orange**) refers to:

- the palaeontologist recommended a palaeo chance find procedure during construction activities.

High coverage (**green**) refers to:

- the area has been fully assessed and no further palaeontological studies are required, but monitoring and/or mitigation may be requested (this will be listed in the specific recommendations for each polygon).

2.2. Heritage resources

Heritage sites included in the HIAs were extracted, created and uploaded on SAHRIS and this has increased the number of sites recorded on the system for the study area. Sites in KCAAA1 visited (and in some cases recorded) by Dr Janette Deacon were uploaded onto SAHRIS. Many of the sites previously uploaded to SAHRIS during research surveys do not yet have formal gradings or even provisional gradings (field ratings).

Grading of sites is necessary for heritage management as it is a legal requirement towards the formal protection of sites and informs the requirements for the management of generally protected sites. Where available, the grading level recommended by the relevant heritage practitioner was captured on SAHRIS. For ungraded sites the site type was used to assign a recommended grading level for this study. All gradings of sites falling within the possible impact areas of the SKA installations will be reassessed for the final report.

The grading of heritage sites which form part of the National Estate is done according to s. 7 of the National Heritage Resources Act (NHRA) as follows:

(a) Grade I: Heritage resources with qualities so exceptional that they are of special national significance;

(b) Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and

(c) Grade III: Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, consistent with the criteria set out in section 3(3), which must be used by a heritage resources authority or a local authority to assess the intrinsic, comparative and

contextual significance of a heritage resource and the relative benefits and costs of its protection, so that the appropriate level of grading of the resource and the consequent responsibility for its management may be allocated (...).

Any heritage site which is part of the National Estate as defined in section 3 of the NHRA should be graded according to its significance. Grading has three associated components in South Africa, namely the geographical range of a site's significance outlined above (national, provincial/regional or local), the level of significance (high, medium of low) and the heritage authority with the delegated powers to manage the site. SAHRA is the national authority and manages Grade I sites only; Provincial Heritage Resources Authorities (PHRAs) manage Grade II sites and currently most Grade III sites. Only one municipality, the City of Cape Town Metropolitan Municipality, has obtained limited powers to manage Grade III heritage resources from Heritage Western Cape.

Examples of Grade I (National Heritage Sites) include the Mapungubwe Cultural Landscape and Lake Fundudzi in Limpopo, the Sarah Baartman Burial Site and Robert Sobukwe's grave in the Eastern Cape, the Union Buildings and Voortrekker Monument in Pretoria and the Houses of Parliament in Cape Town.

Grade II sites can be declared as Provincial Heritage Sites under s. 27 of the NHRA after the competent PHRA has established their significance. Many of the current Provincial Heritage Sites were declared as National Monuments under the previous heritage legislation. These sites were re-proclaimed as Provincial Heritage Sites when the National Heritage Resources Act came into effect in 1999. A total of about 3630 sites around the country have been declared as Provincial Heritage Sites. Most of the sites fall within the built environment such as the Castle of Good Hope in Cape Town. Some other examples include Mapoch's Caves in Limpopo, Umhlatuzana Rock Shelter in KwaZulu-Natal, Van der Stel's Copper Mine in the Northern Cape, the Od Cemetery in Grahamstown, Eastern Cape and Baboon Point near Eland's Bay in the Western Cape.

Grade III sites have three subcategories according to their level of local significance. IIIa (high), IIIb (medium) and IIIc (low). These sites are significant at the local level and the type of mitigation allowed at these sites varies from destruction (IIIc), extensive mitigation (IIIb) to general avoidance and minimal modification (IIIa).

Grade IIIa sites are of such high local significance that they should be protected and retained. There are thousands of examples of IIIa buildings in across the country and these sites should be included in the heritage register of each municipality as defined in s. 30 of the NHRA. Any alterations must be regulated through the permit process with the relevant heritage authority. All human remains are treated with high significance and therefore graves generally fall within this category. While relocation of graves takes place from time to time, relocation should always be considered as the last resort. Rock art sites, caves with archaeological deposits and fossil sites are commonly ascribed a minimum IIIa rating.

Grade IIIb sites are heritage resources rated with medium local significance. They should preferably be retained where possible, but, where developments cannot be realigned or moved, mitigation is normally allowed. Archaeological and palaeontological sites falling into this category include sites which cannot be sufficiently recorded or understood during a Phase 1 survey alone or which require dating, excavation and/or other techniques to analyse the sites. IIIb buildings have some significance and add certain heritage qualities to their immediate area. Developments are normally allowed at these sites as long as the essential heritage elements of these buildings are preserved in some meaningful way.

Grade IIIc sites are of low local significance. These resources must be recorded satisfactorily before destruction is allowed. In many instances the recording and description of the site undertaken during a Heritage Impact Assessment is sufficient and further recording or mitigation is not normally required. These sites include stone artefact scatters such as small stone knapping sites and palaeontological fossils of low significance which do not require recovery. In the case of the built environment, IIIc structures can normally be demolished unless the site contributes towards a series of sites or a conservation area of IIIb or higher significance.

There are two useful guides which explain the grading process in more detail:

- the Heritage Western Cape Short Guide to and Policy Statement on Grading issued in 2012
- the SAHRA Minimum Standards for Archaeological and Palaeontological Impact Assessments issued in 2007.

For the purposes of the dataset presented in this document, the grading by type was assigned as follows for previously ungraded sites:

- Burial Grounds and Graves: IIIa
- Rock Art: IIIa
- Monuments and Memorials: IIIb
- Settlements: IIIa
- Archaeological deposit: IIIb
- Palaeontological: IIIb
- Structures: IIIb
- Artefact scatters: IIIc

2.3. Natural features

In order to focus the archaeological field surveyors' time and resources, high priority archaeological areas were identified by spatial analysis. A circle with a radius of 200m was drawn at the centre of each proposed SKA station to define the possible impact footprint for the field survey. The 200m radius was chosen based on the 100 x 100m surface area of the stations and the potential for the centre to move up to 120m in any direction depending on specialist recommendations. If this footprint is not underlain by Karoo dolerite and/or is not within 100m of any water feature (i.e. rivers and wetlands), it has been considered as having low priority. The choice of natural features was informed by the extensive field experience and

background knowledge of the team, since dolerite outcrops (associated with rock art) and water features (associated with high densities of Stone Age tools, historic settlements) are often foci of prehistoric and historic activity. This is a broad-based but nonetheless useful approach.

3. Results

Figures 2a-j indicate previous HIAs (excluding PIAs) done in KCAAA1, while figures 3a-e indicate previous PIAs done in KCAAA1. Areas already surveyed in KCAAA1 include intensively mined zones around towns such as Copperton and zones related to renewable energy developments. Most of KCAAA1 has not been assessed yet (see appendix 5.2 for the list of previous heritage surveys done in KCAAA1).

Figures 4a-b indicate the palaeosensitivity of KCAAA1 based on the SAHRIS Palaeosensitivity Map. The southern part of KCAAA1 is dominated by very highly sensitive mudstones of the Karoo Supergroup. The central part of KCAAA1 is dominated by arenites and shales of moderate and high sensitivity. Most of the SKA Phase 1 SEA Study Area is underlain by these arenites and shales. None of the proposed SKA installation sites are underlain by bedrock of very high sensitivity. The northern part of KCAAA1 is dominated by igneous and metamorphic rocks with low to moderate fossil sensitivity.

Figures 5a-j indicate heritage resources previously identified in KCAAA1. There are more than 1300 sites currently recorded on SAHRIS for this area (see appendix 5.3 for the list of heritage resources in KCAAA1). Most of theses sites are Early, Middle and Later Stone Age artefact scatters, which are often clustered around water features and dolerite outcrops. There are numerous rock engravings and rare rock paintings on dolerite boulders in the area (e.g. Deacon, 1986, 1988, 1997; Beaumont and Vogel, 1989; Morris, 1988). The region between Kenhardt, Brandvlei and Vanwyksvlei was home to the group of /Xam whose way of life was recorded in the 19th century by Wilhelm Bleek and Lucy Lloyd (Deacon, 1986). These ~~ethnographic~~ records have significantly improved the understanding of San rock art.

Farmsteads and other structures older than 60 years are common throughout KCAAA1. Most of the Grade II sites in the area (21 out of 27) are buildings, including corbelled buildings. Burial grounds and graves in the area are mostly informal and mostly associated with farm workers, former inhabitants of abandoned settlements, miners anonymously buried and historical farmstead cemeteries.

Figures 6a-b indicate SKA stations affected by Karoo dolerite, rivers and wetlands. The stations affected by Karoo dolerite include SKA_1_06-08, SKA_1_14-15, SKA_2_10, SKA_2_15, SKA_2_17, SKA_3_04, SKA_3_09, SKA_3_11, SKA_3_13 and SKA_3_15-16. The stations affected by rivers and wetlands include SKA_C31, SKA_C34, SKA_C81, SKA_1_02, SKA_1_08, SKA_1_11, SKA_1_16, SKA_2_02, SKA_2_08, SKA_2_11-12, SKA_3_01, SKA_3_10 and SKA_3_17.

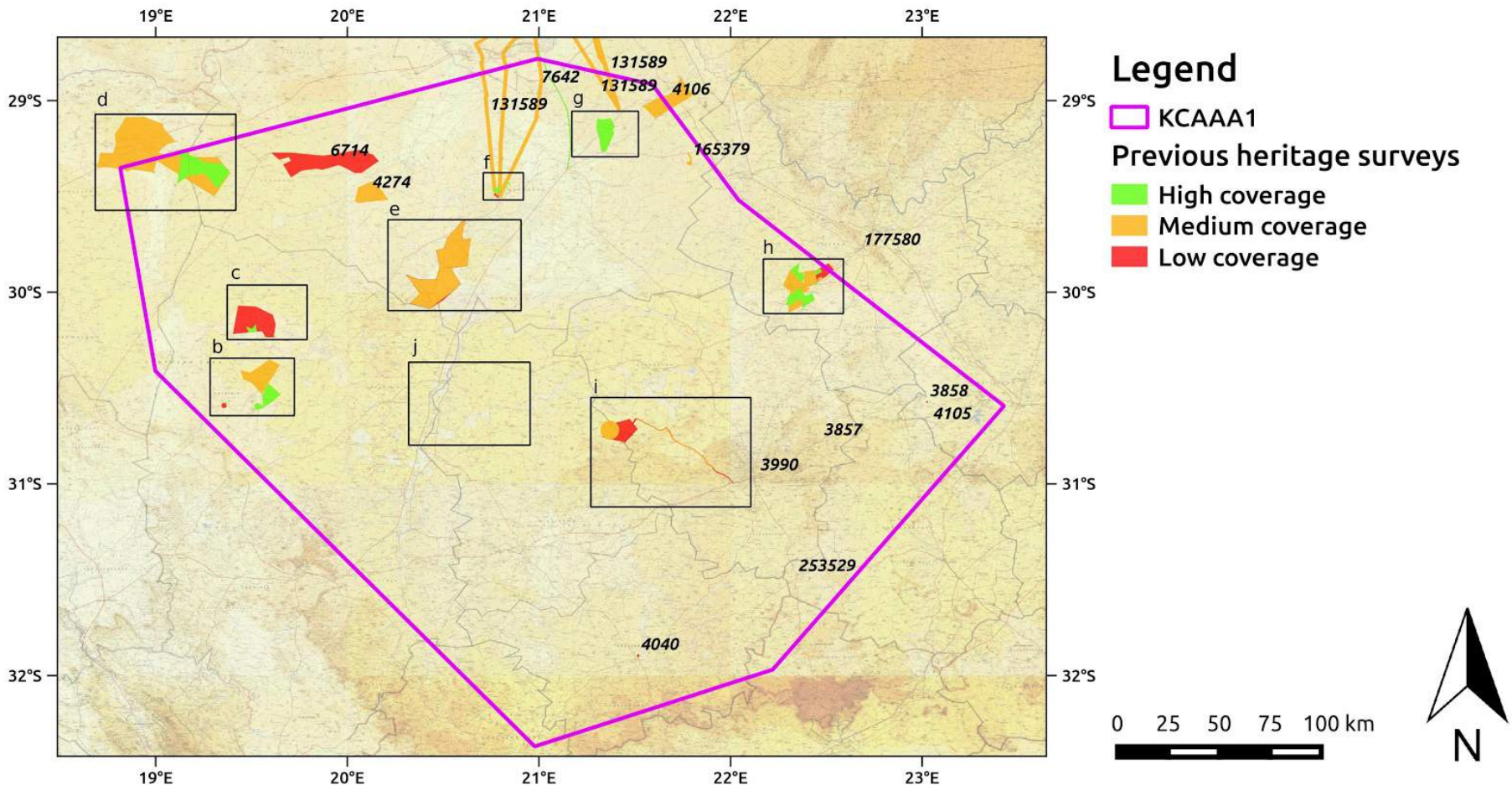

Figure 2a. HIAs Map (excluding PIAs). Previous Heritage Impact Assessments (excluding Palaeontological Impact Assessments) done in KCAAA1, with SAHRIS NID labels indicated (see Figs. 2.b-j for inset maps).

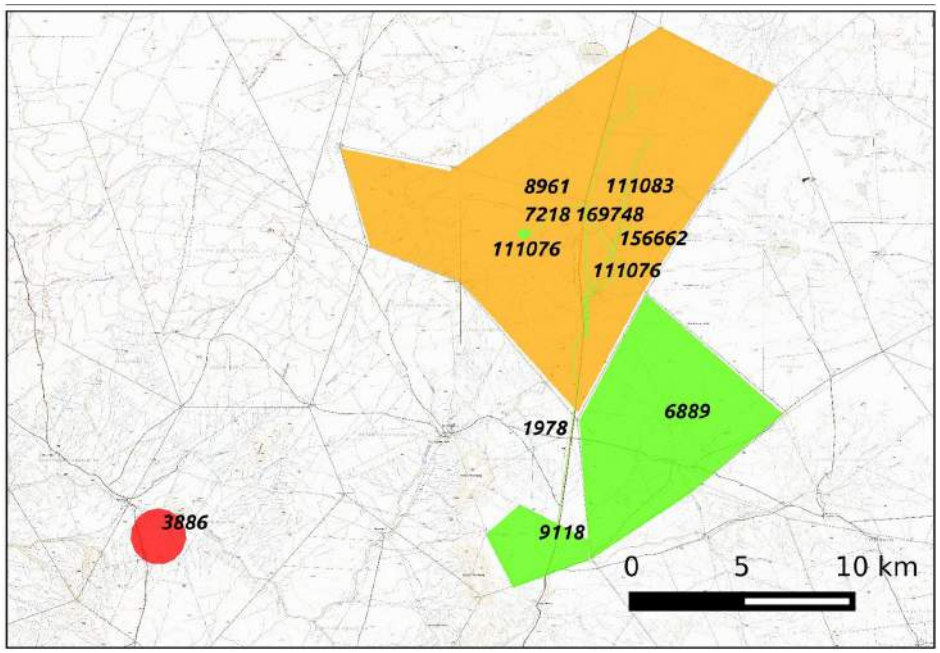

Figure 2b. HIAs inset map.

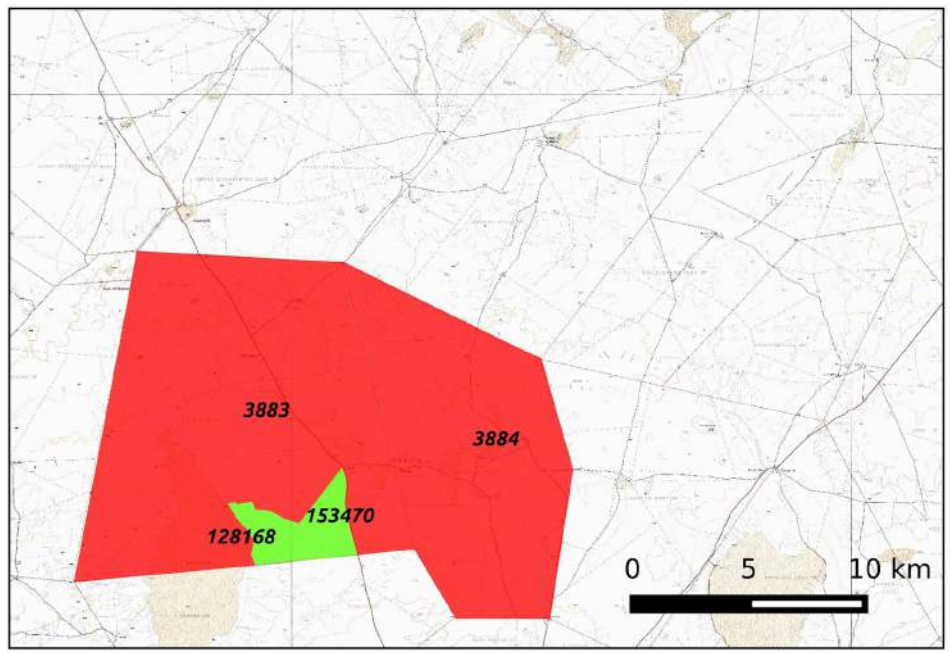

Figure 2c. HIAs inset map.

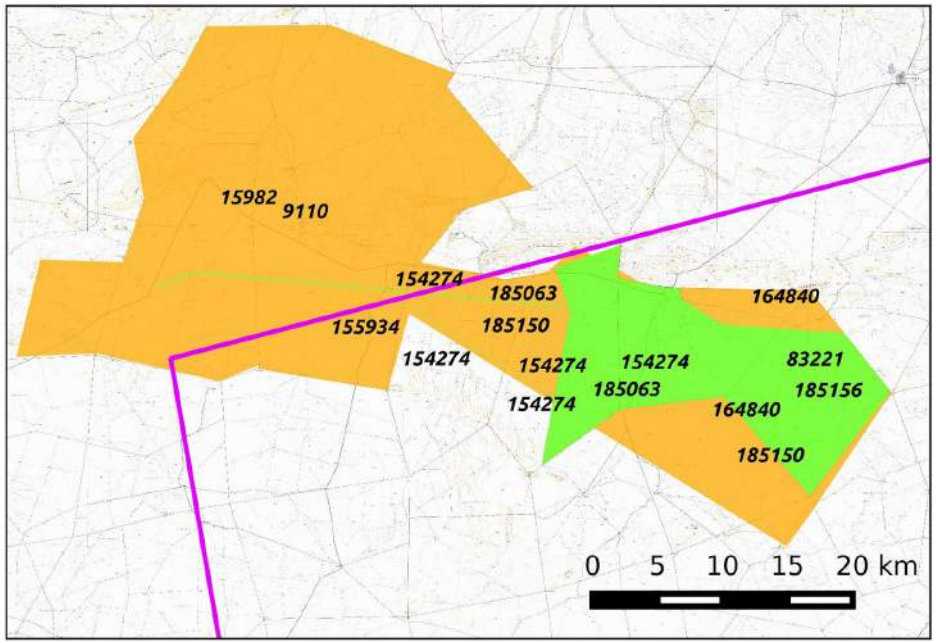

Figure 2d. HIAs inset map.

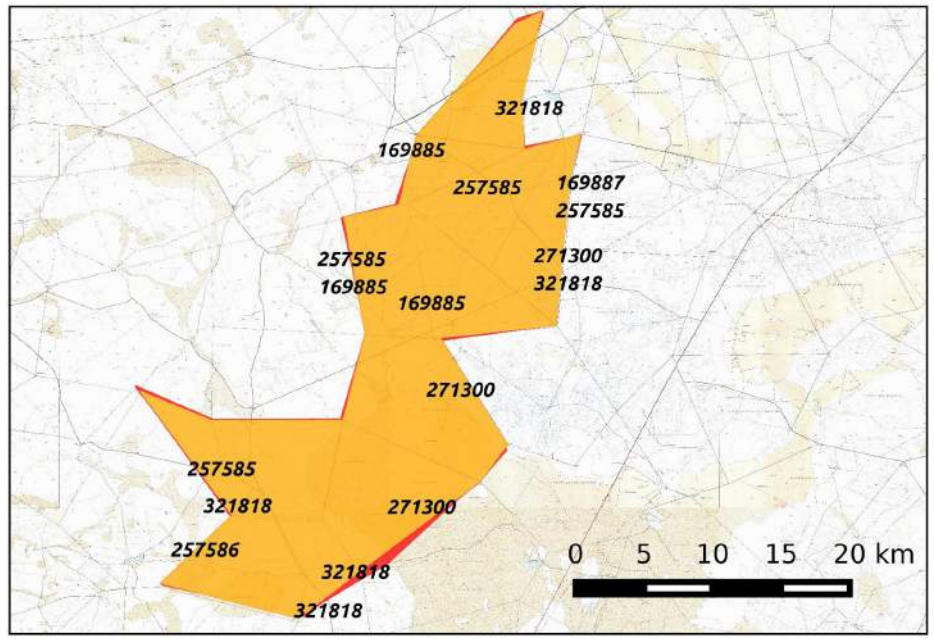

Figure 2e. HIAs inset map.

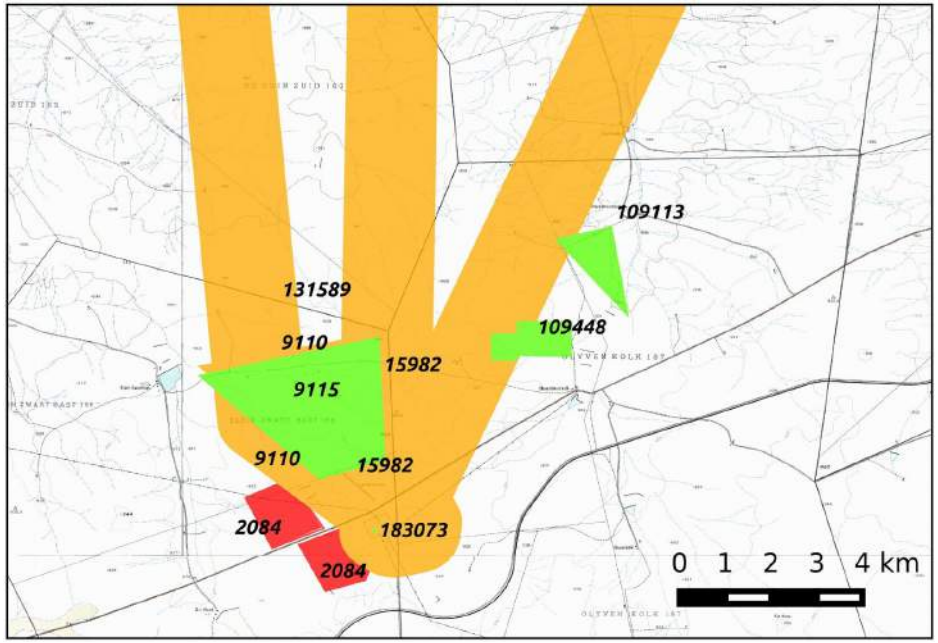

Figure 2f. HIAs inset map.

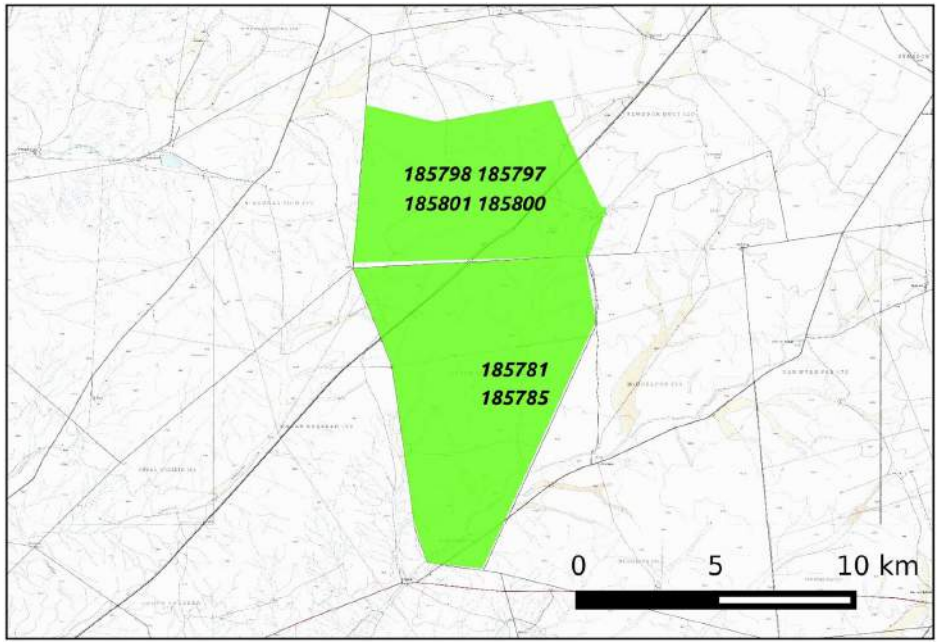

Figure 2g. HIAs inset map.

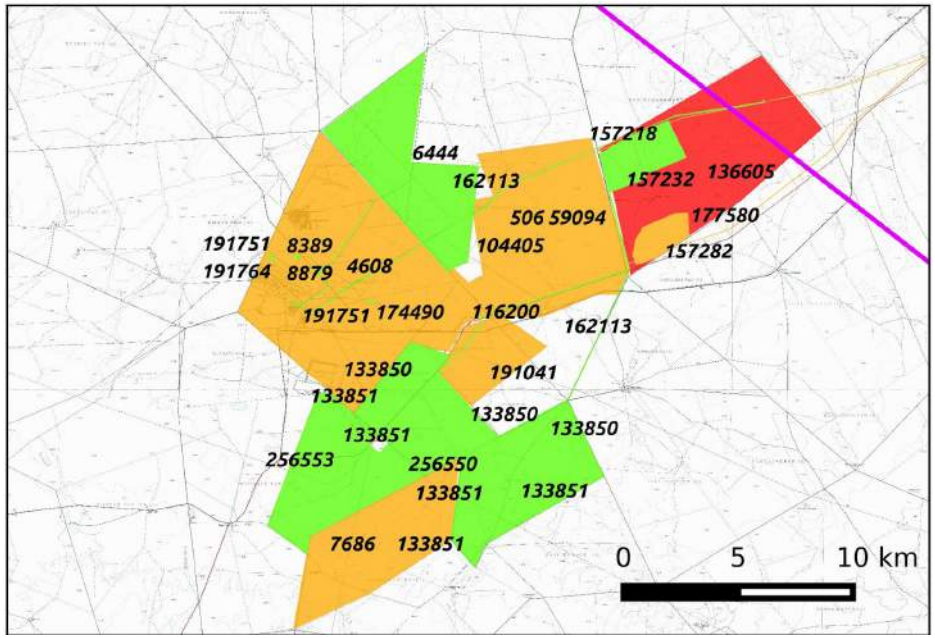

Figure 2h. HIAs inset map.

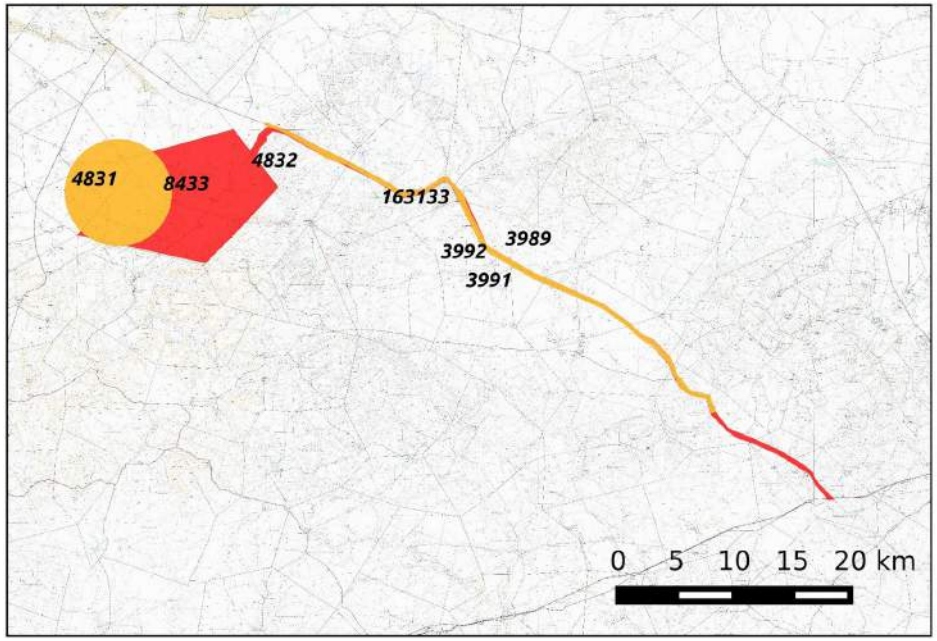

Figure 2i. HIAs inset map.

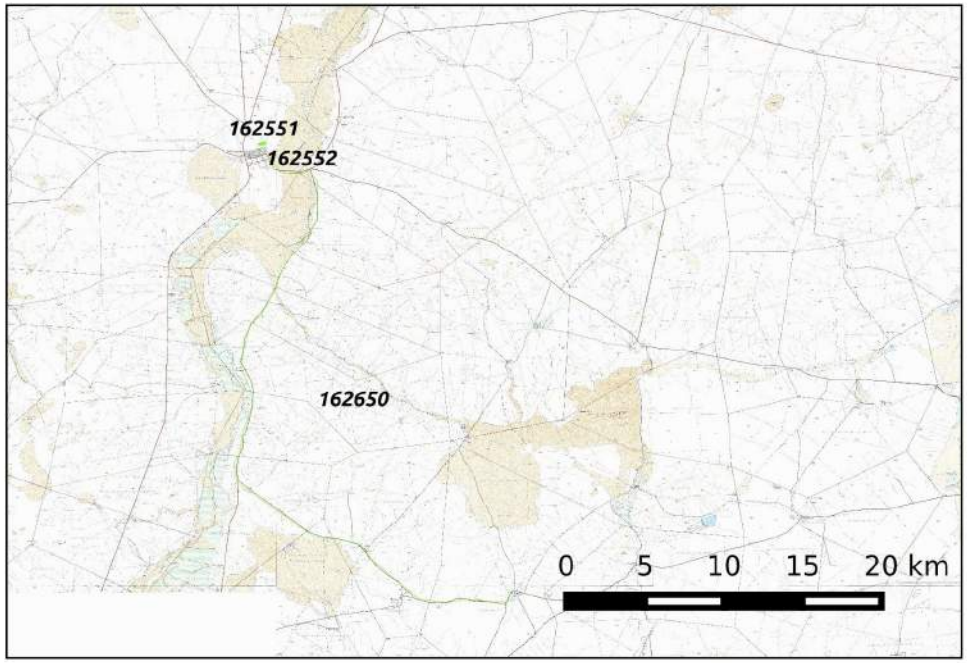

Figure 2j. HIAs inset map.

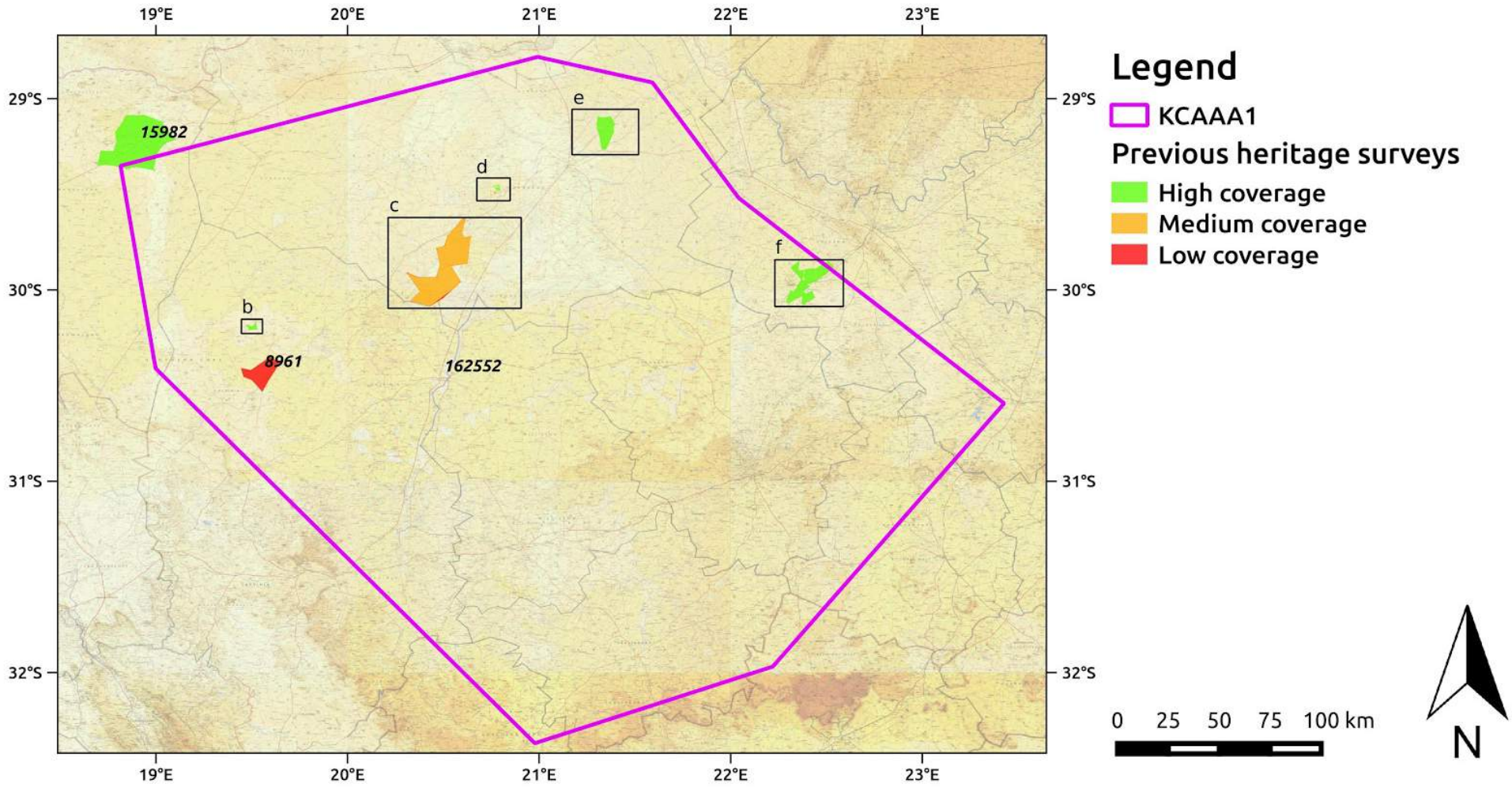

Figure 3a. PIAs Map. Previous Palaeontological Impact Assessments done in KCAAA1, with SAHRIS NID labels indicated (see Figs. 3b-f for inset maps).

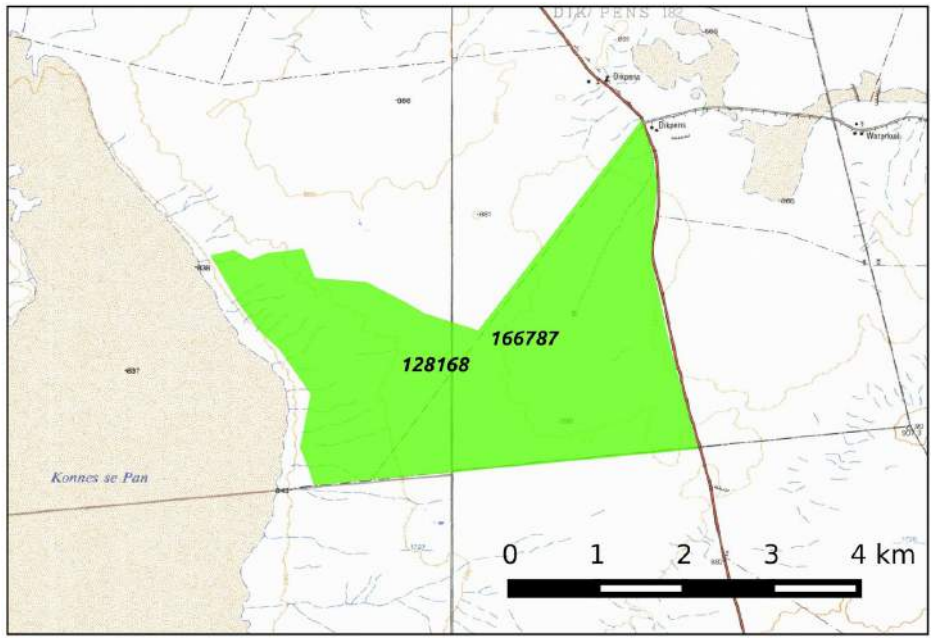

Figure 3b. PIAs inset map.

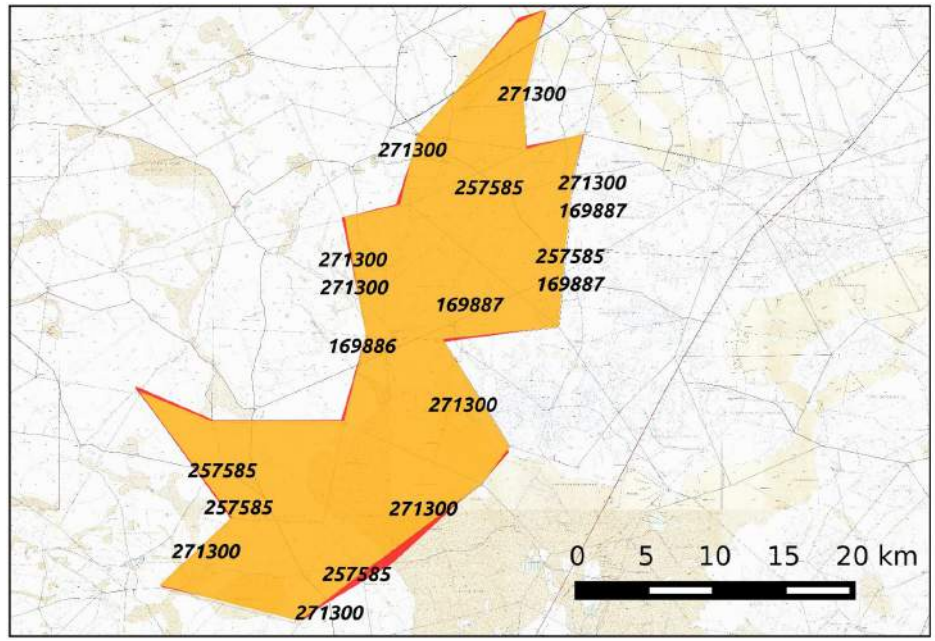

Figure 3c. PIAs inset map.

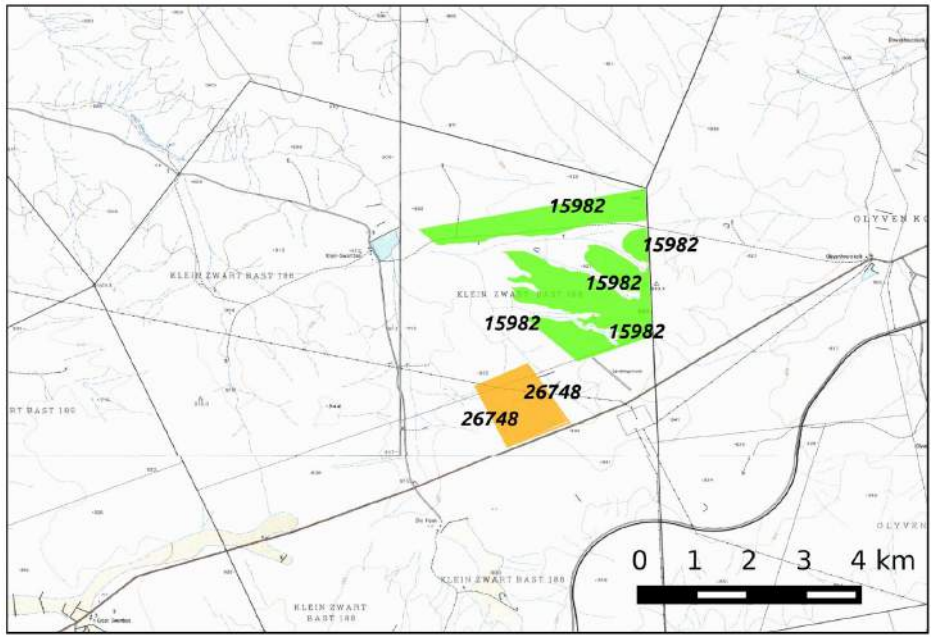

Figure 3d. PIAs inset map.

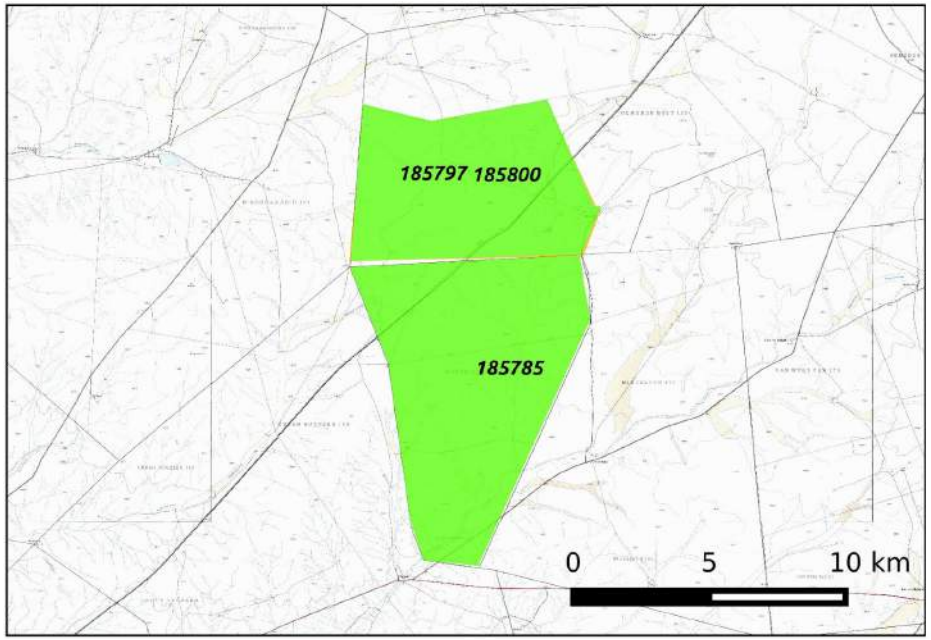

Figure 3e. PIAs inset map.

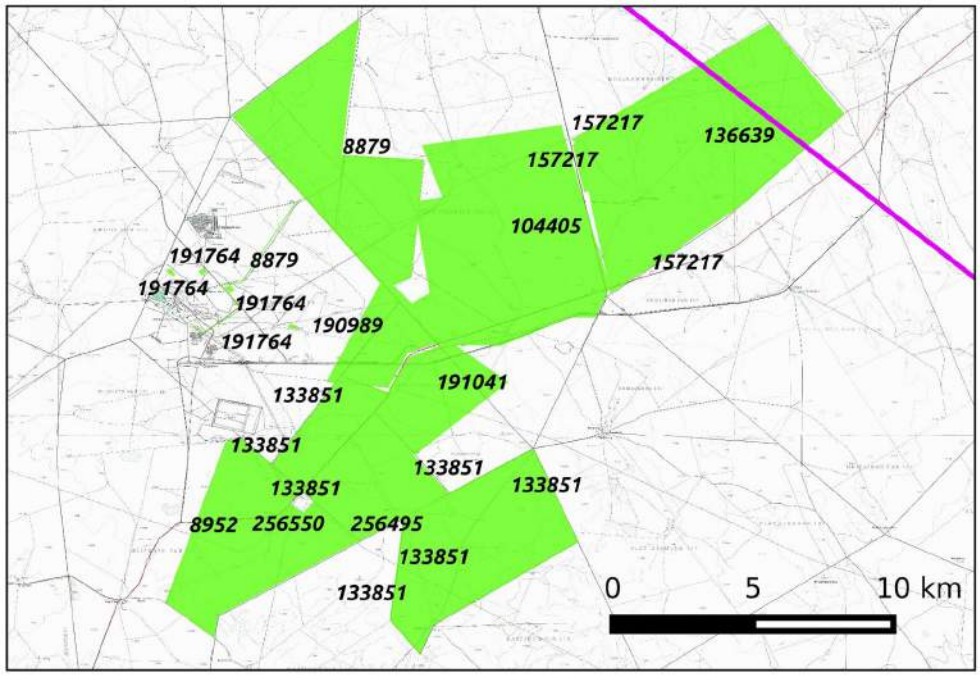

Figure 3f. PIAs inset map.

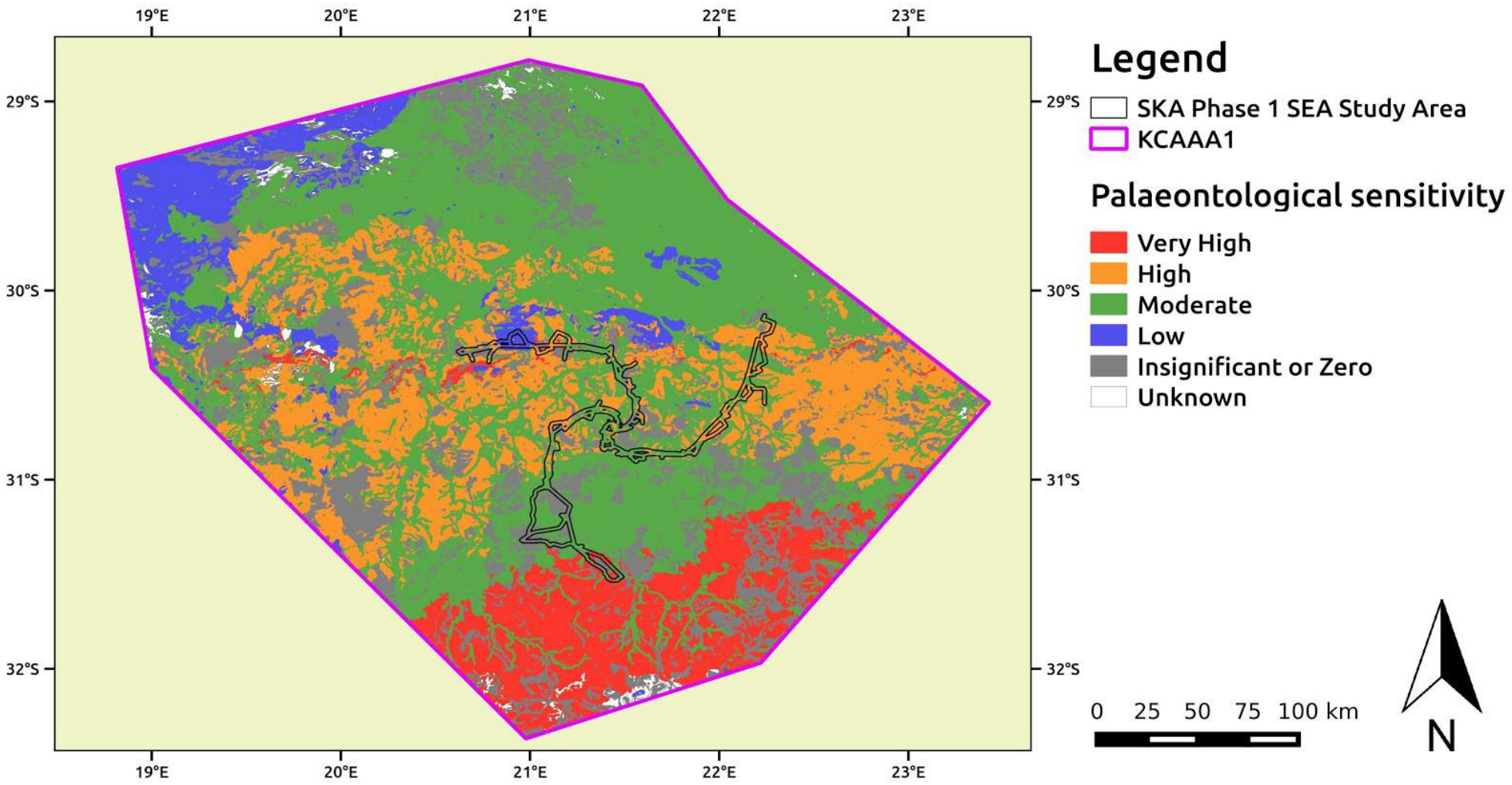

Figure 4a. Palaeo Map. Palaeosensitivity of KCAAA1. See Appendix 5.4 for full guide to the legend.

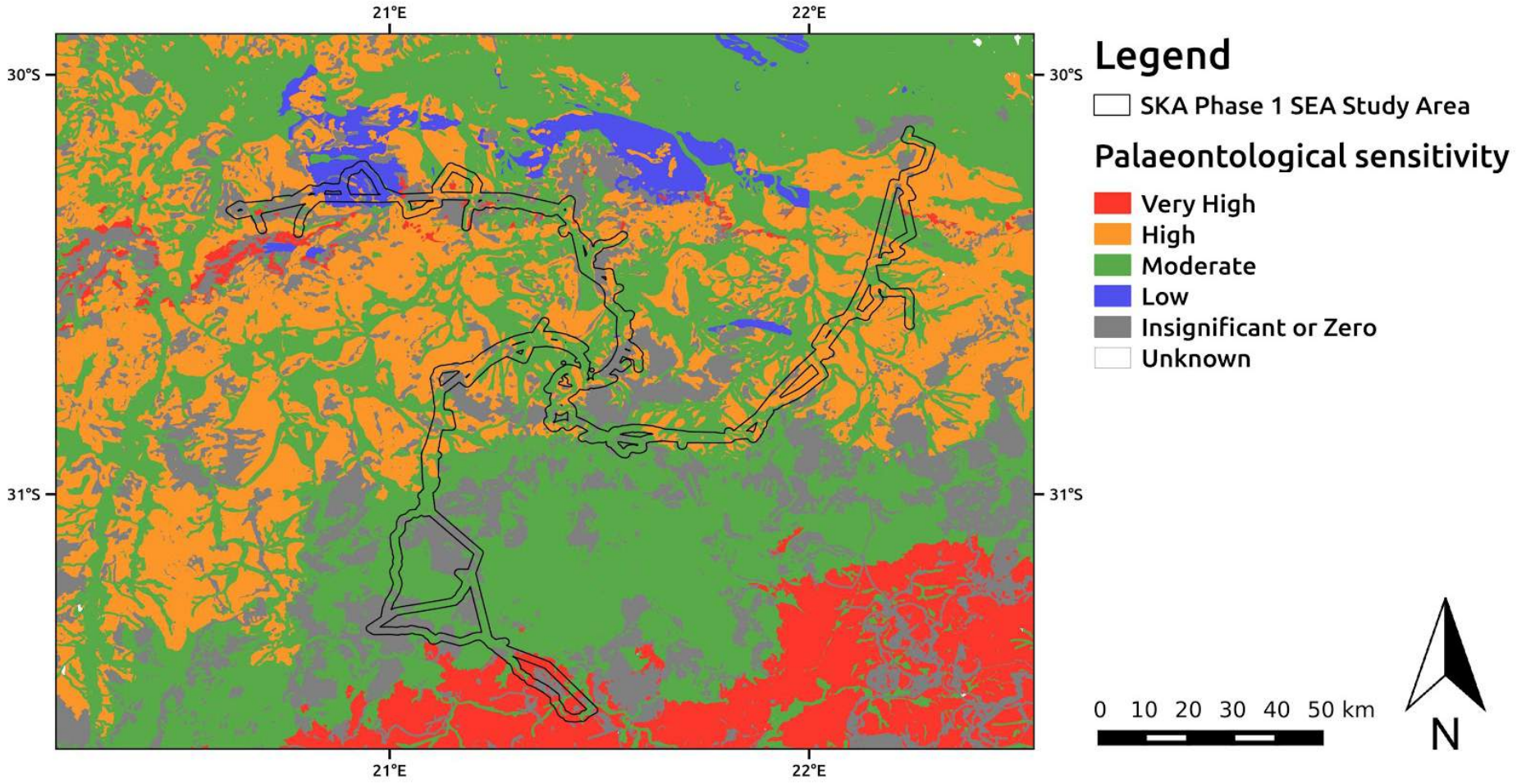

Figure 4. Palaeo Map. Palaeosensitivity of the SKA Phase 1 SEA Study Area. See Appendix 5.4 for full guide to the legend.

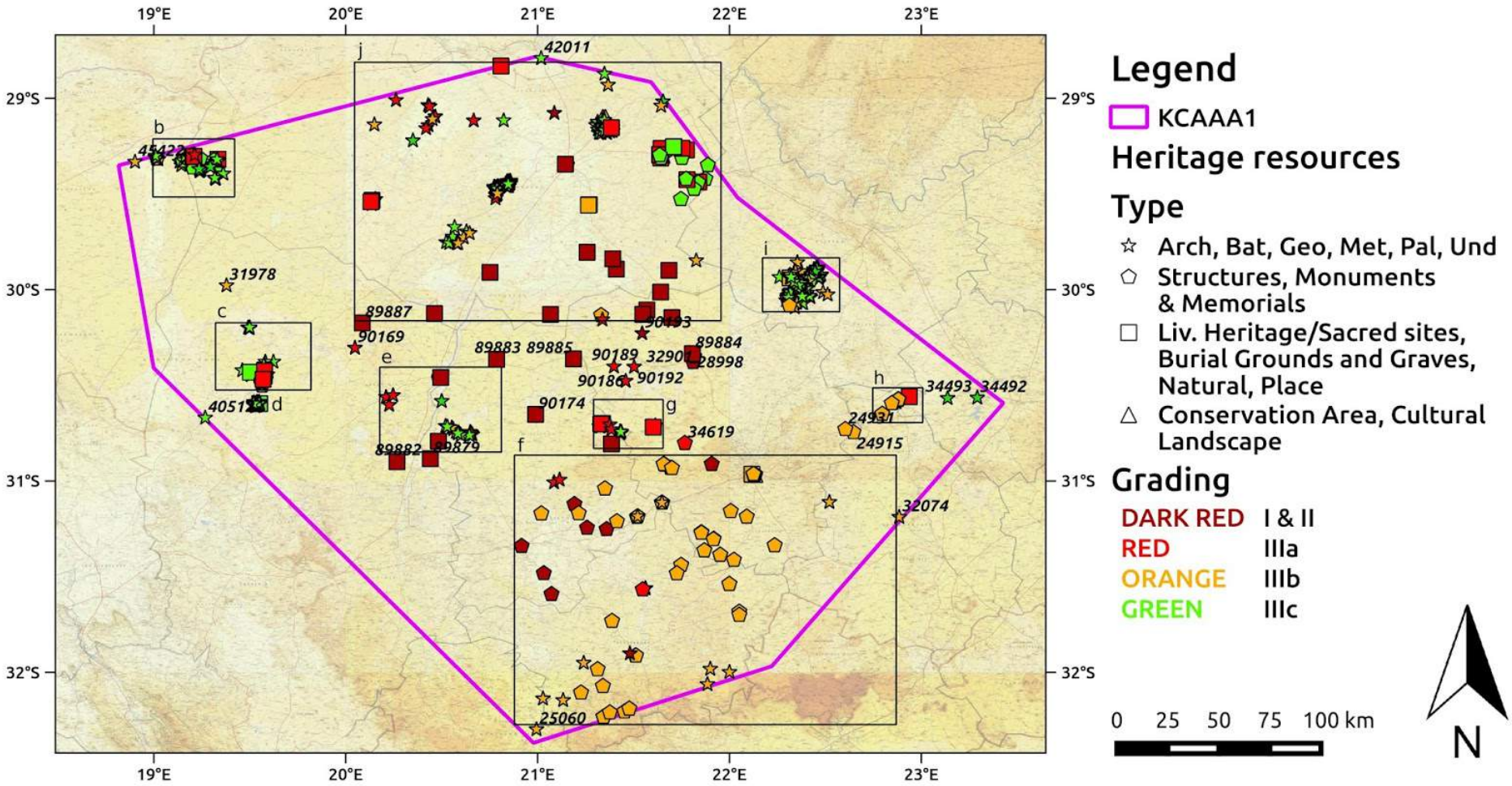

Figure 5a. Heritage Resources Map. Heritage resources previously identified in KCAAA1, with SAHRIS site IDs indicated (see Figs. 5.b-j for inset maps).

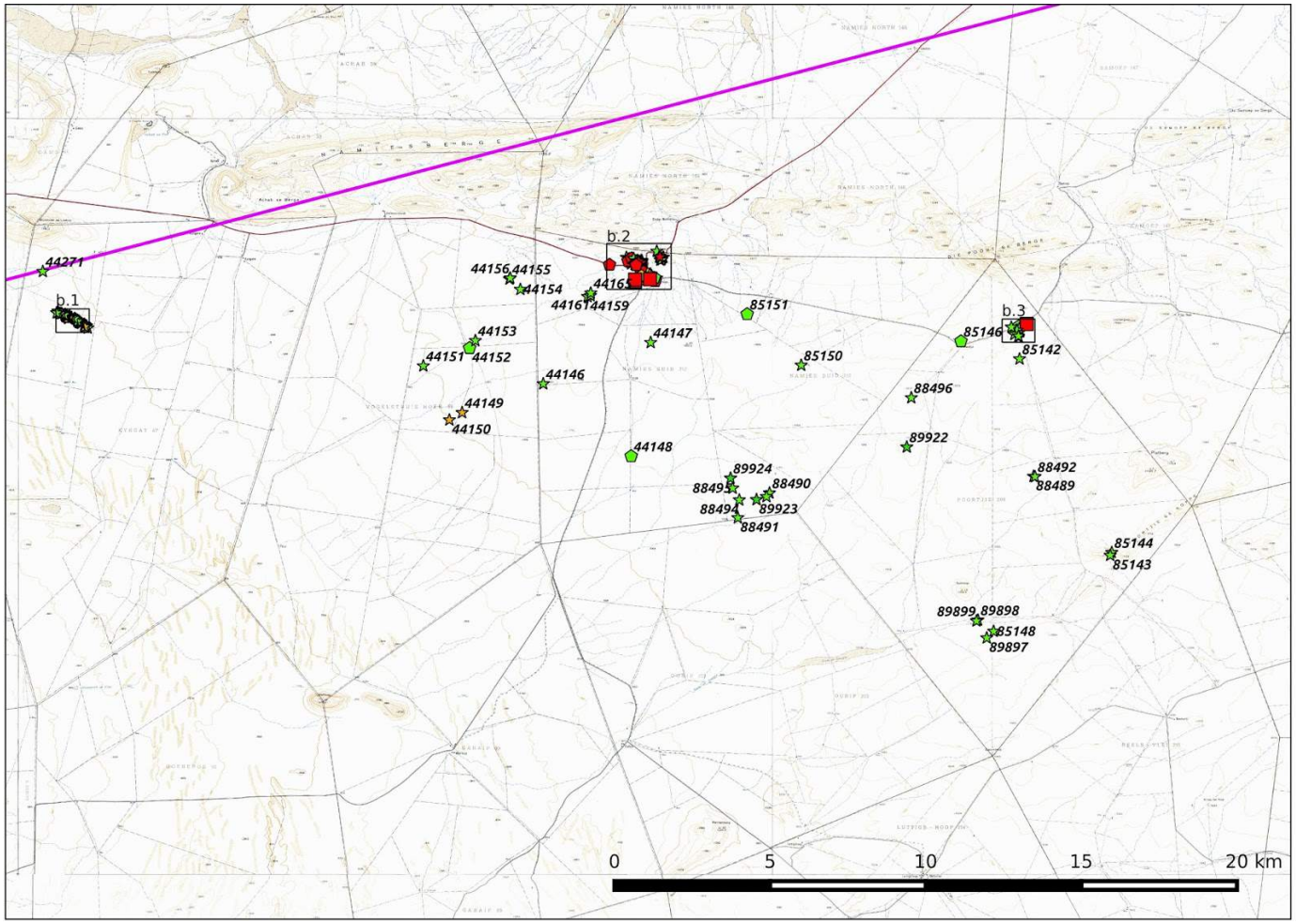

Figure 5b. Heritage resources inset map.

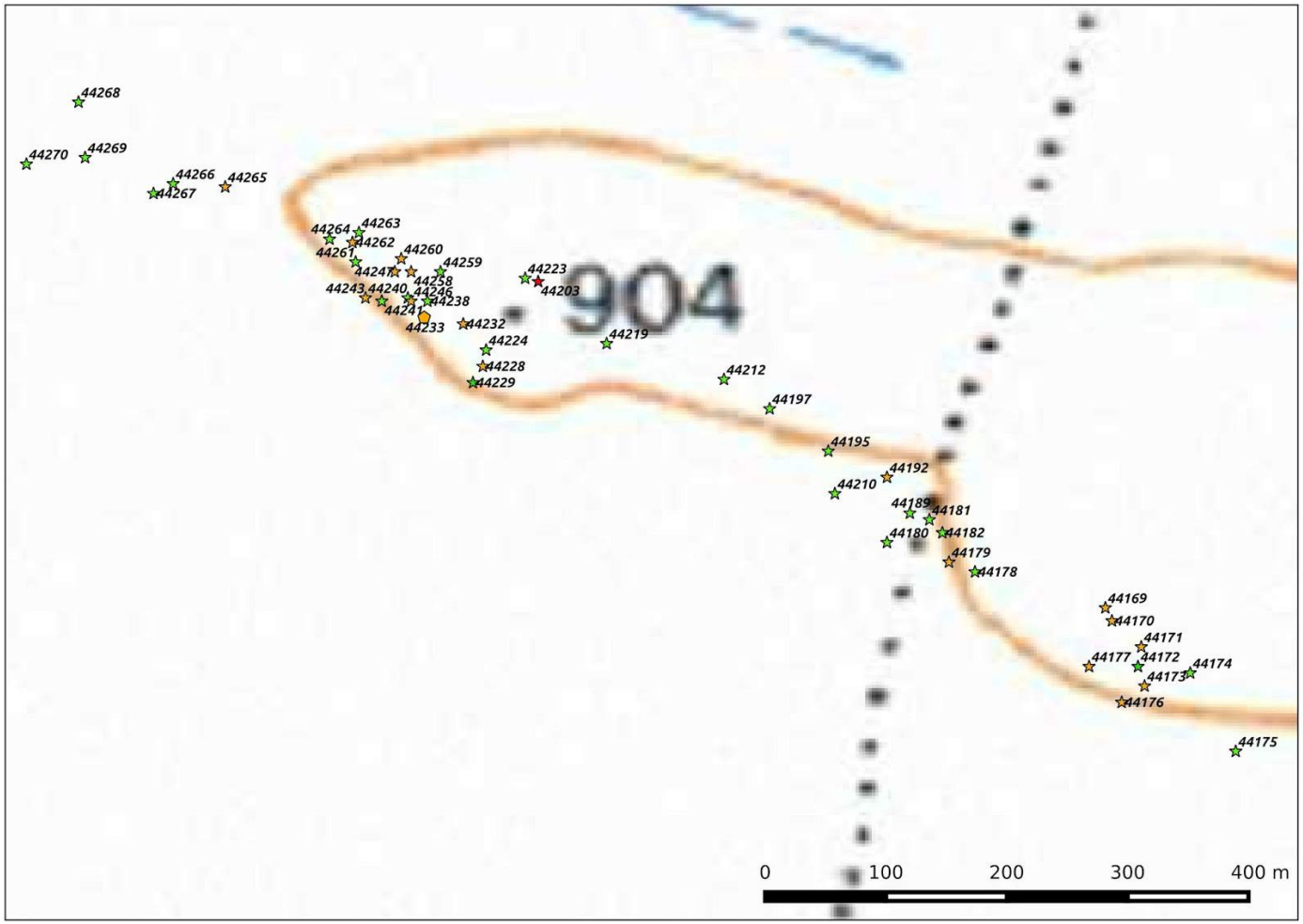

Figure 5b.1. Heritage resources inset map.

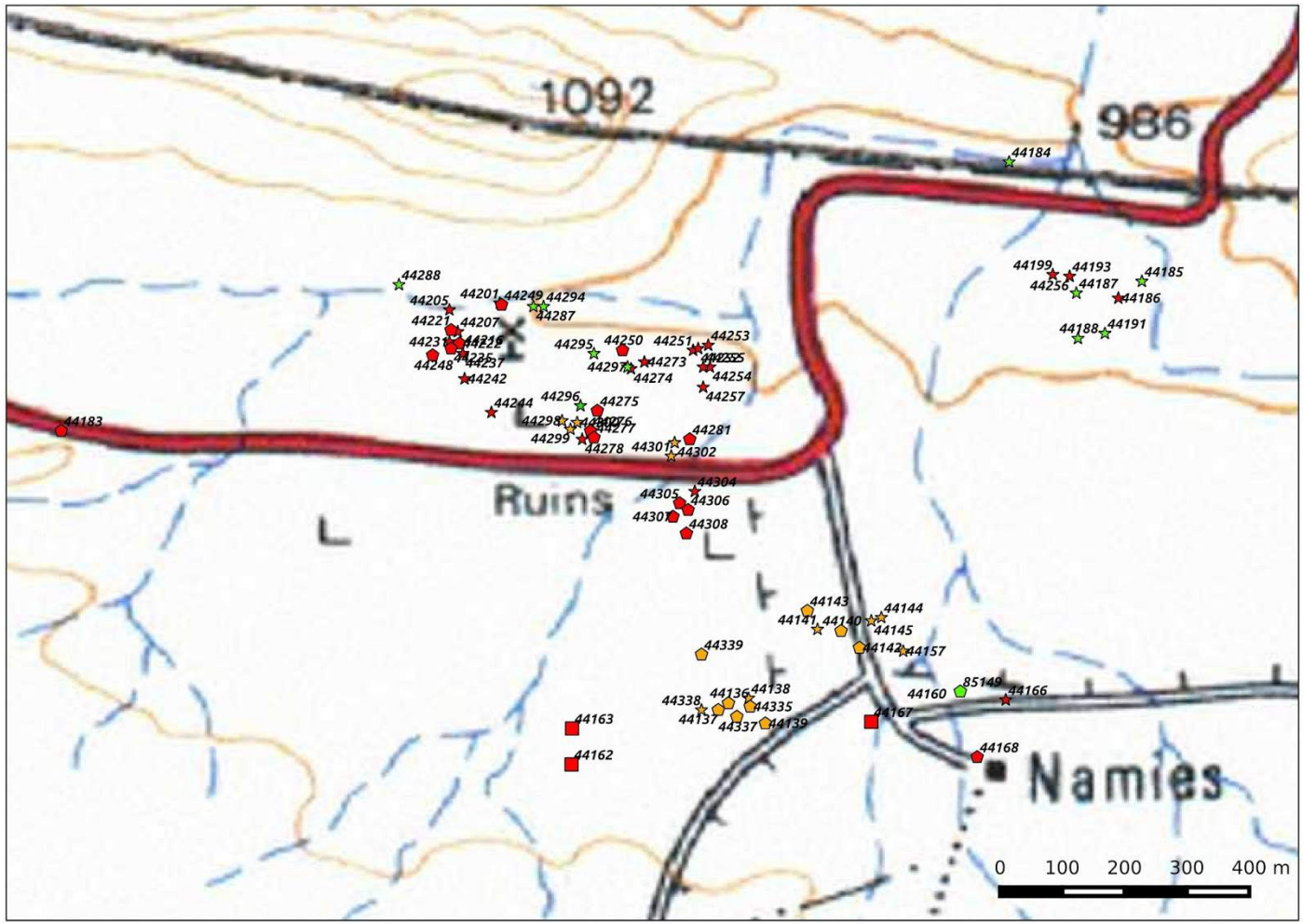

Figure 5b.2. Heritage resources inset map.

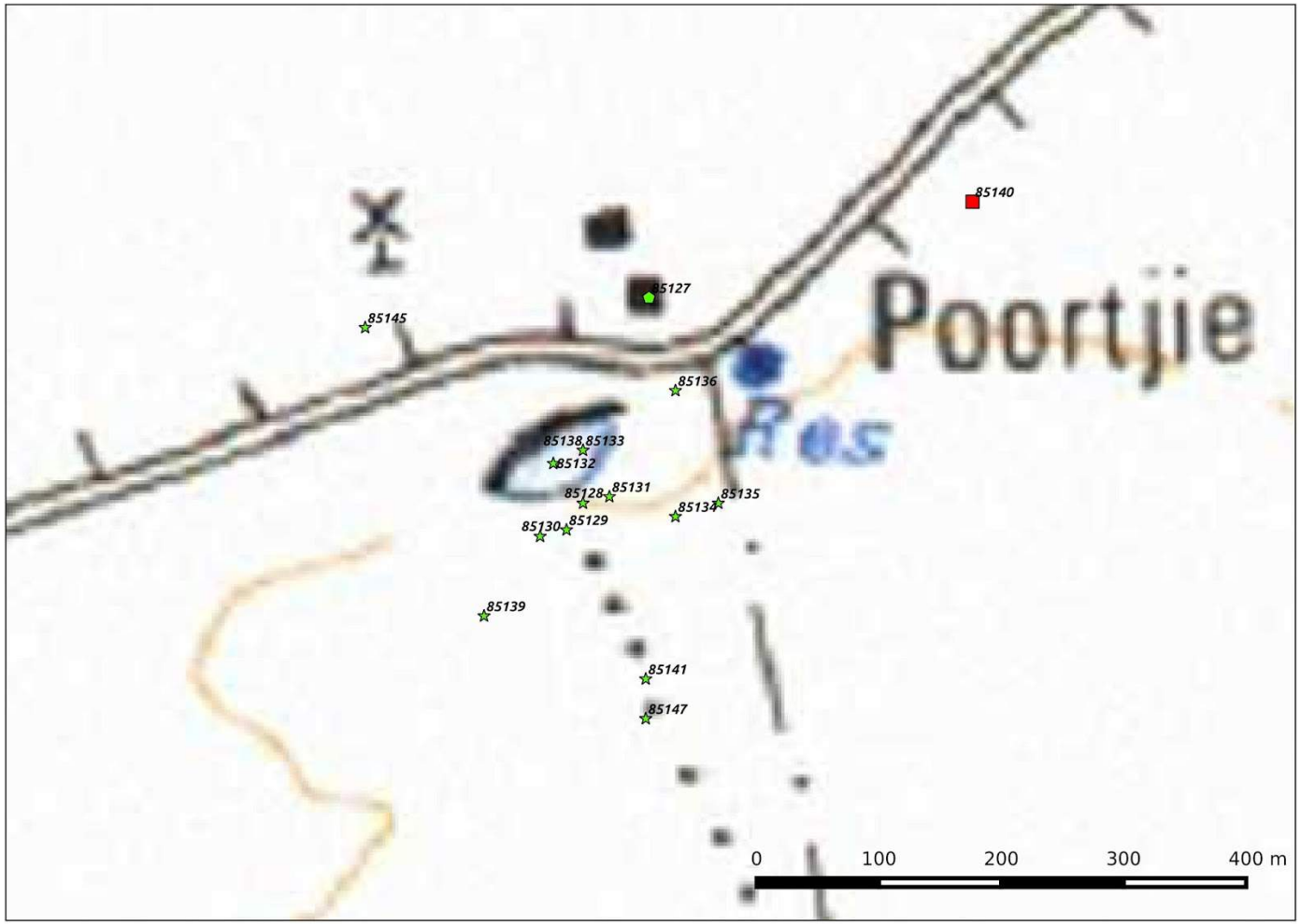

Figure 5b.3. Heritage resources inset map.

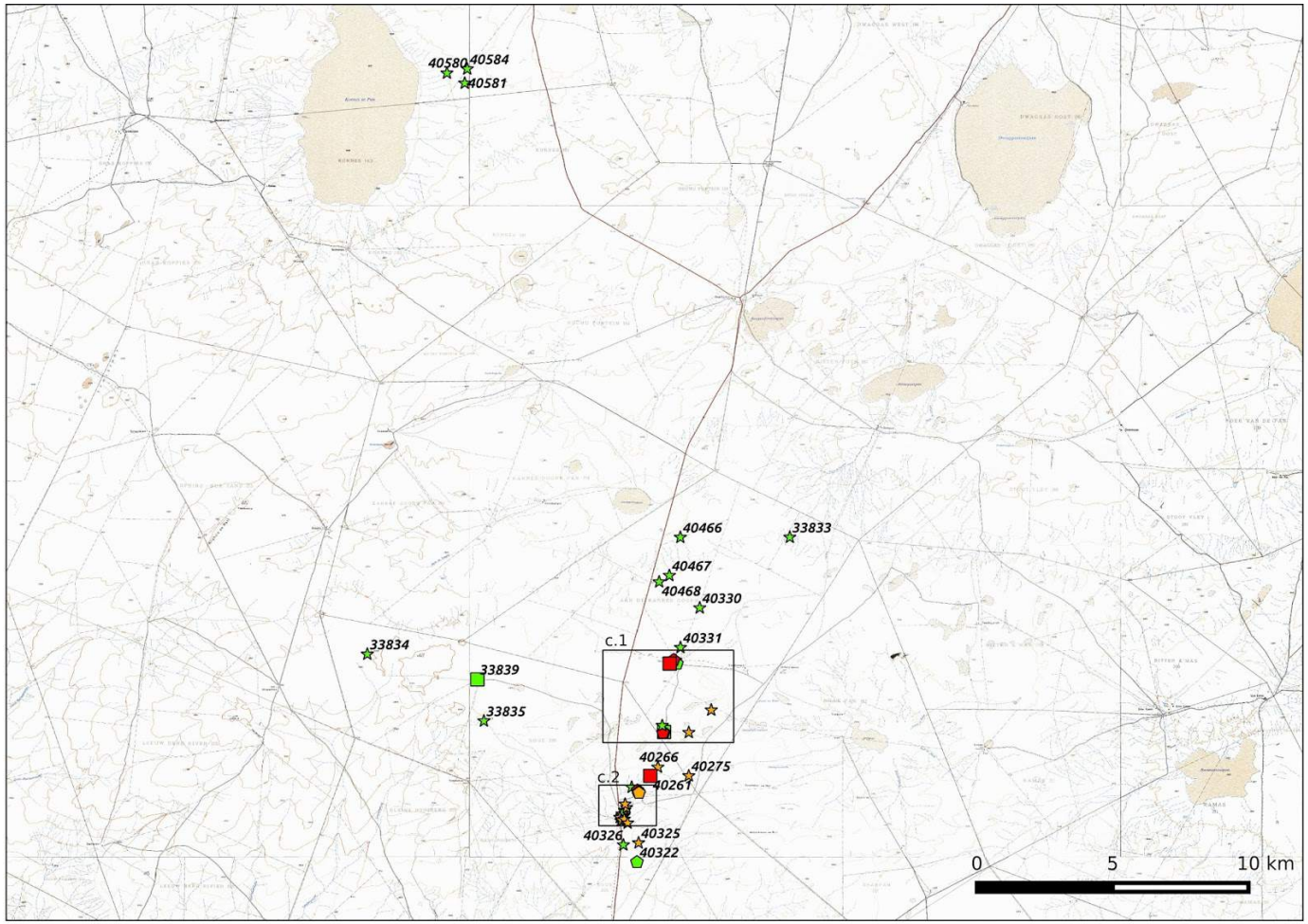

Figure 5c. Heritage resources inset map.

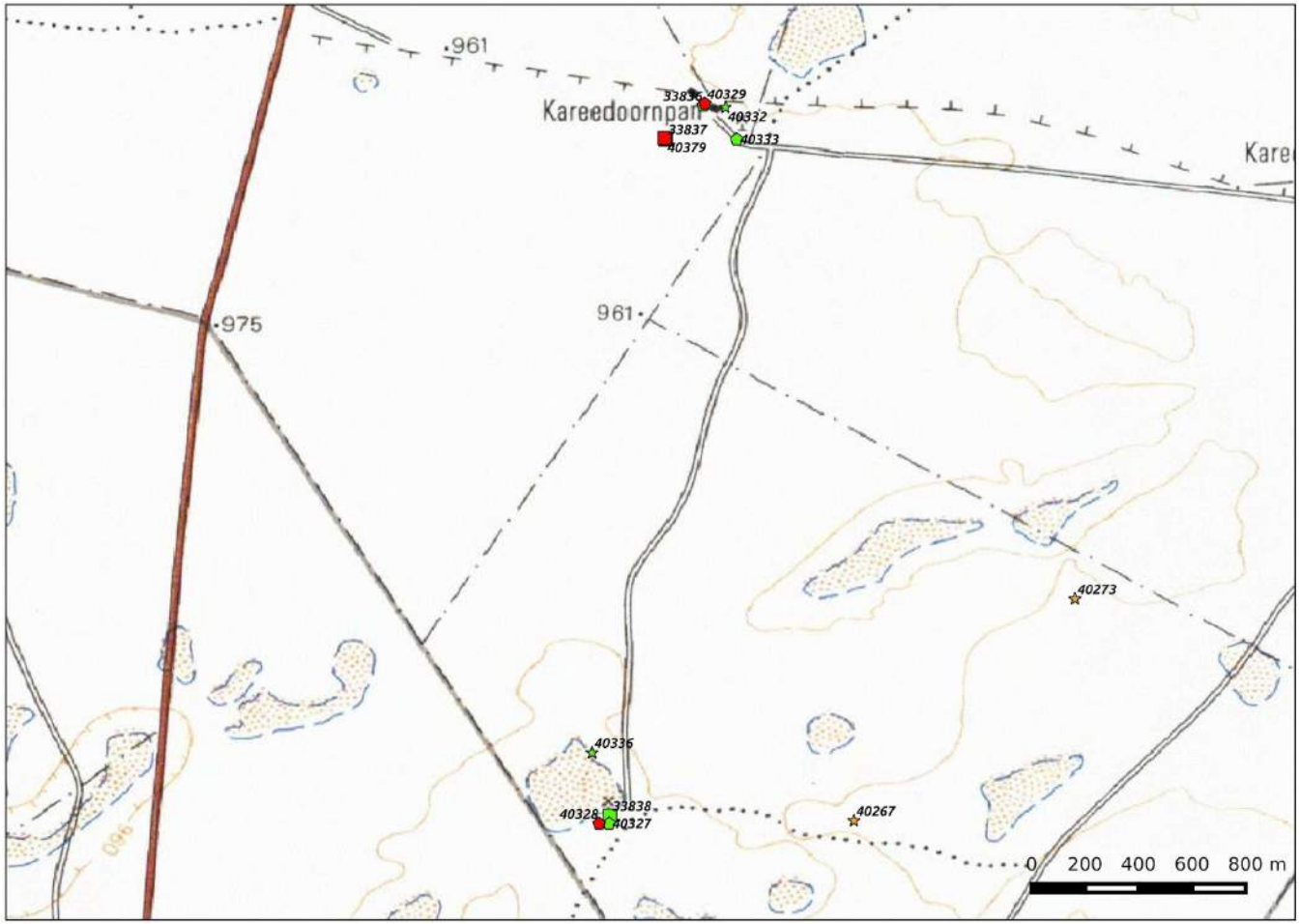

Figure 5c.1. Heritage resources inset map.

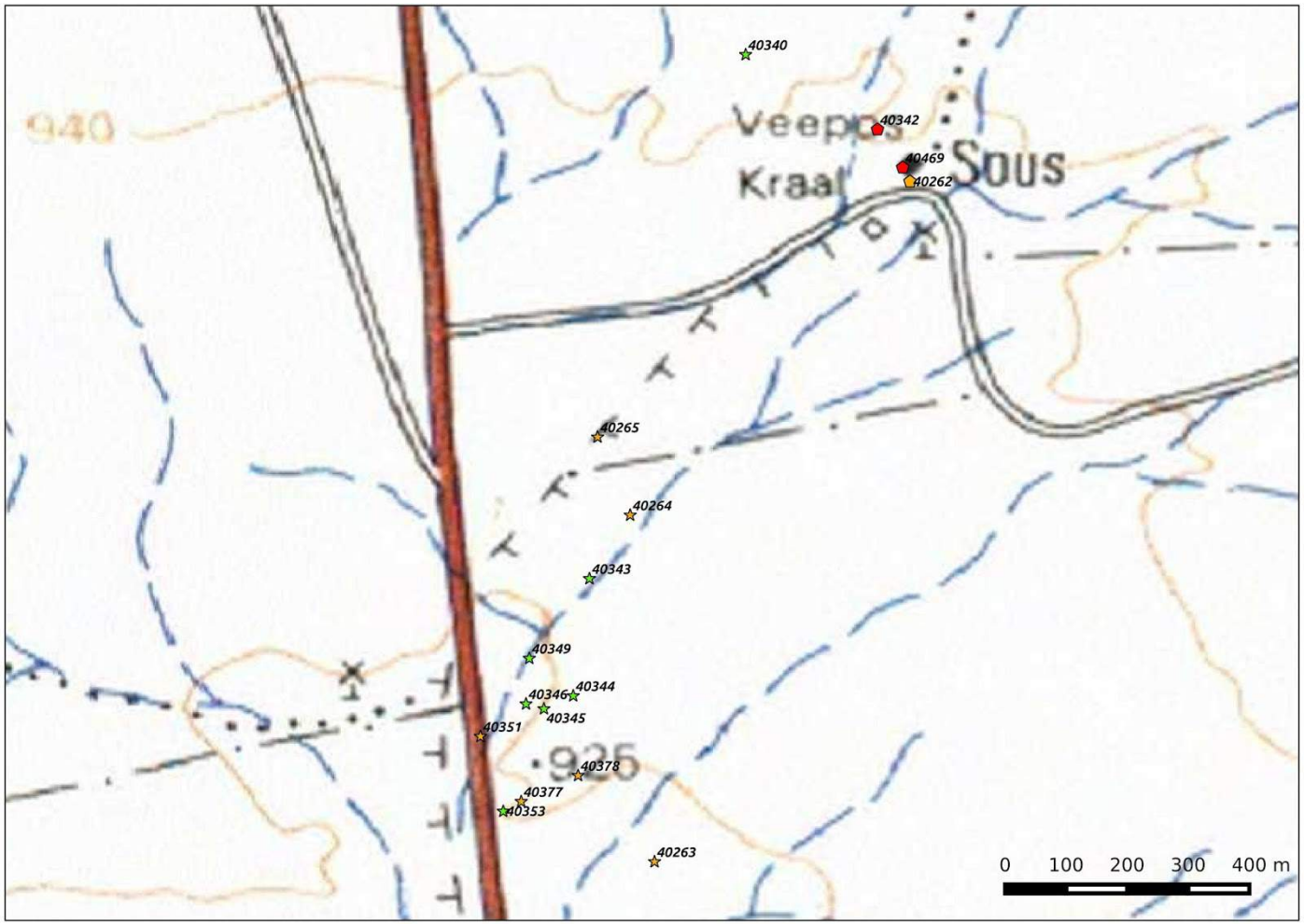

Figure 5c.2. Heritage resources inset map.

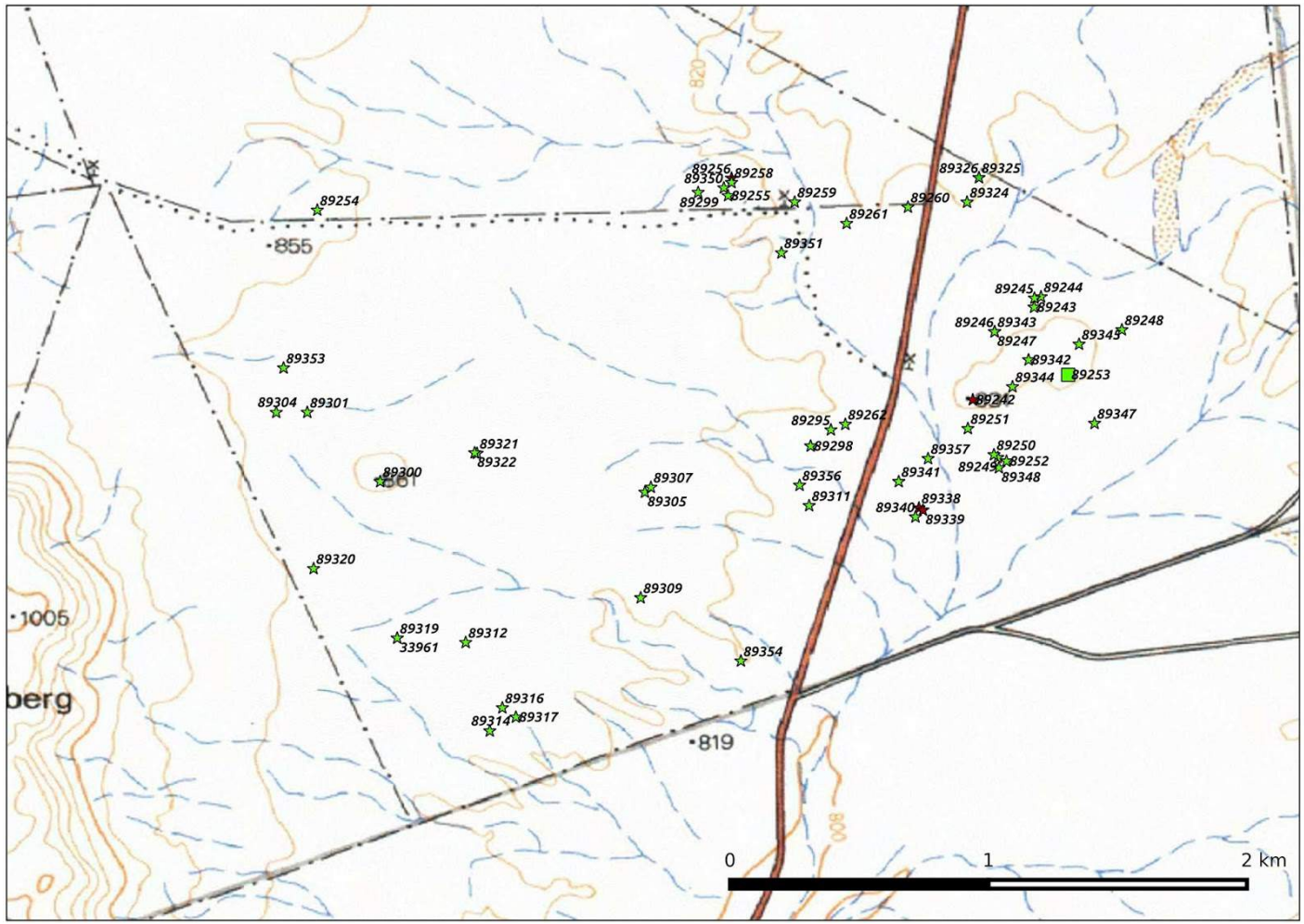

Figure 5d. Heritage resources inset map.

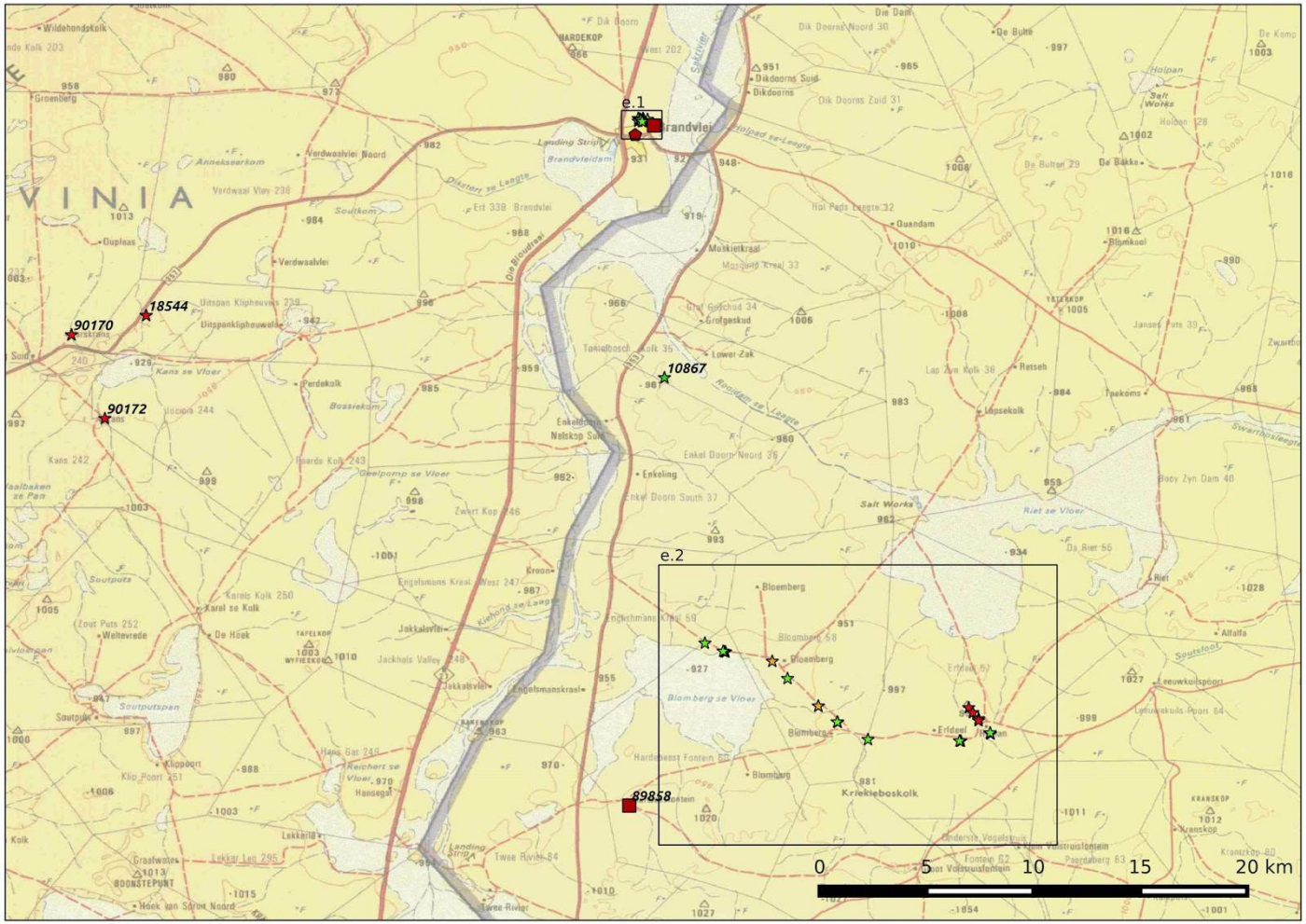

Figure 5e. Heritage resources inset map.

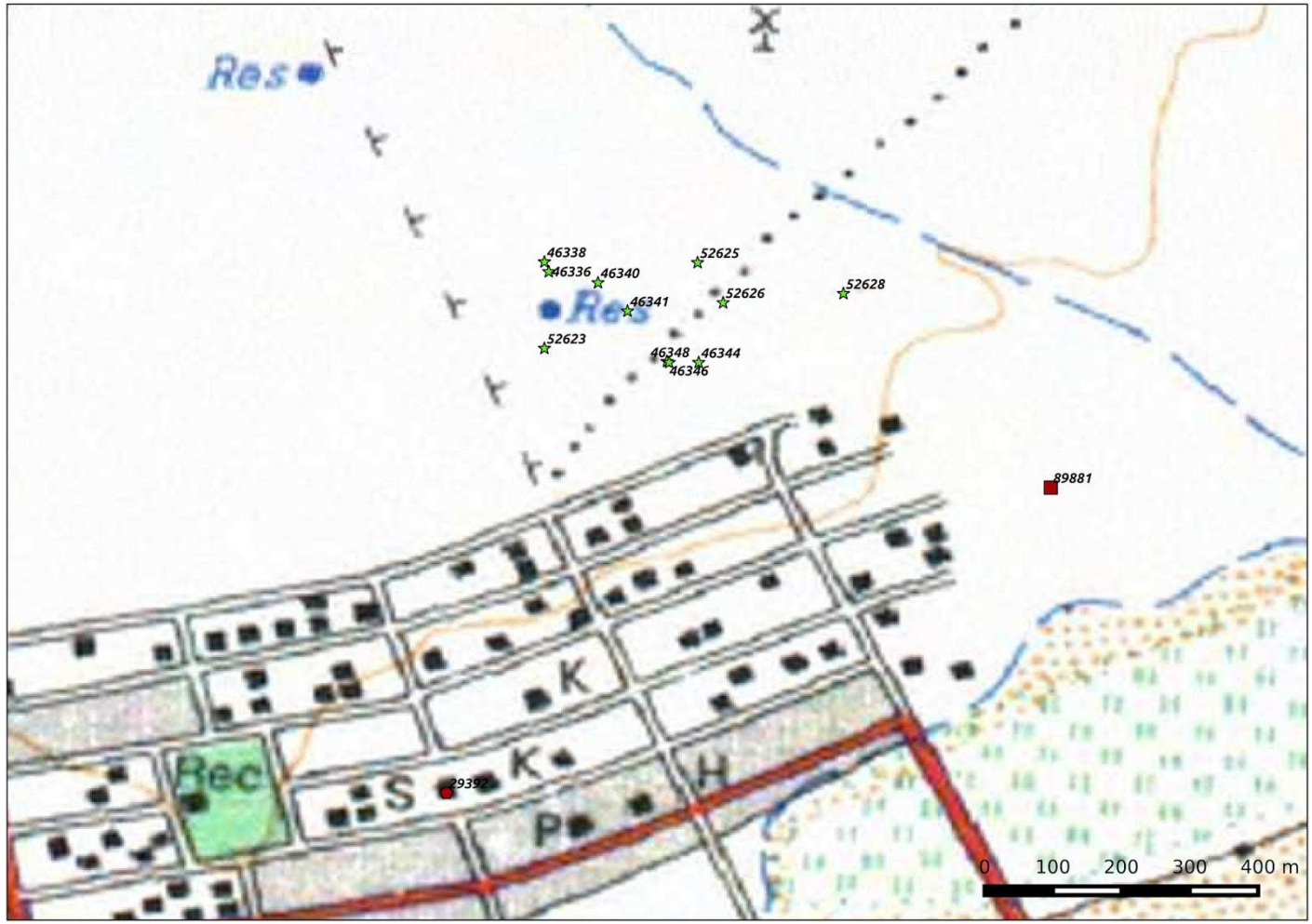

Figure 5e.1. Heritage resources inset map.

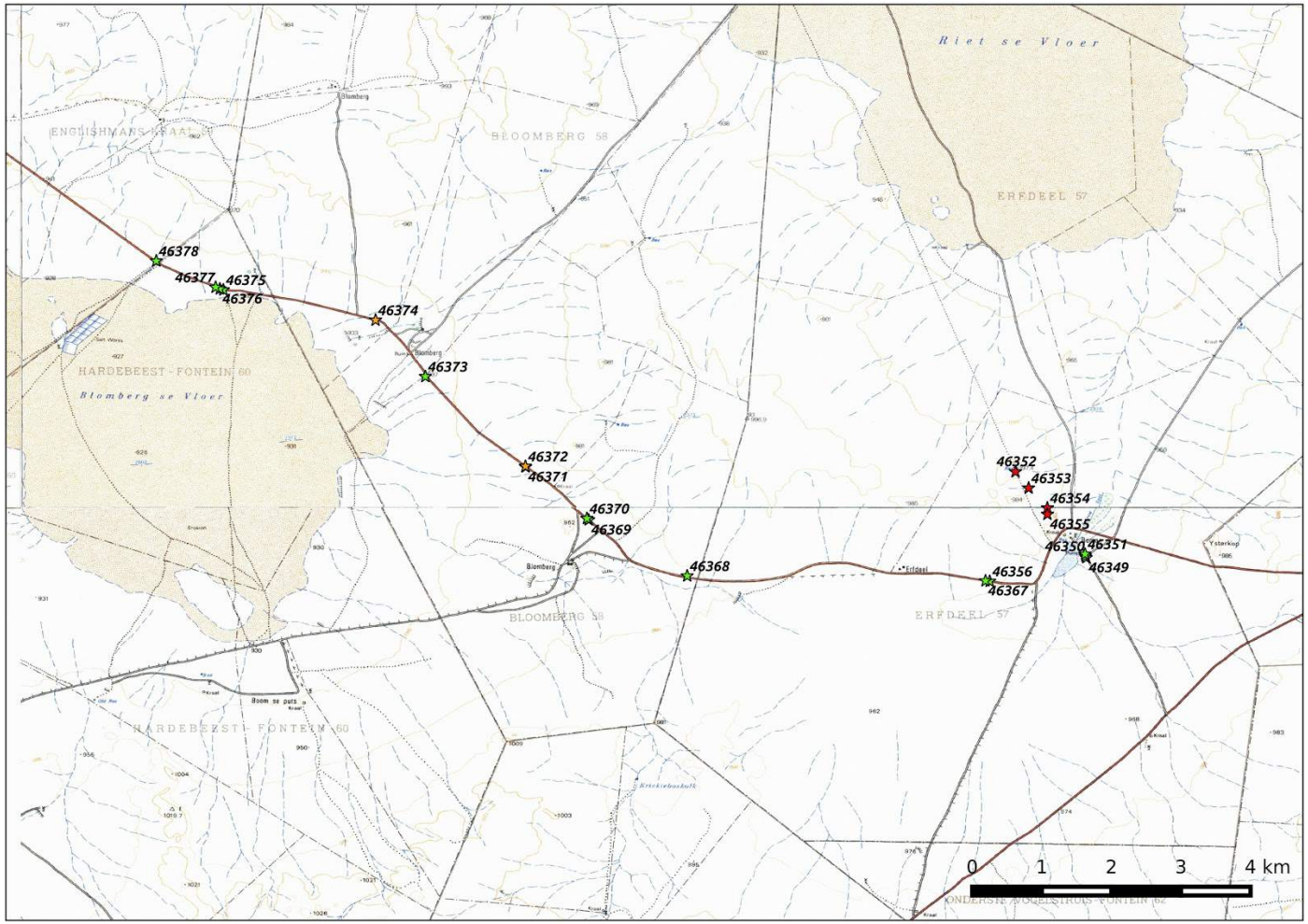

Figure 5e.2. Heritage resources inset map.

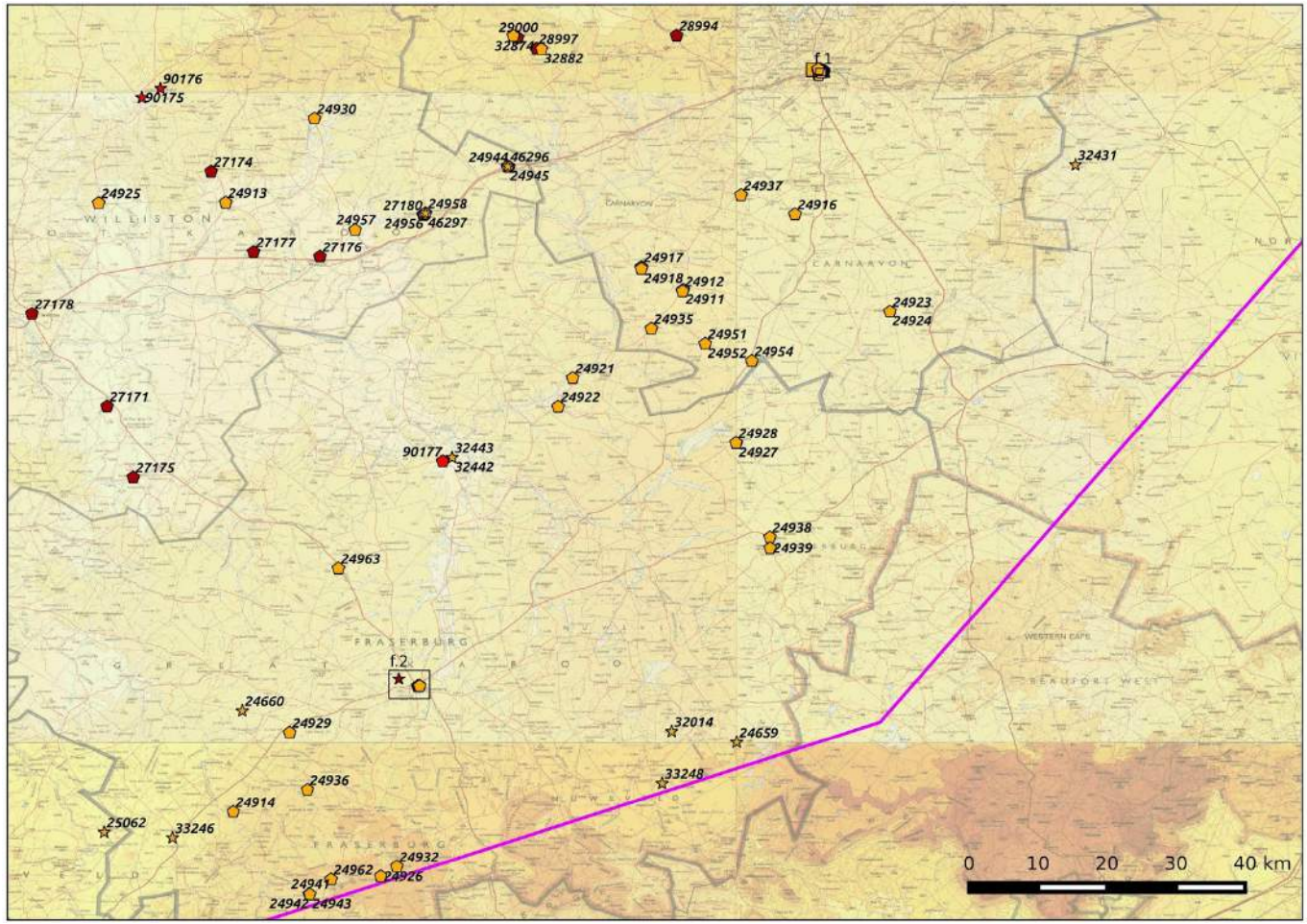

Figure 5f. Heritage resources inset map.

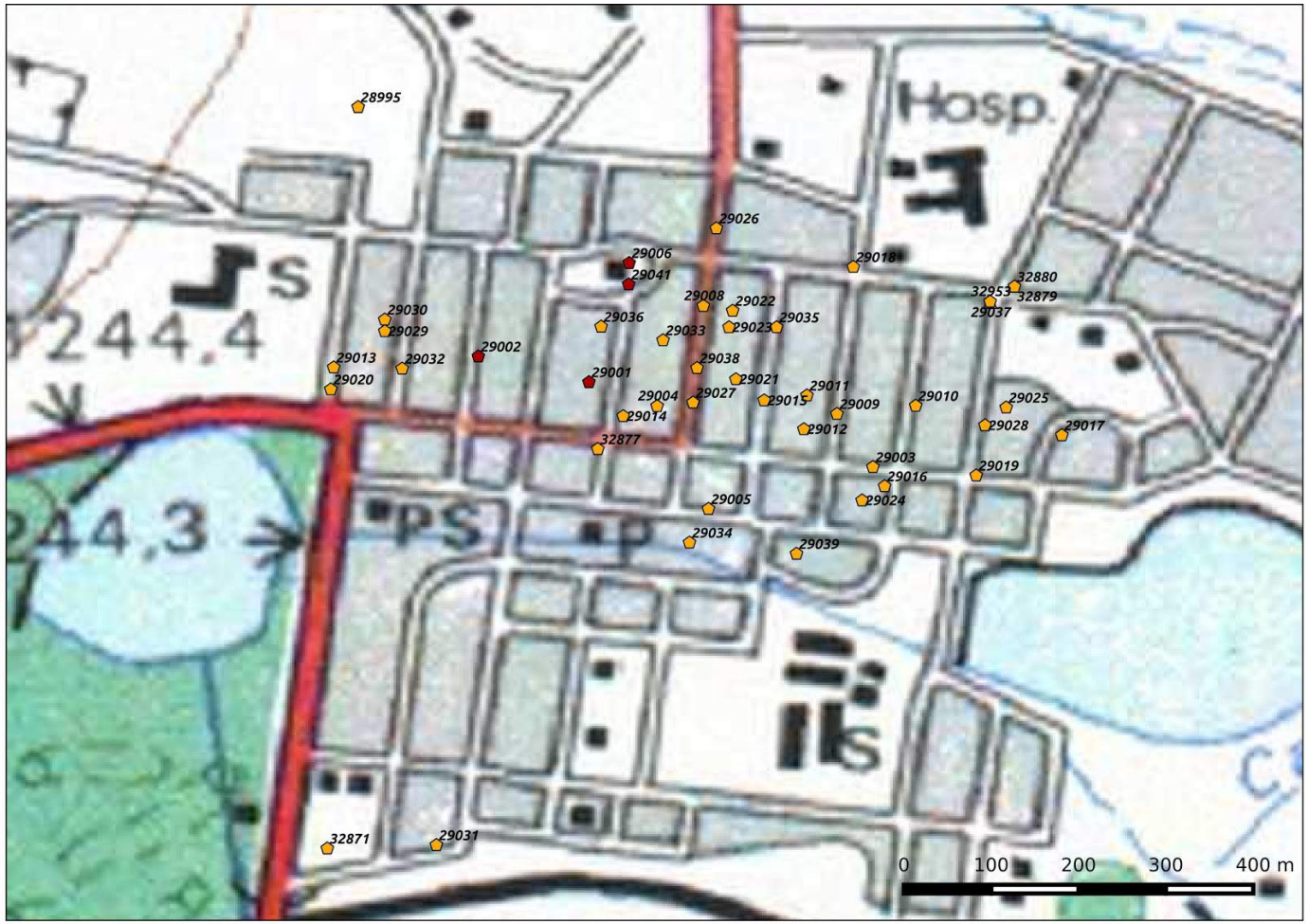

Figure 5f.1. Heritage resources inset map.

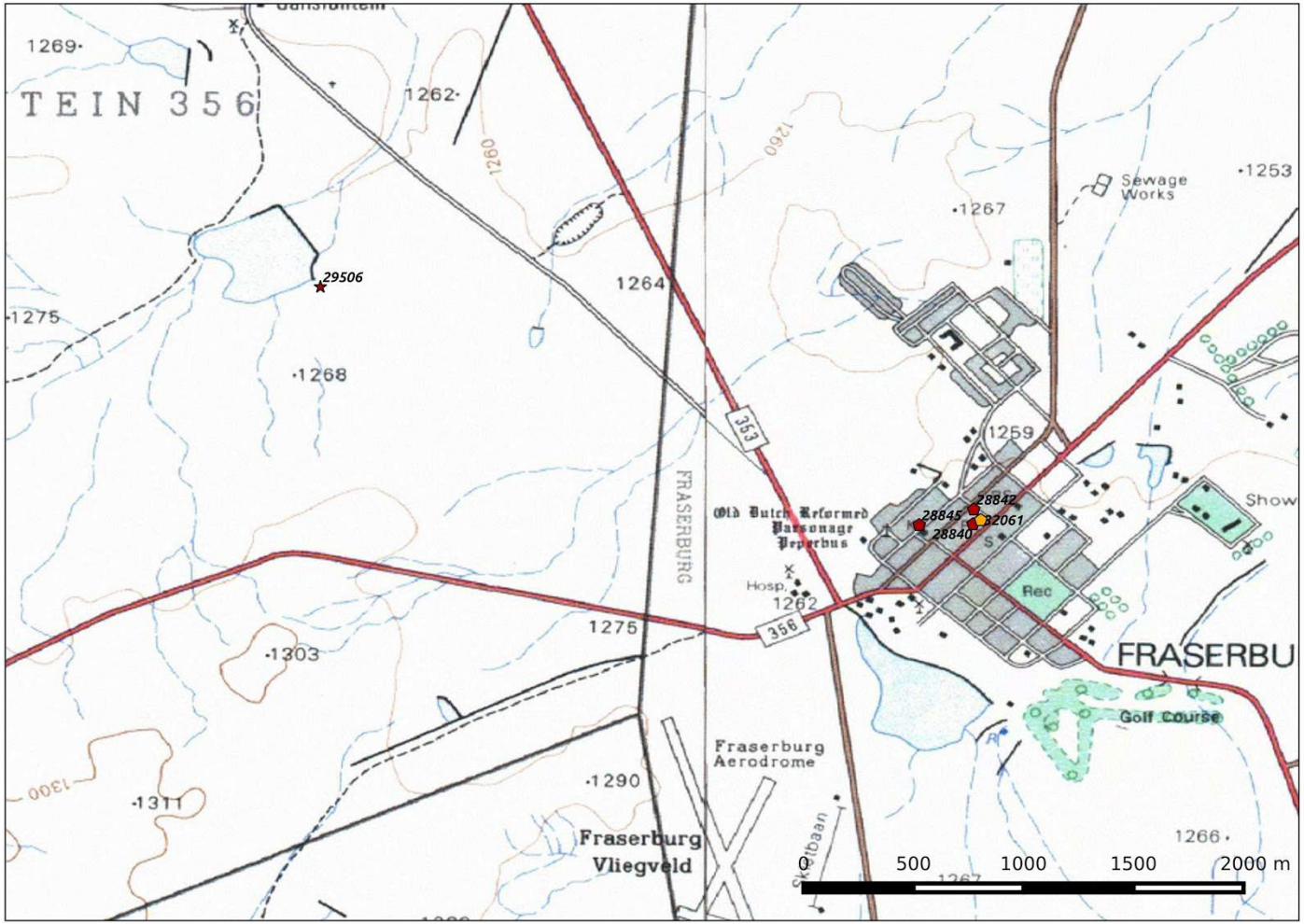

Figure 5f.2. Heritage resources inset map.

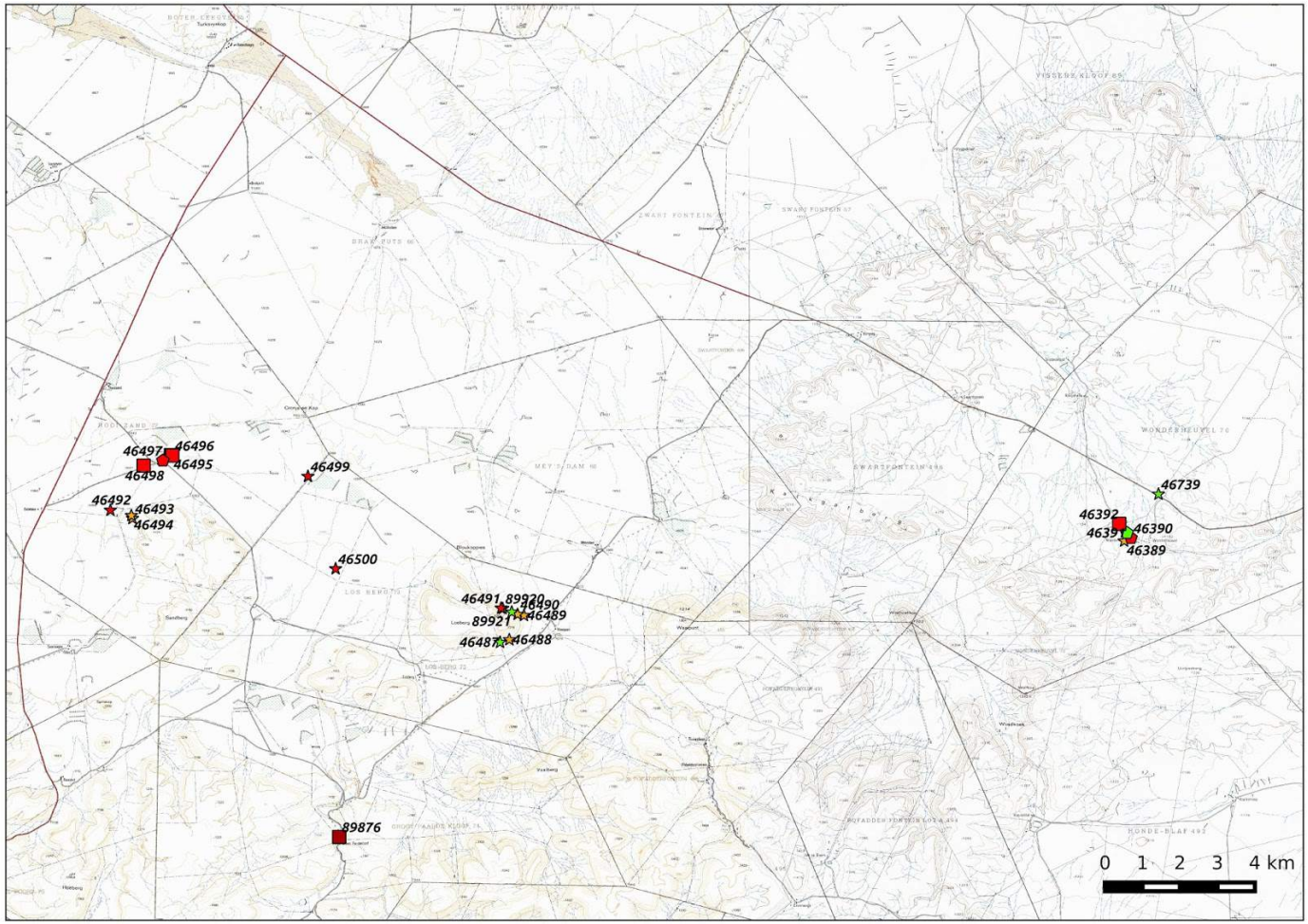

Figure 5g. Heritage resources inset map.

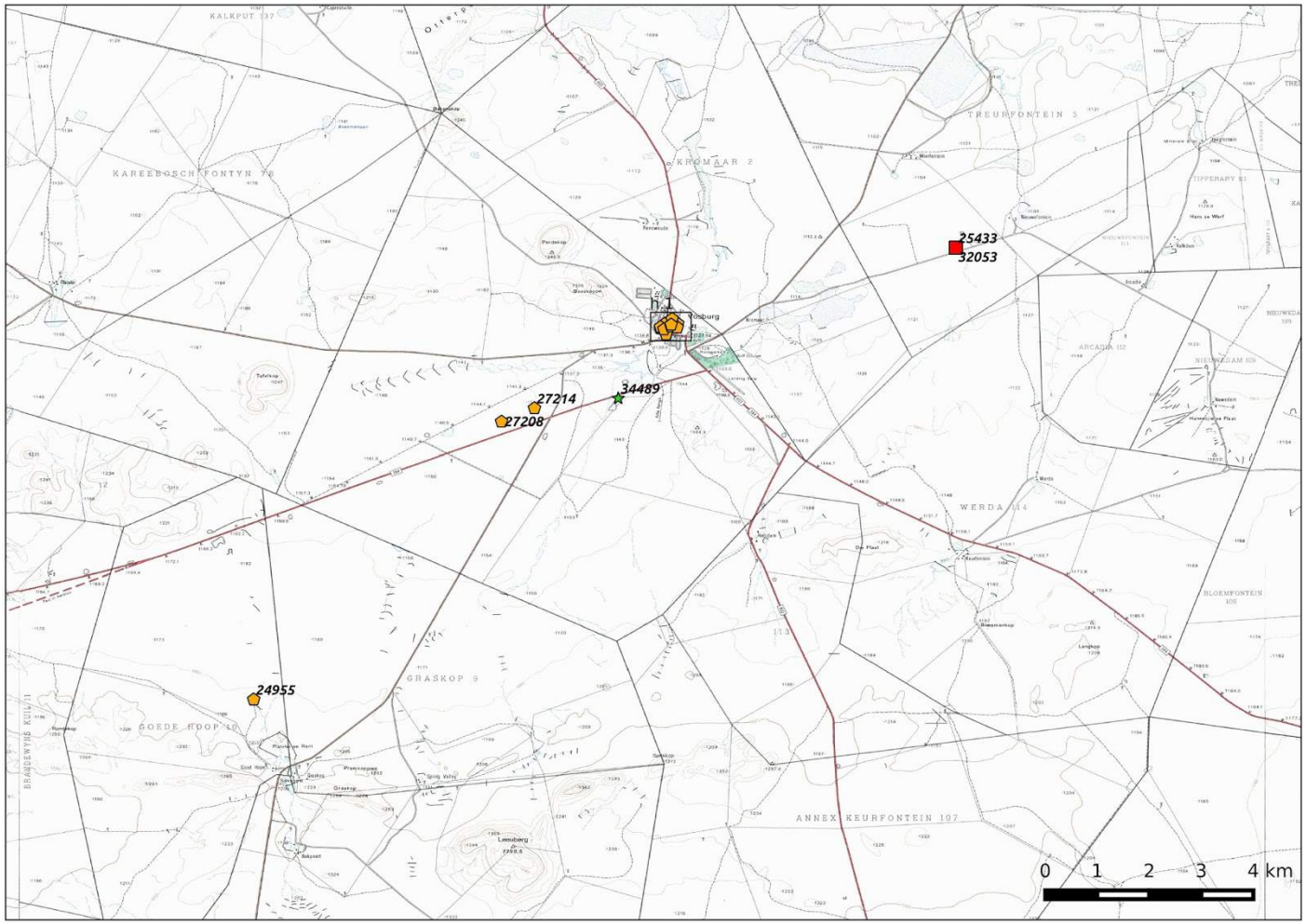

Figure 5h. Heritage resources inset map.

Figure 5h.1. Heritage resources inset map.

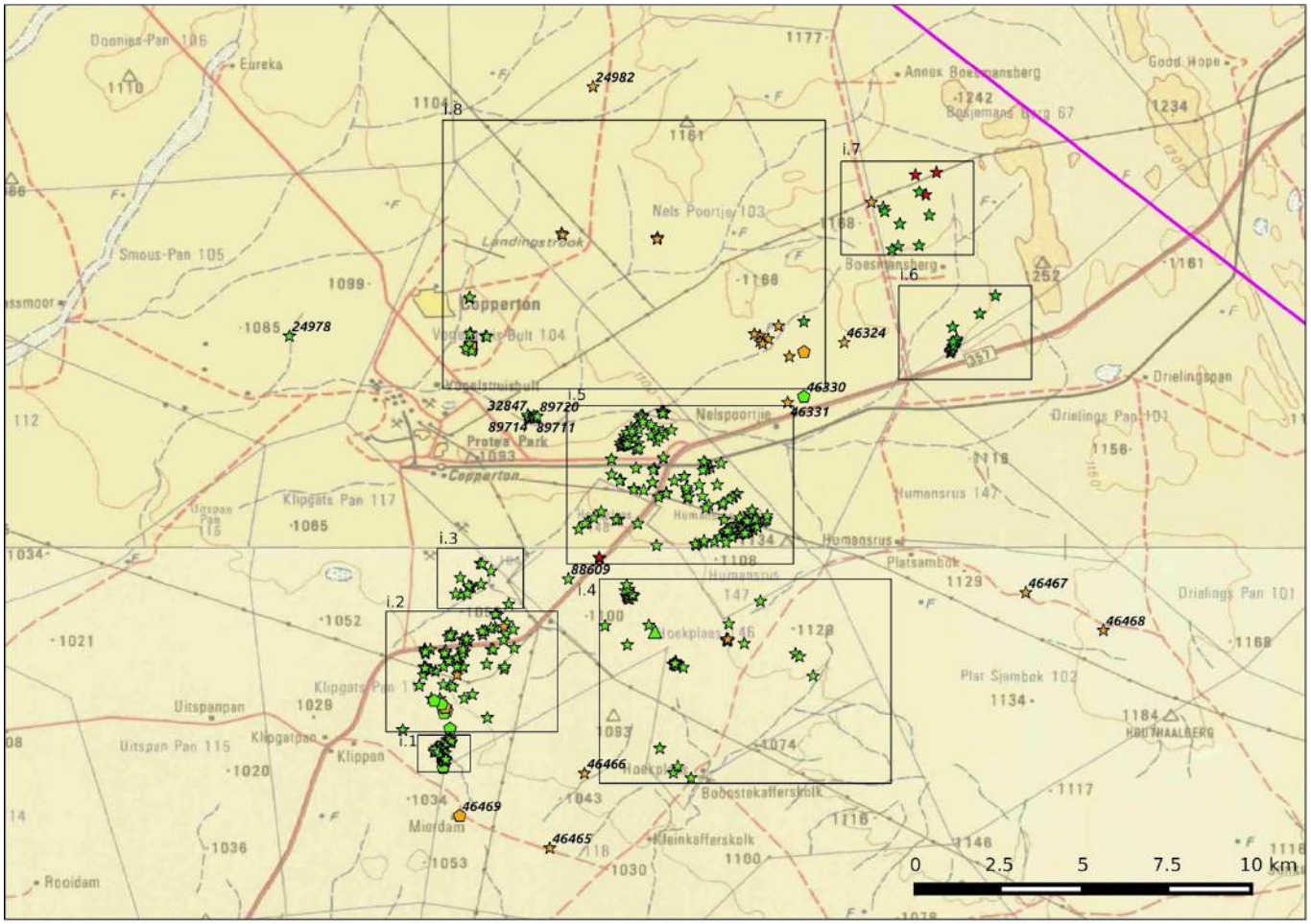

Figure 5i. Heritage resources inset map.

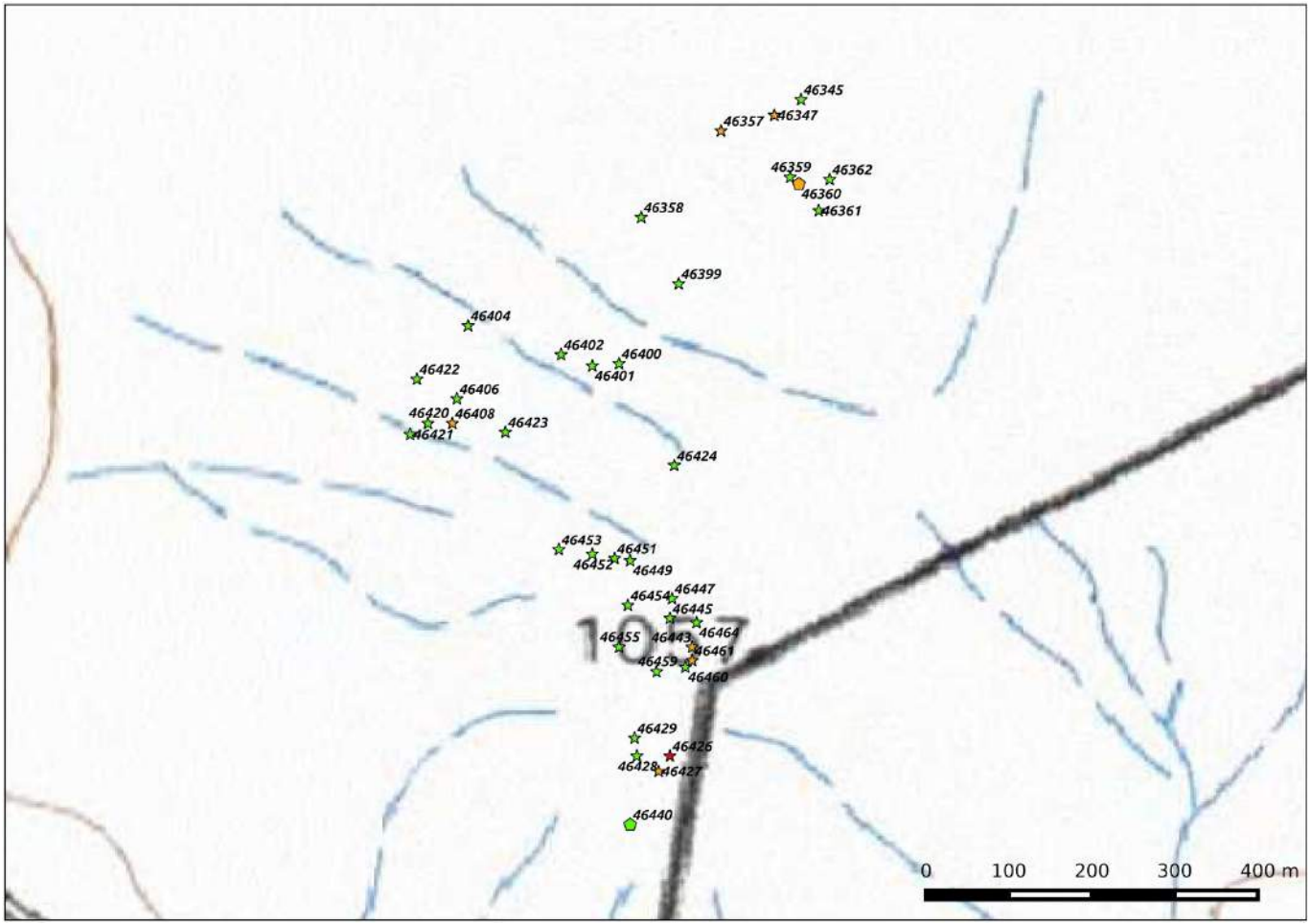

Figure 5i.1. Heritage resources inset map.

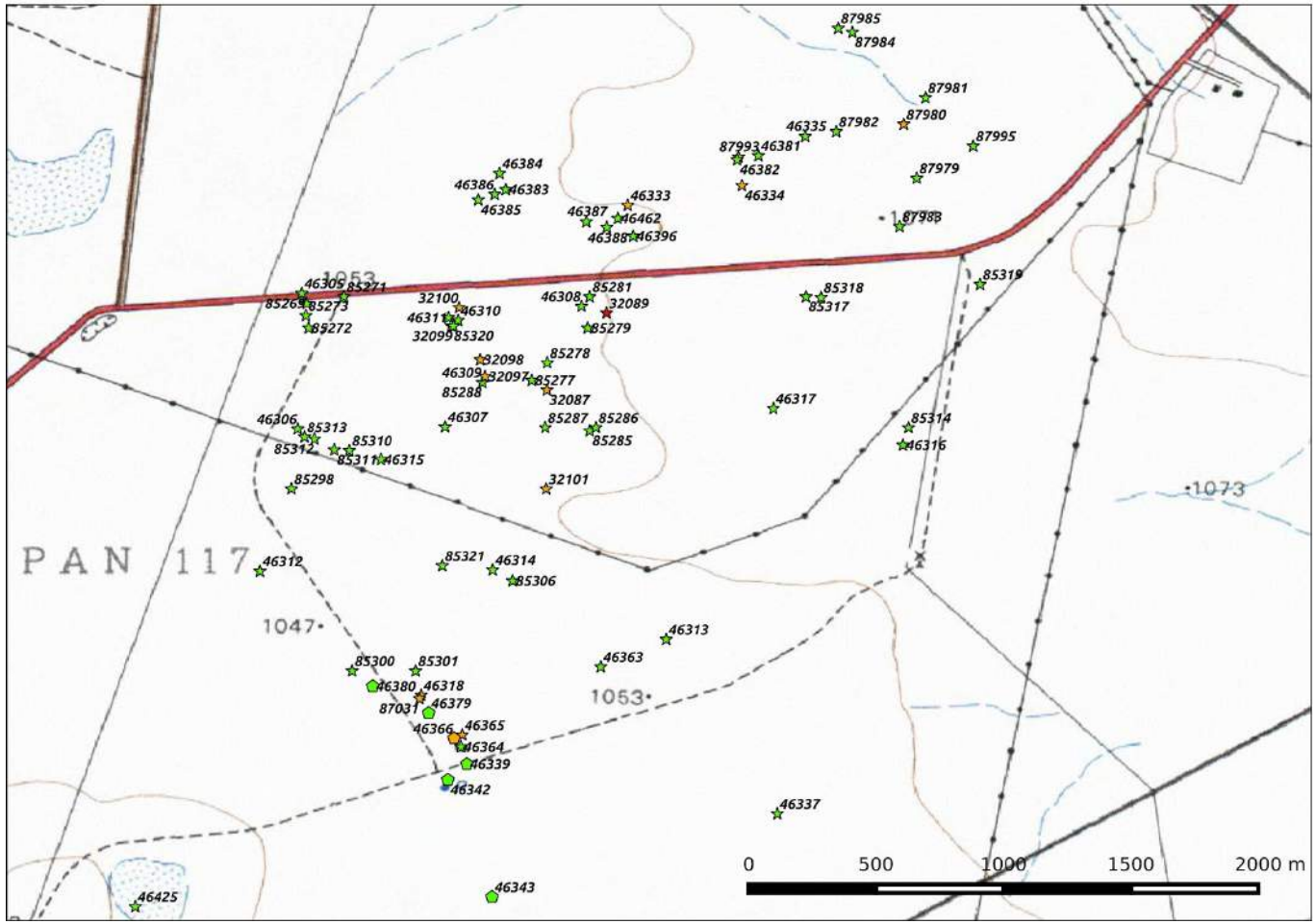

Figure 5i.2. Heritage resources inset map.

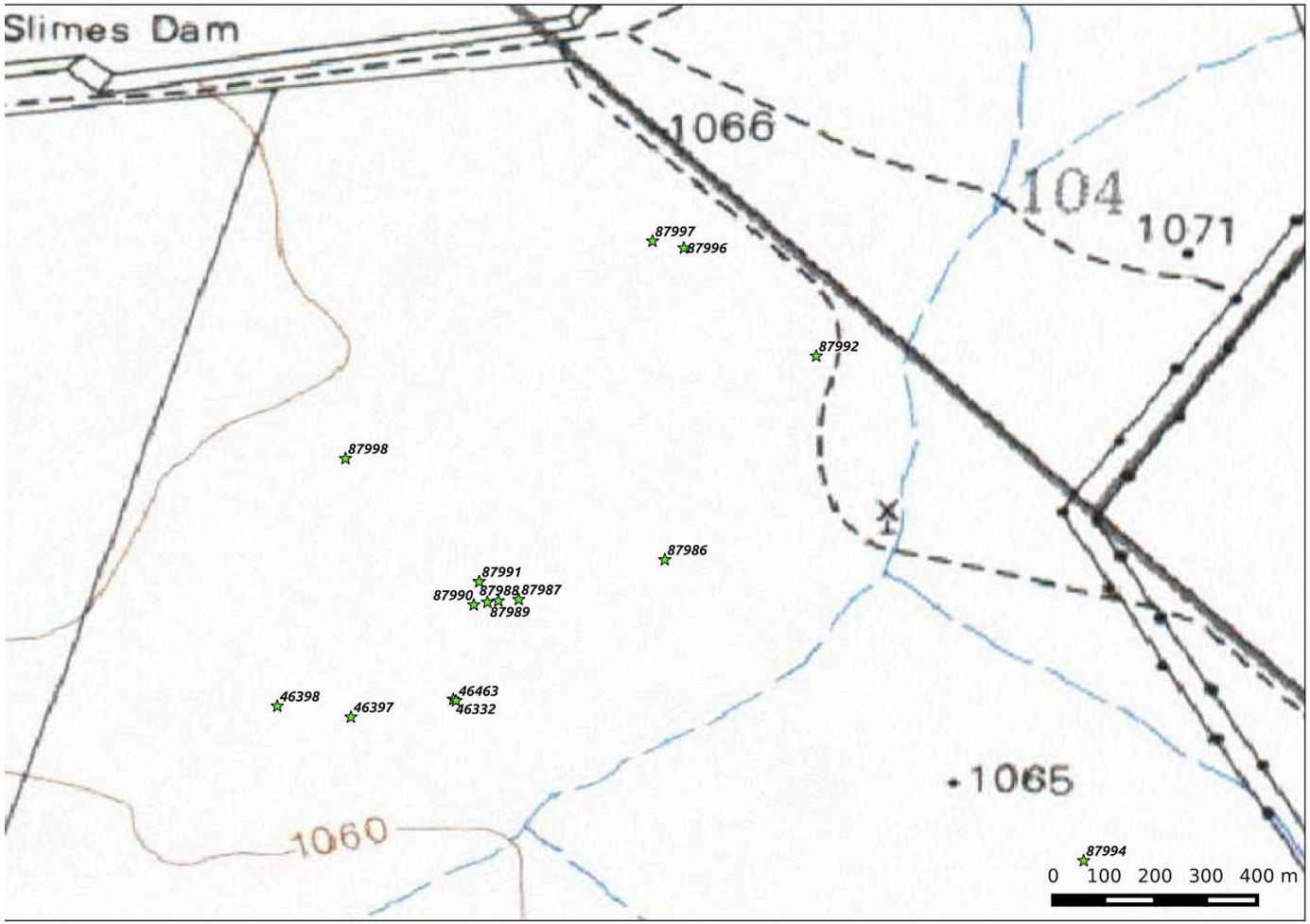

Figure 5i.3. Heritage resources inset map.

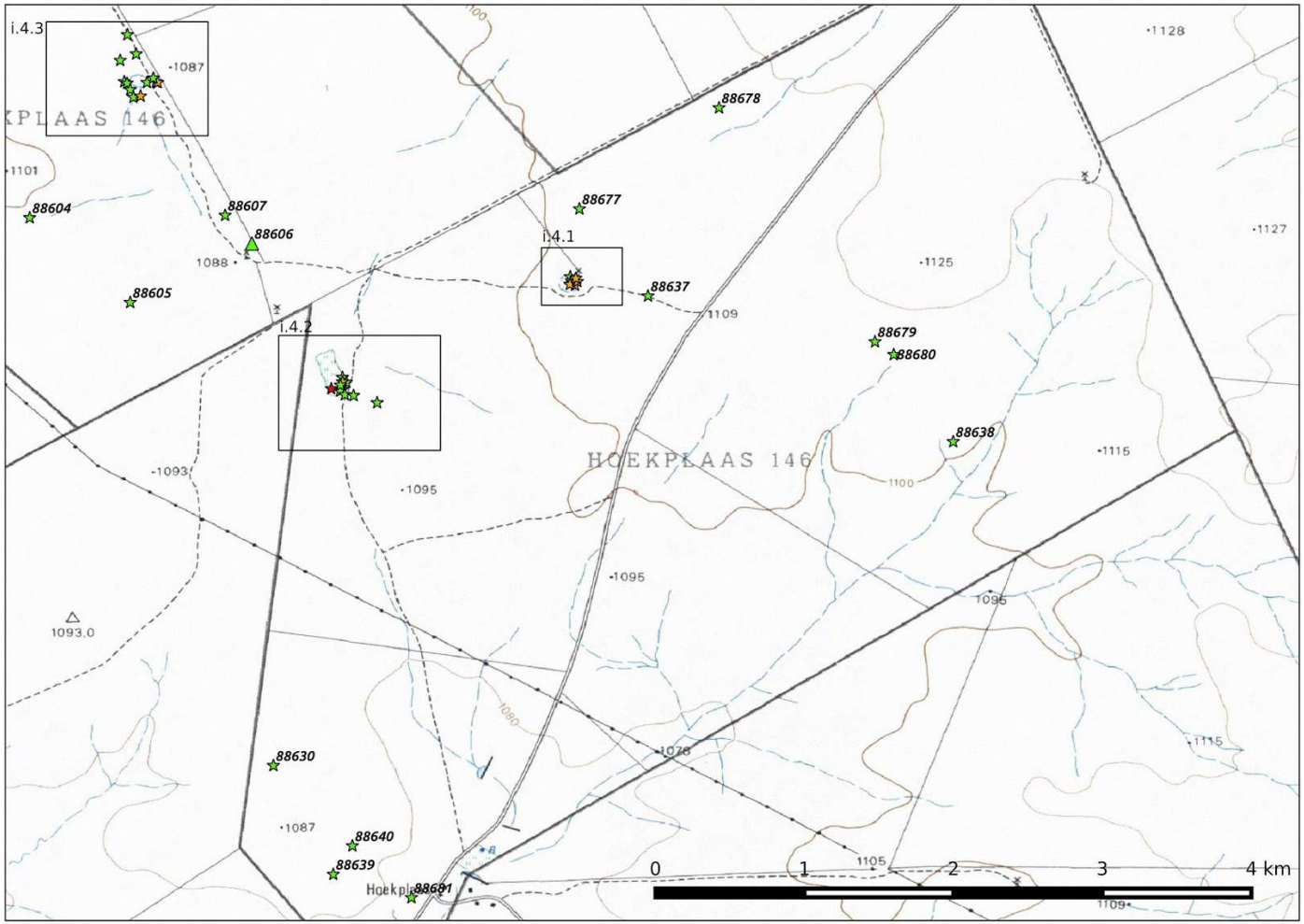

Figure 5i.4. Heritage resources inset map.

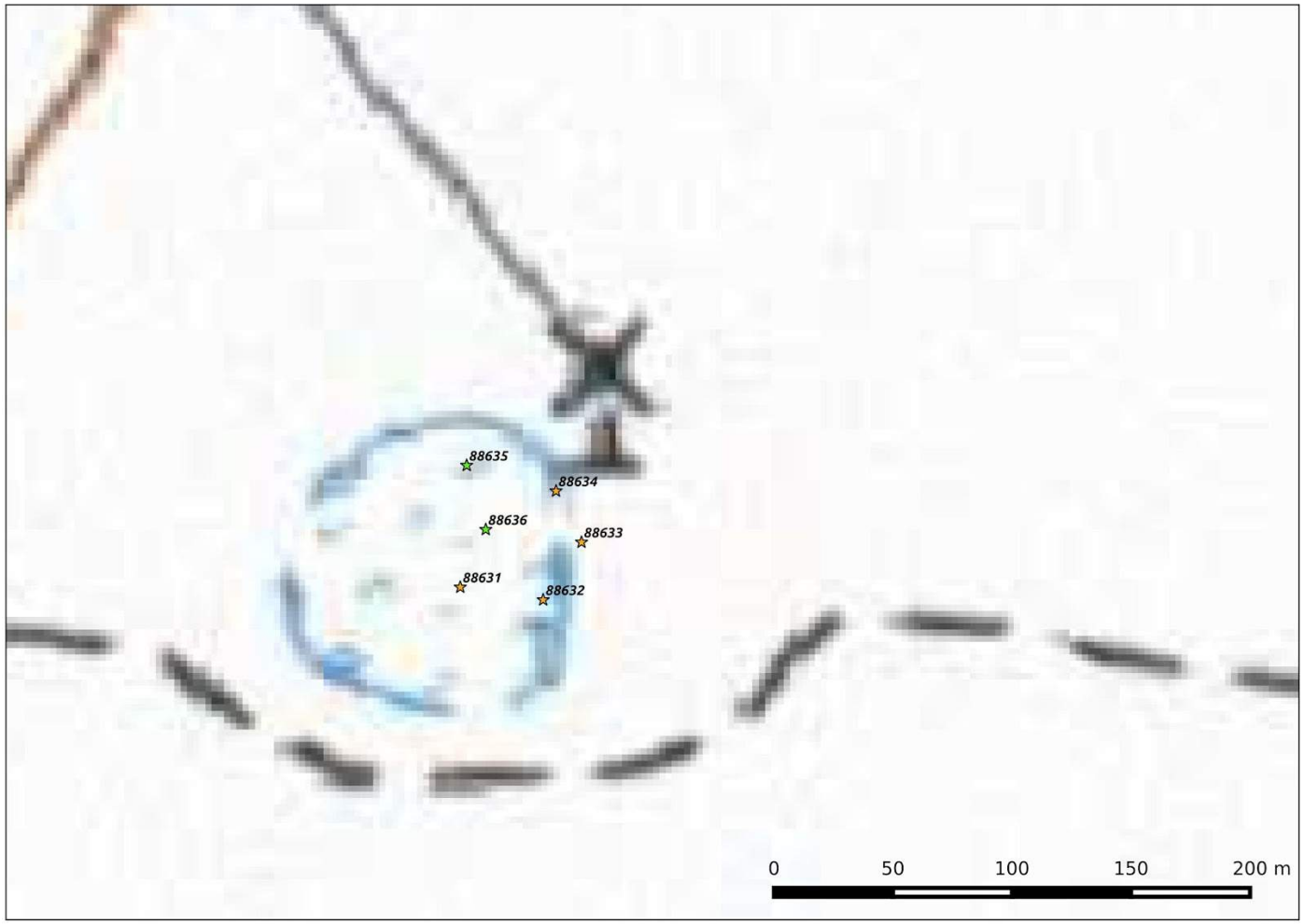

Figure 5i.4.1. Heritage resources inset map.

Figure 5i.4.2. Heritage resources inset map.

Figure 5i.4.3. Heritage resources inset map.

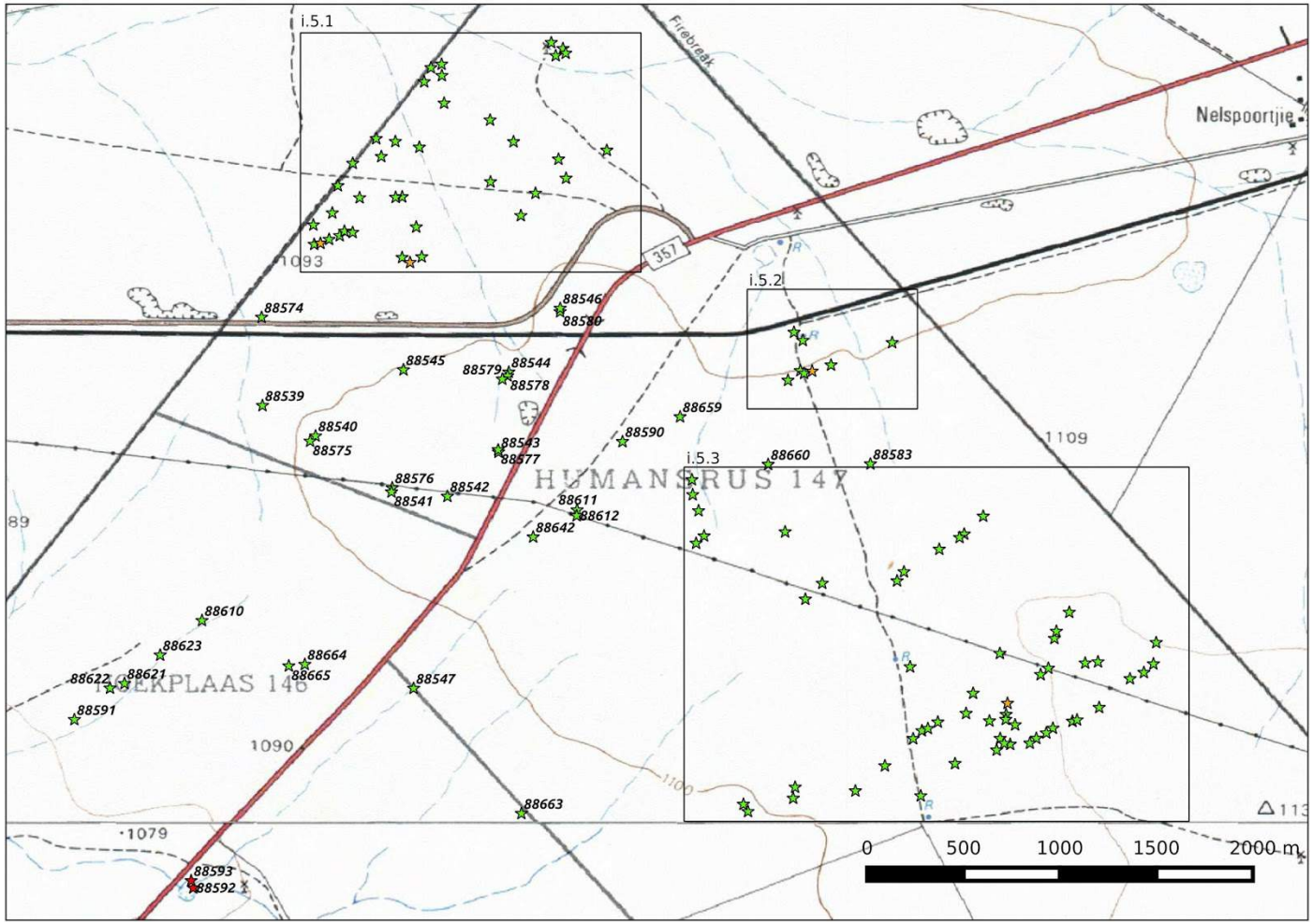

Figure 5i.5. Heritage resources inset map.

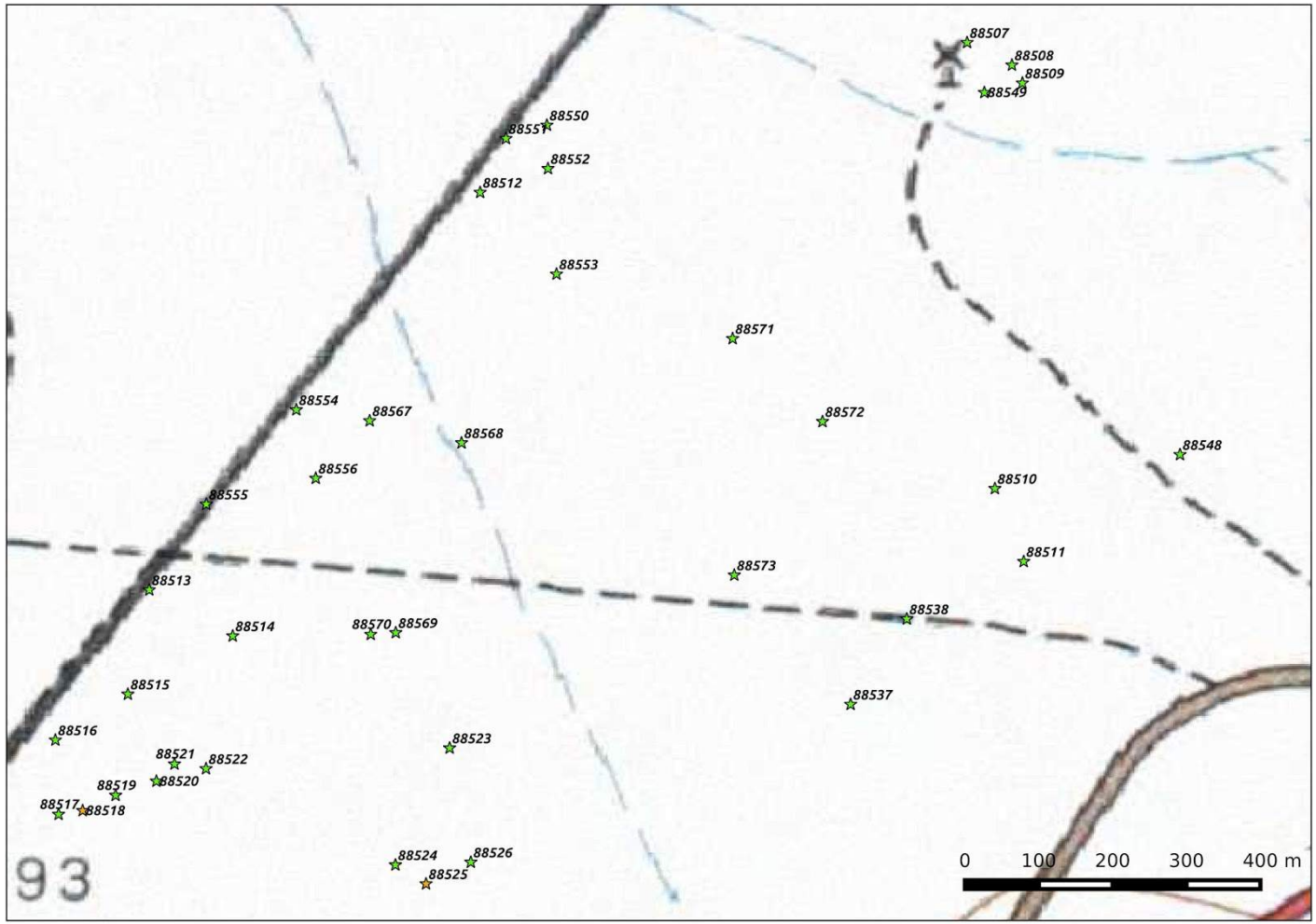

Figure 5i.5.1. Heritage resources inset map.

Figure 5i.5.2. Heritage resources inset map.

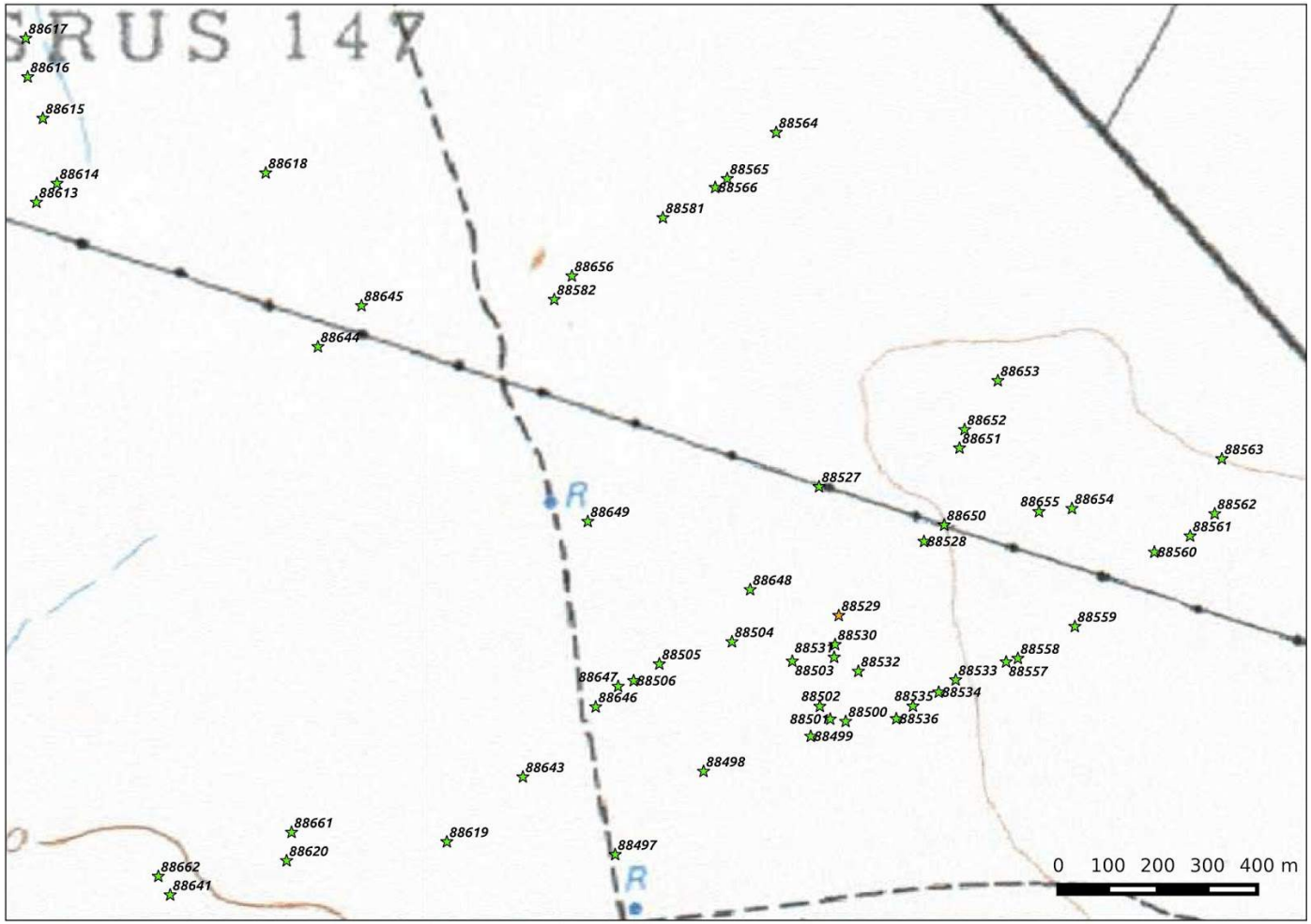

Figure 5i.5.3. Heritage resources inset map.

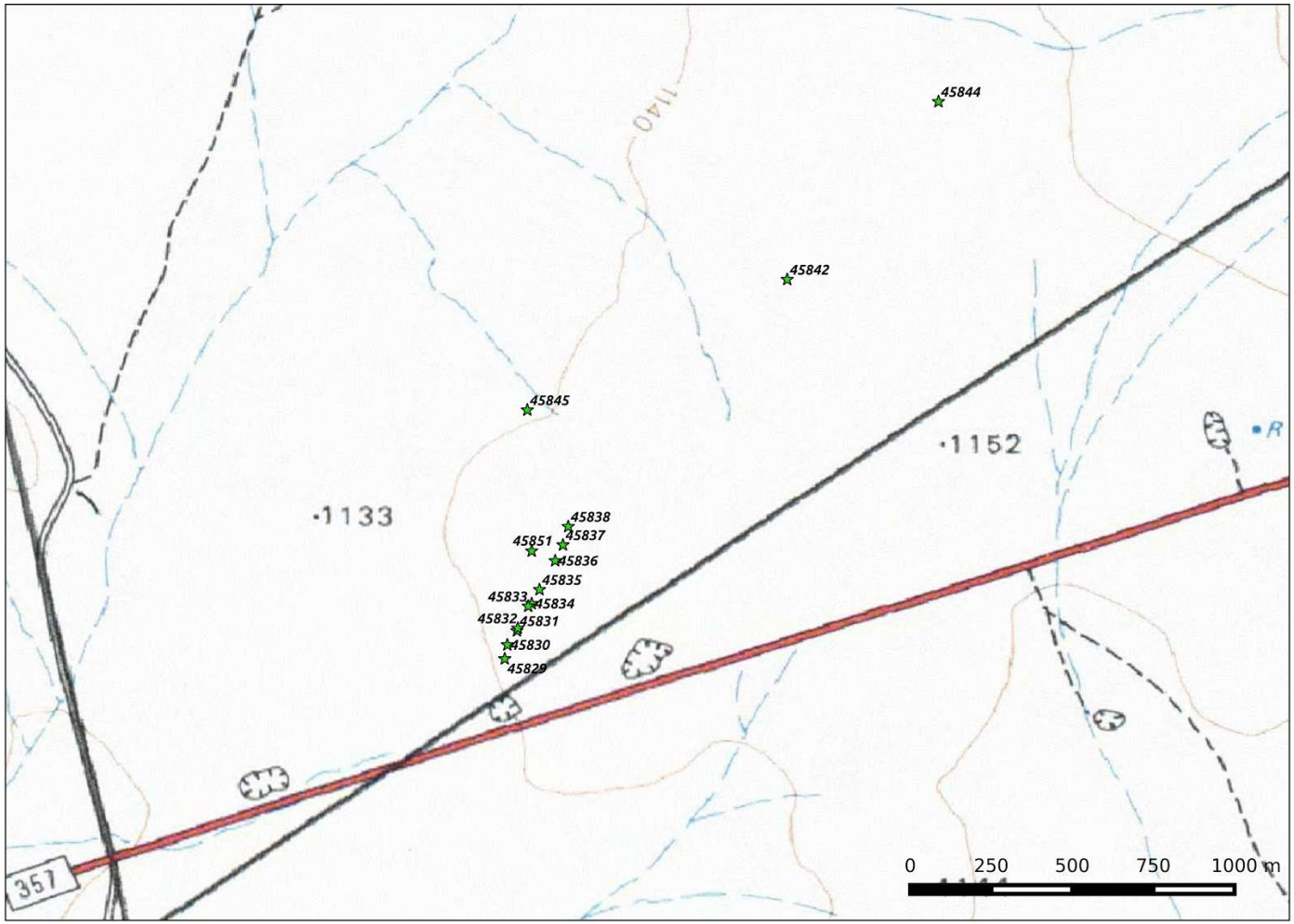

Figure 5i.6. Heritage resources inset map.

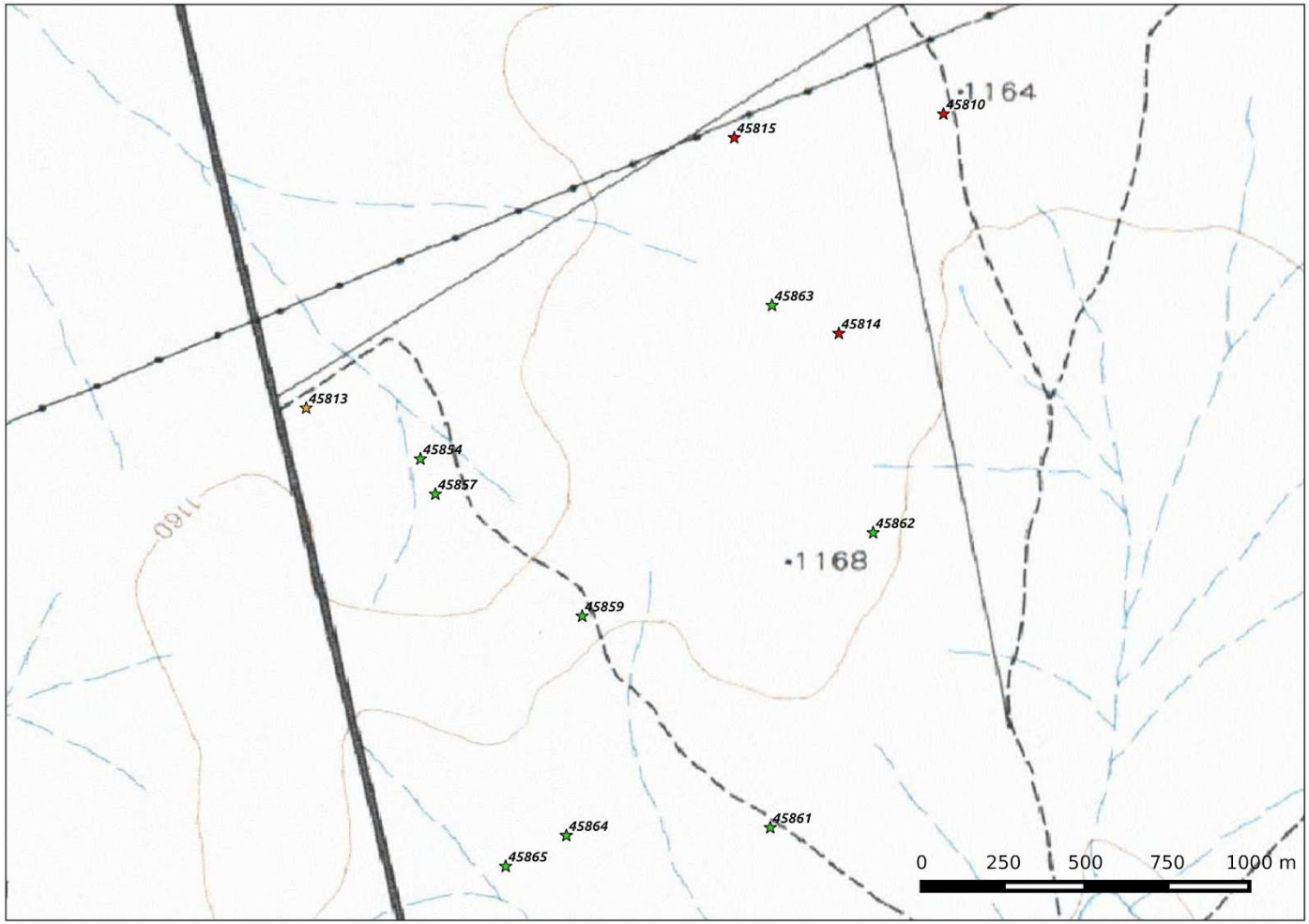

Figure 5i.7. Heritage resources inset map.

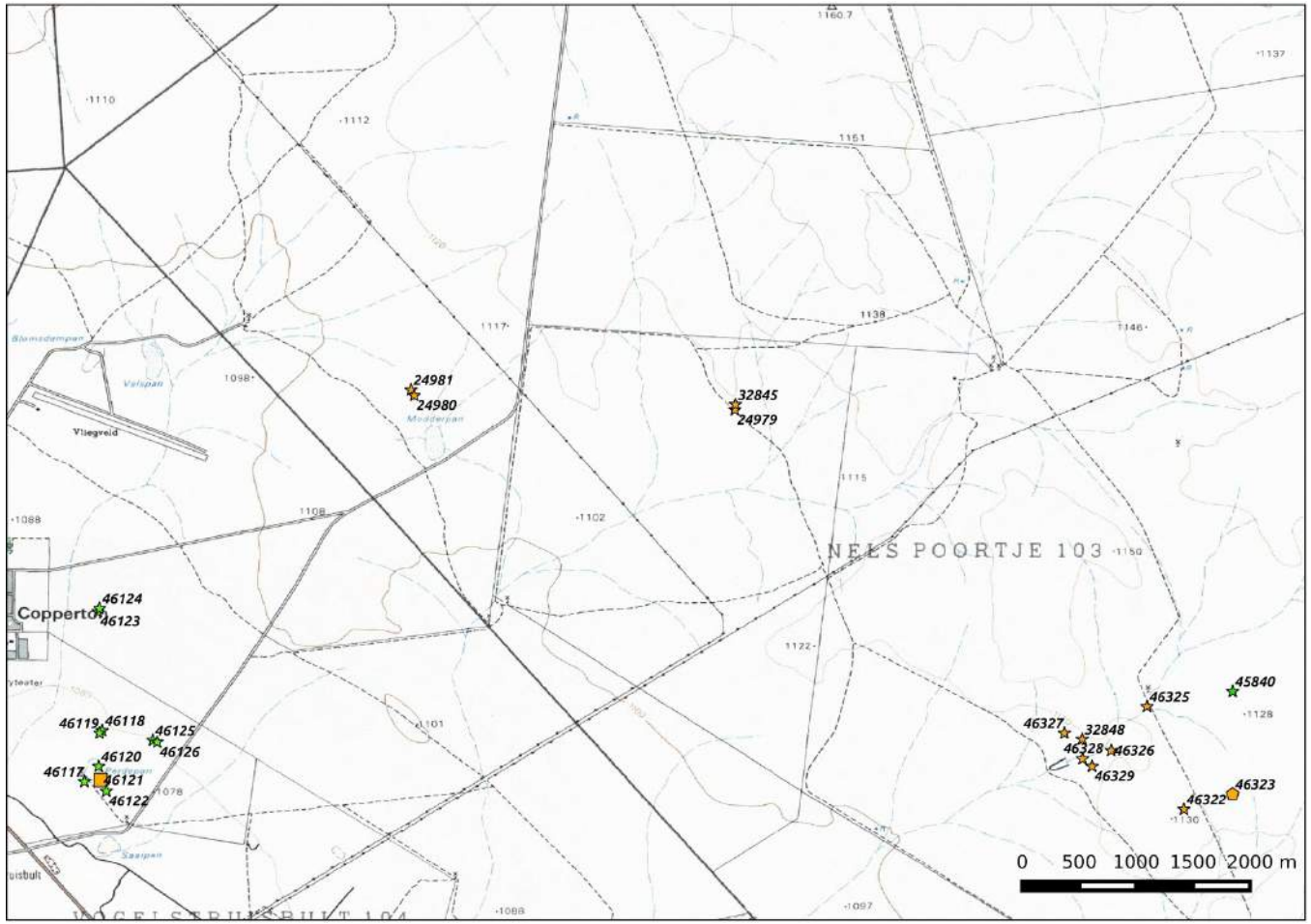

Figure 5i.8. Heritage resources inset map.

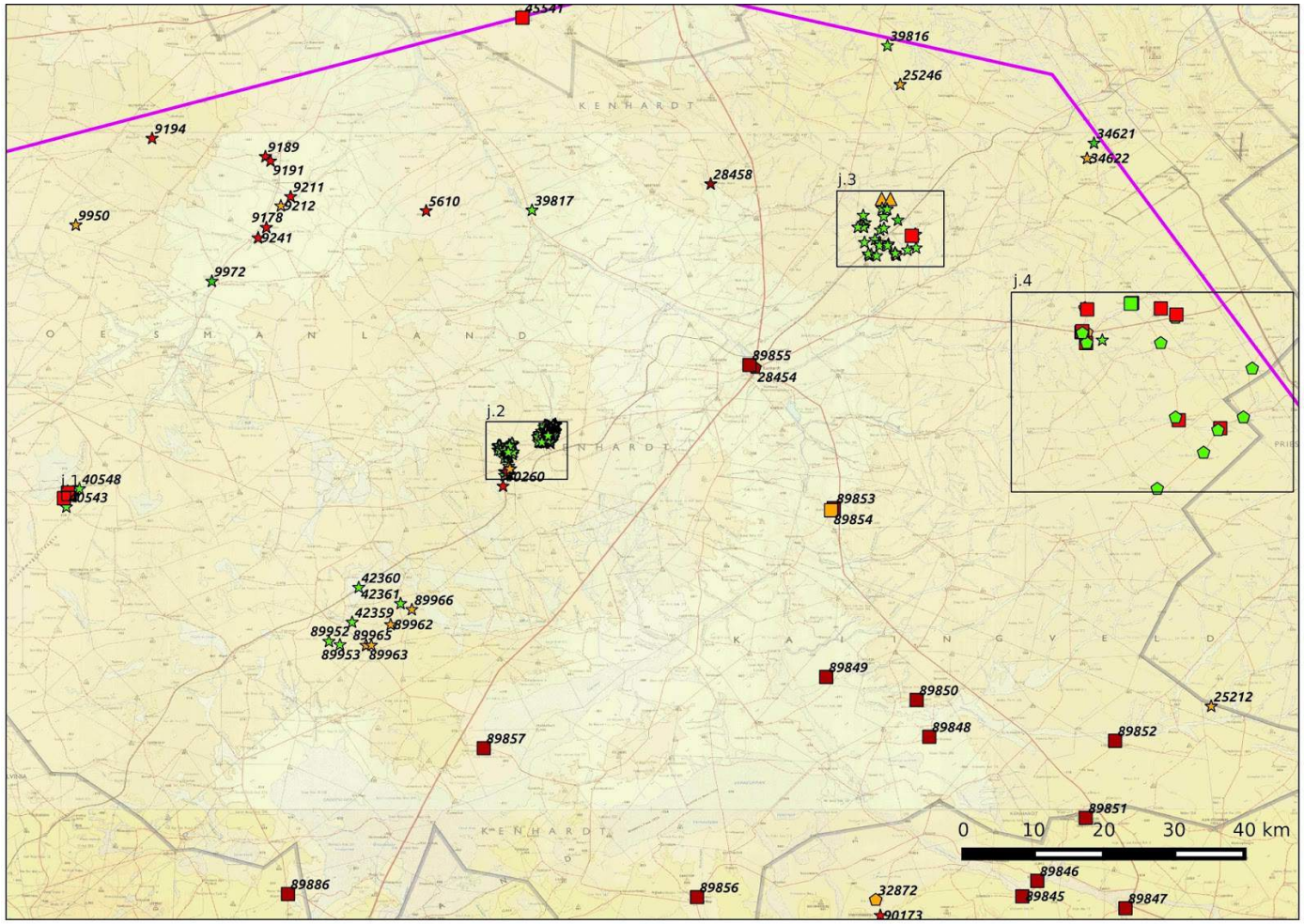

Figure 5j. Heritage resources inset map.

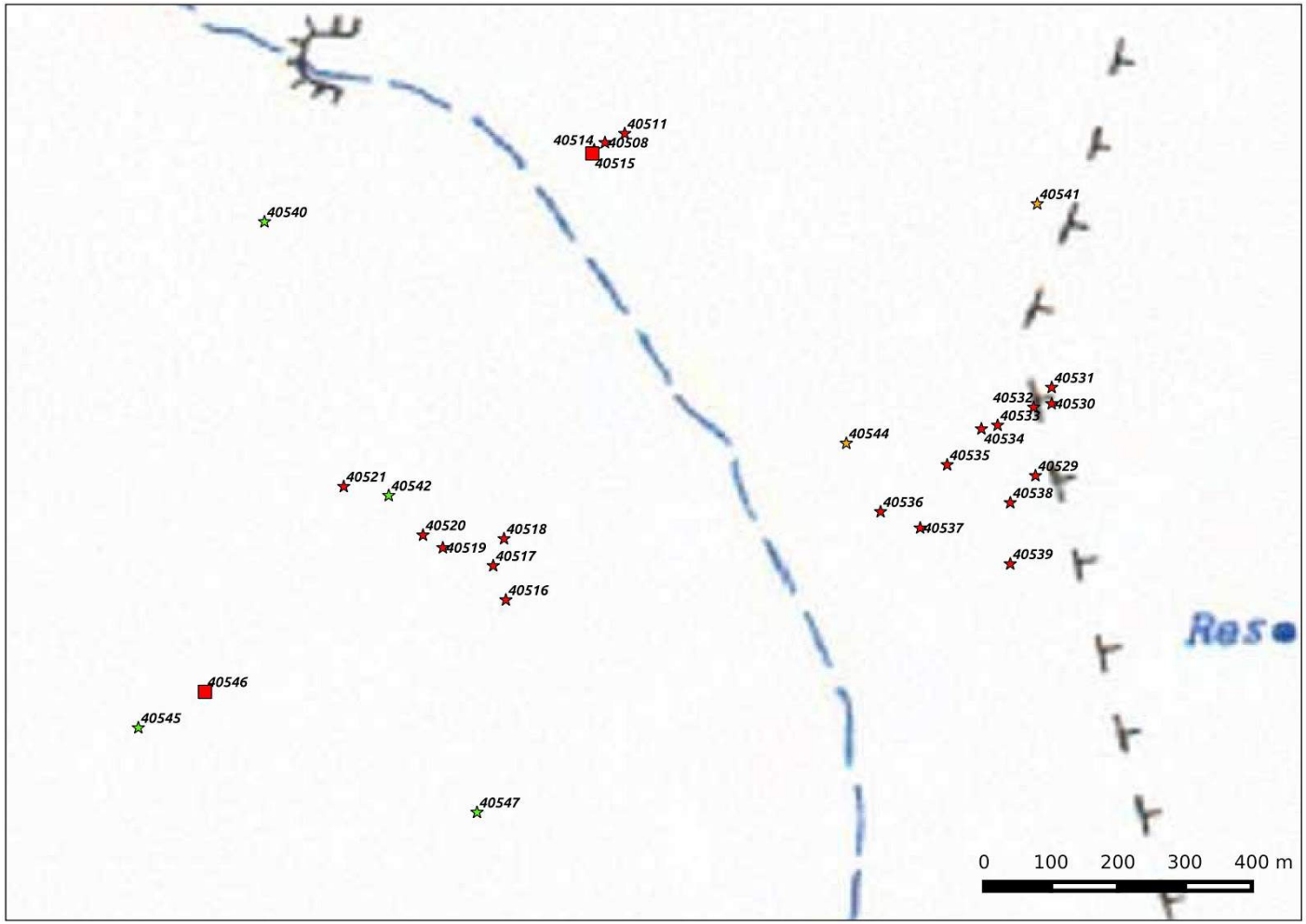

Figure 5j.1. Heritage resources inset map.

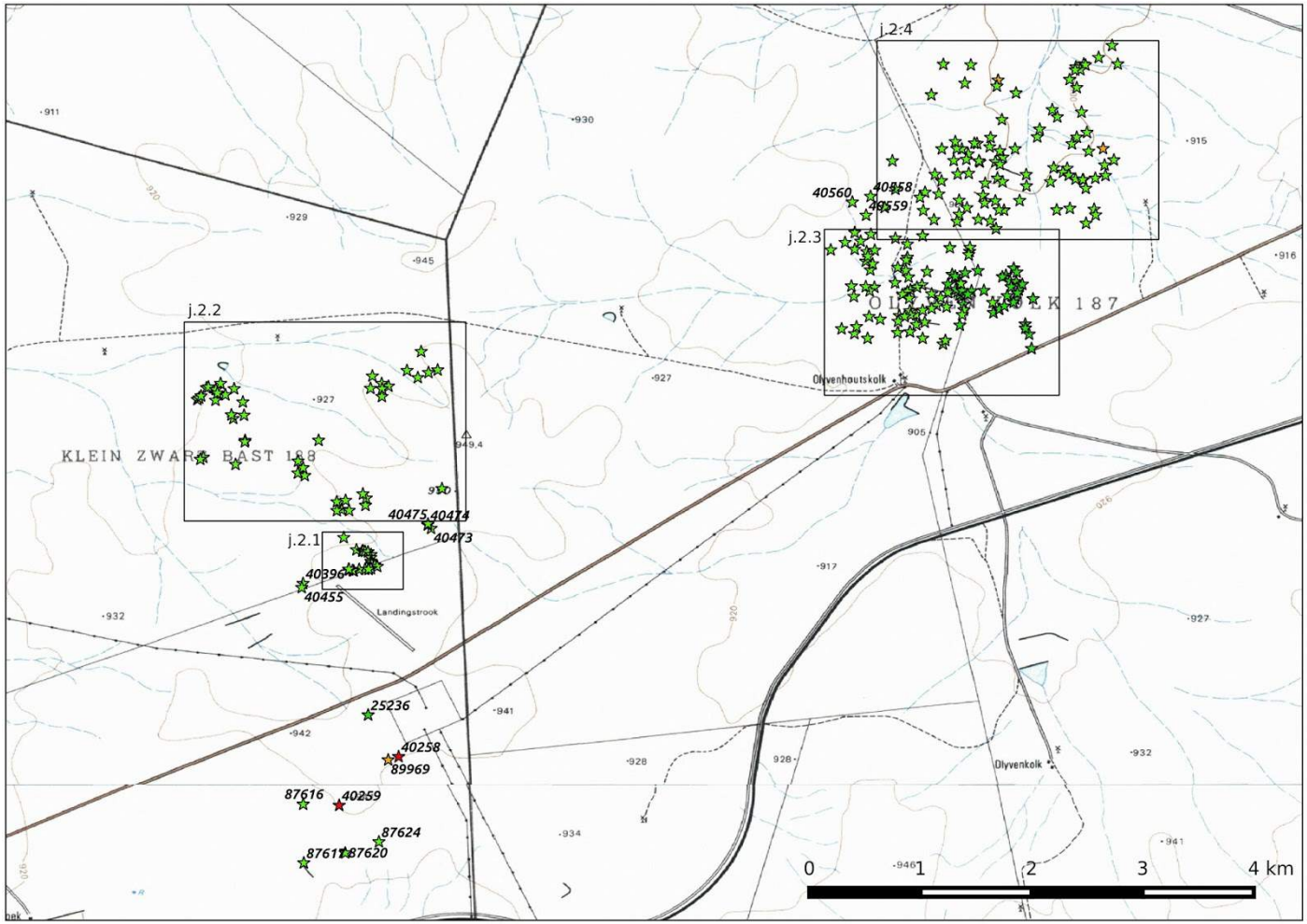

Figure 5j.2. Heritage resources inset map.

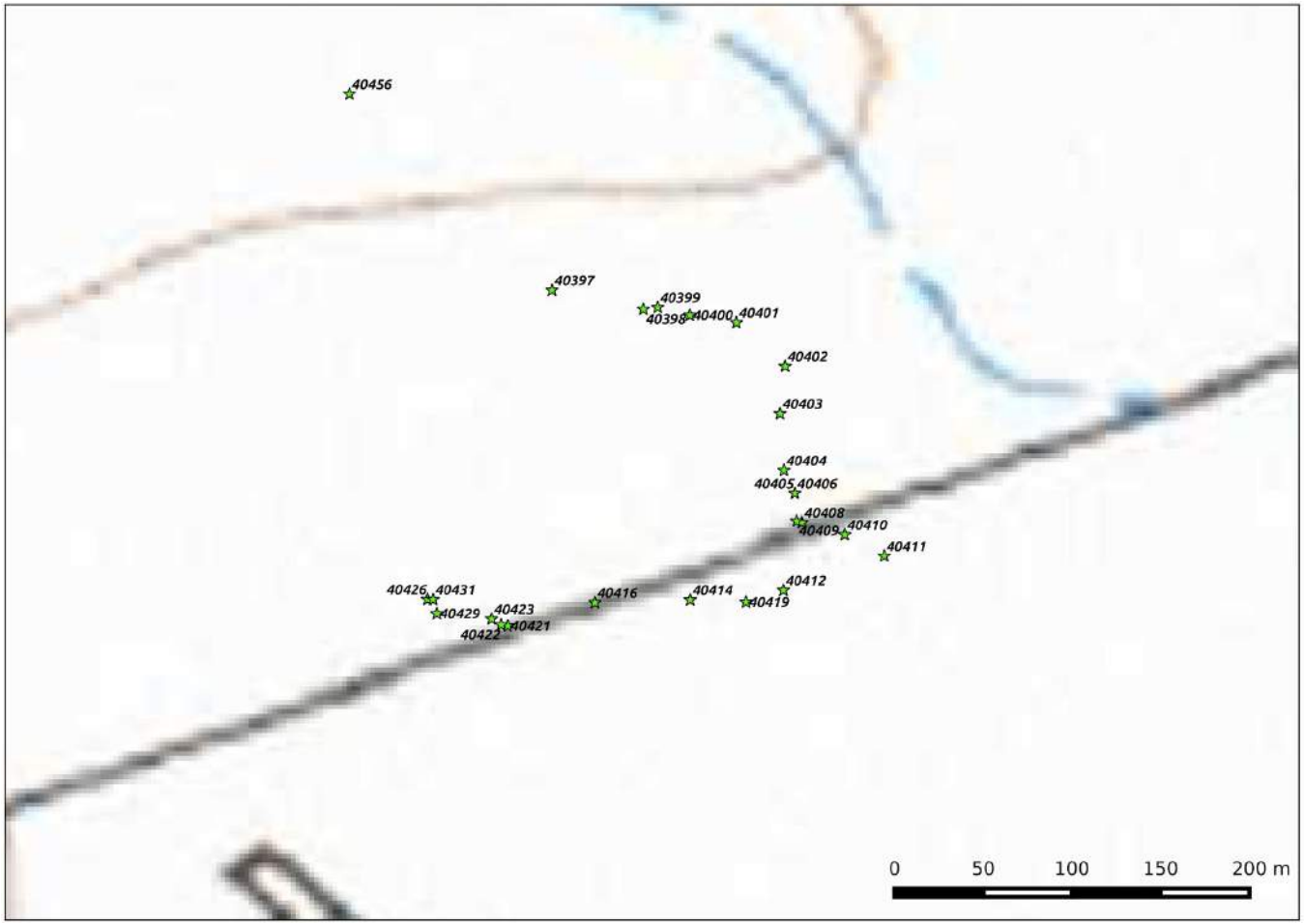

Figure 5j.2.1. Heritage resources inset map.

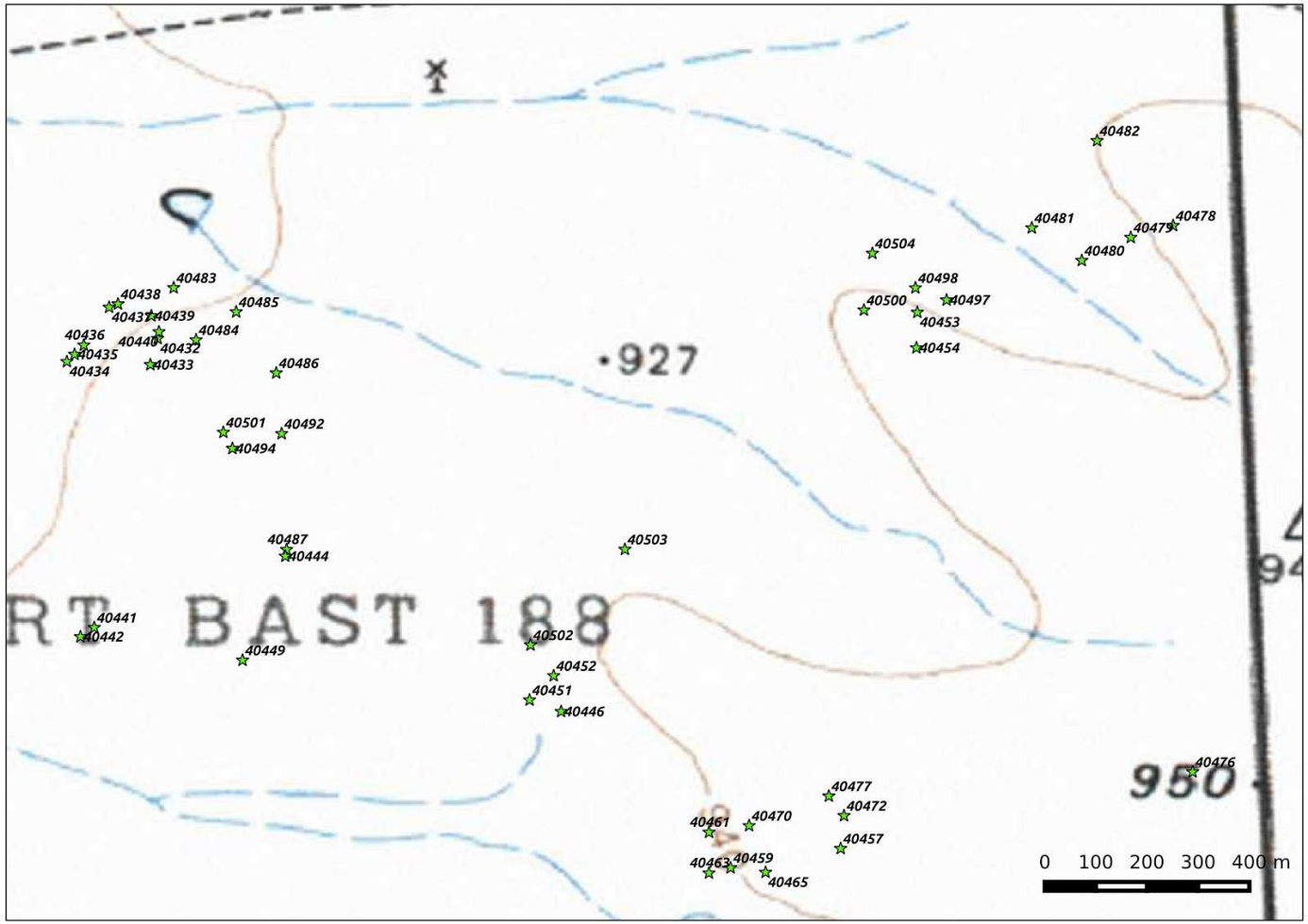

Figure 5j.2.2. Heritage resources inset map.

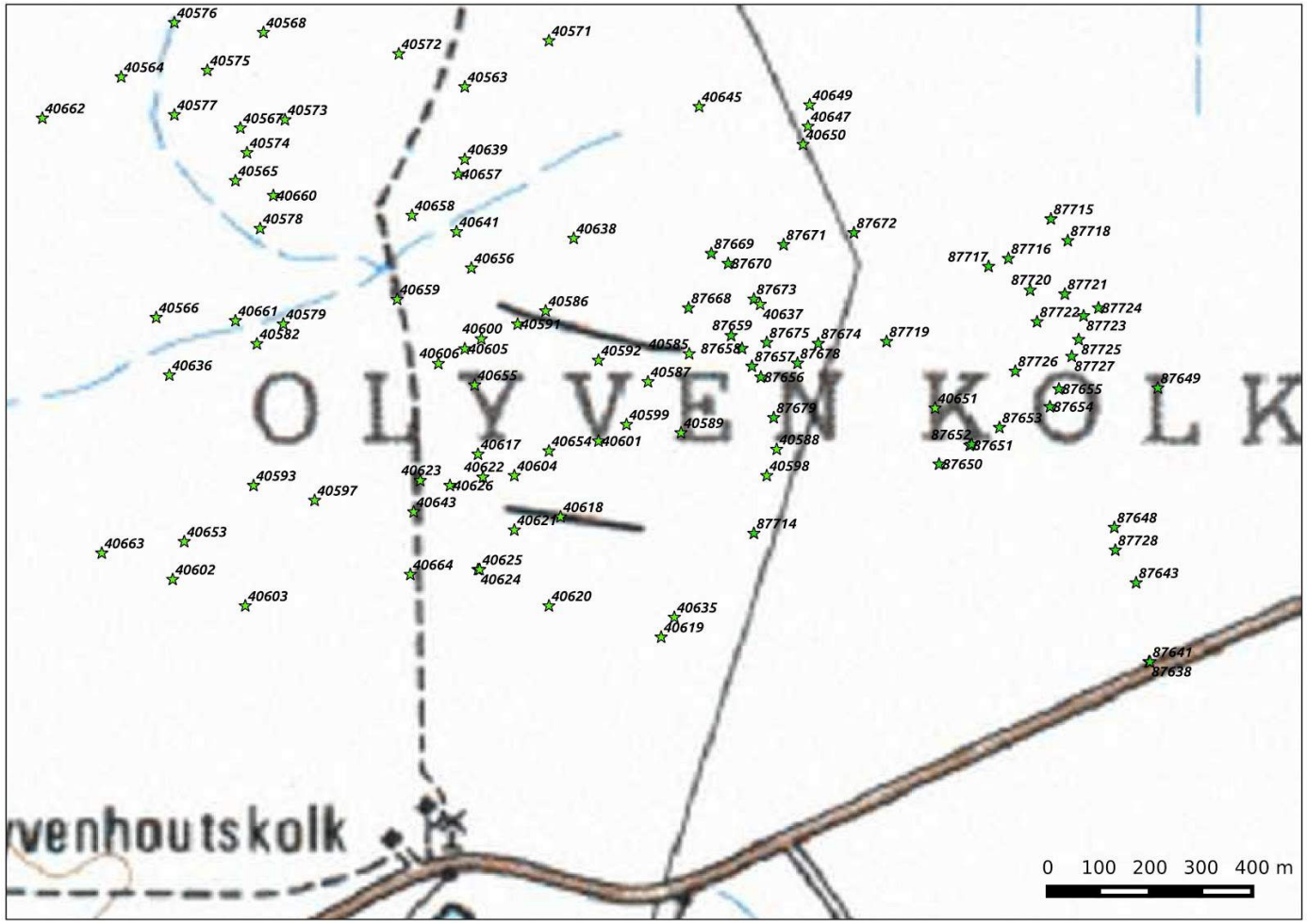

Figure 5j.2.3. Heritage resources inset map.

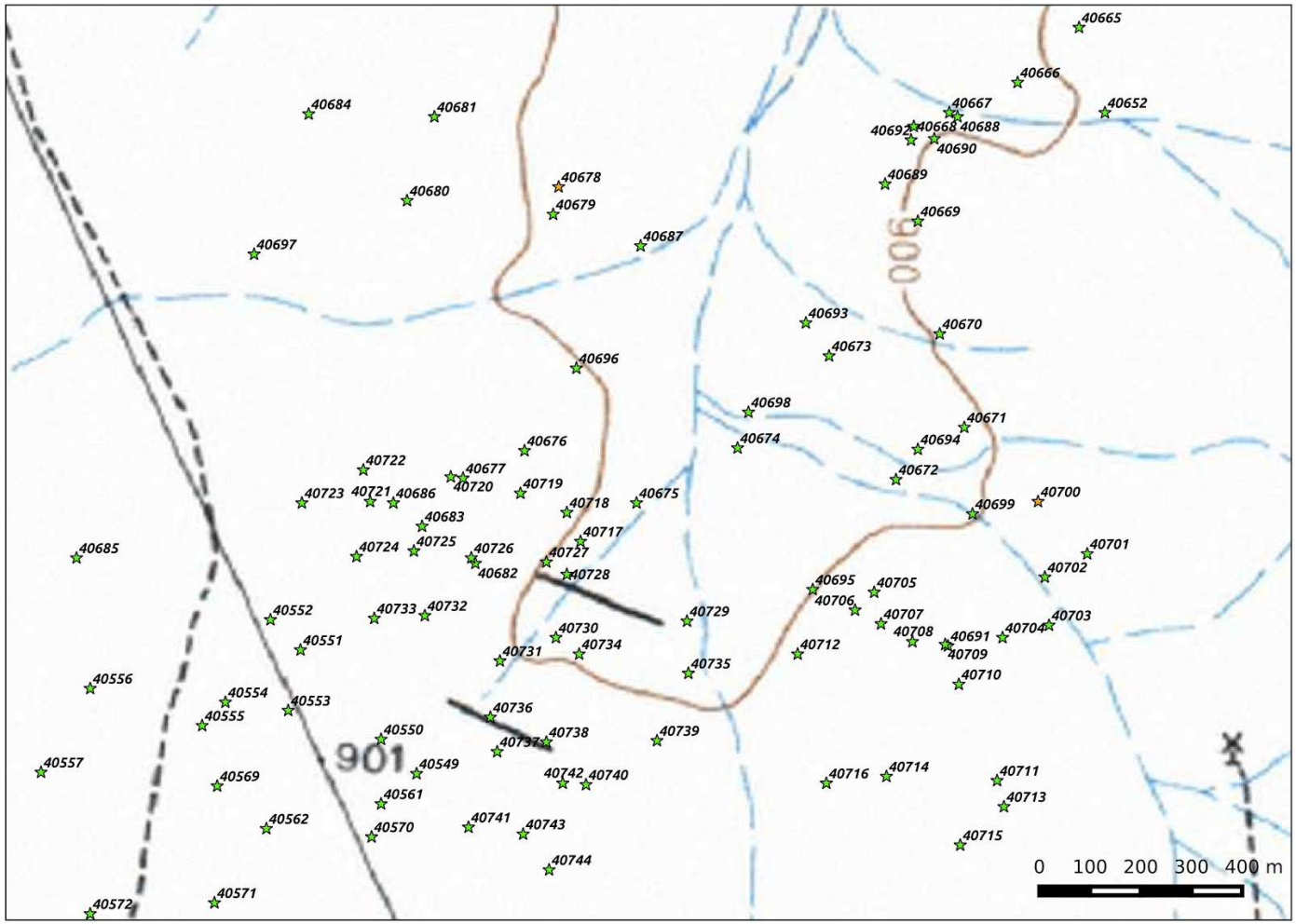

Figure 5j.2.4. Heritage resources inset map.

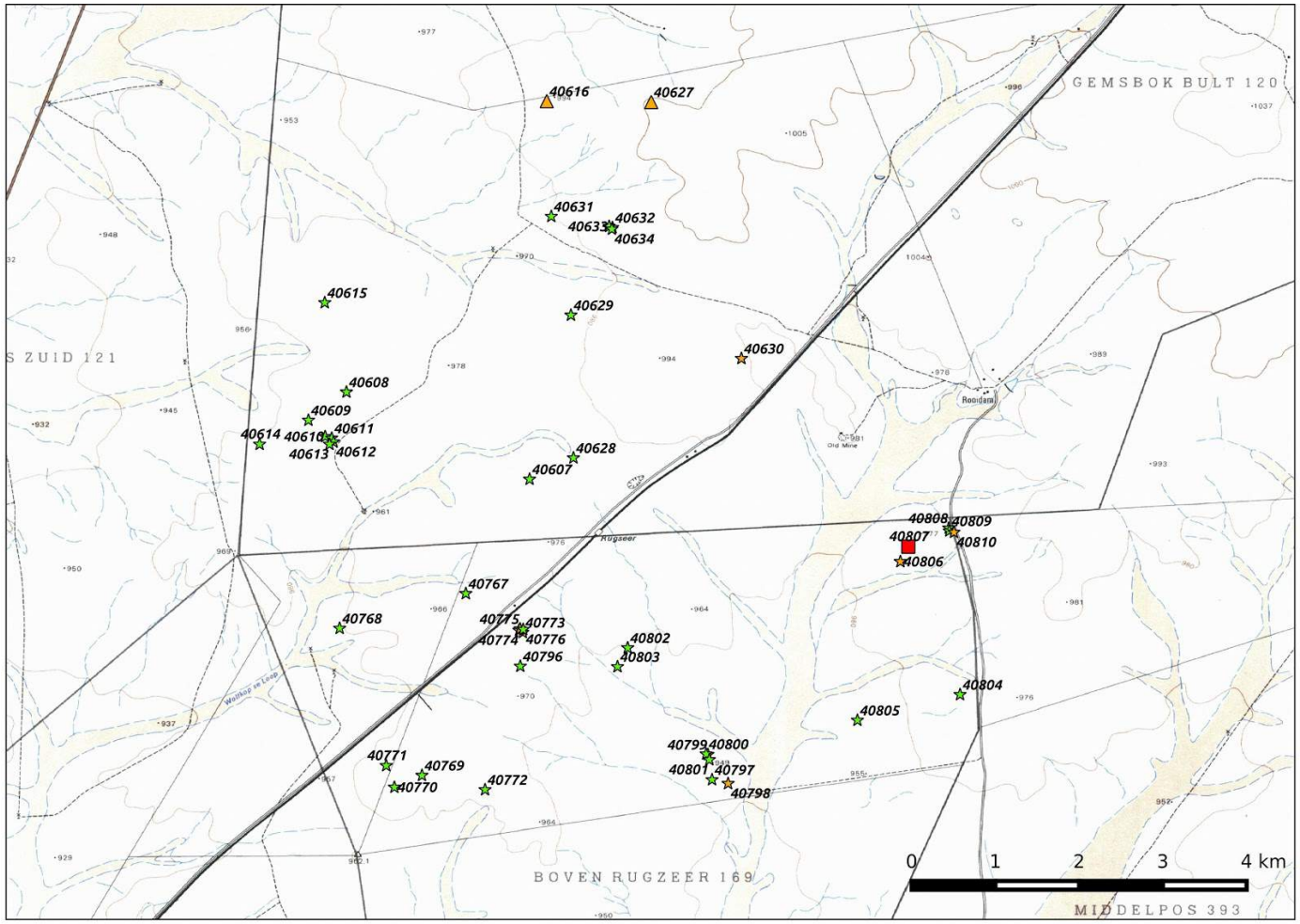

Figure 5j.3. Heritage resources inset map.

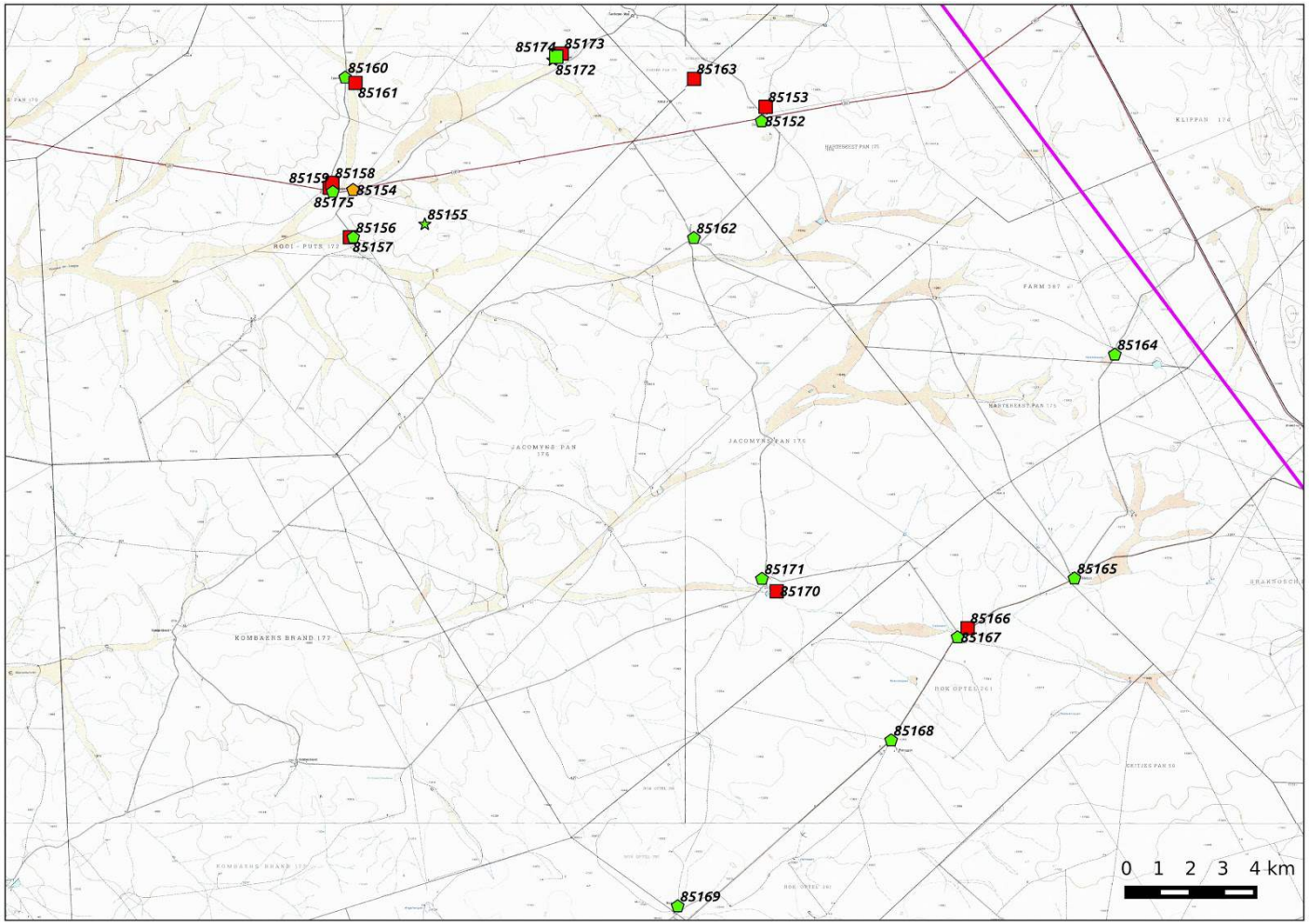

Figure 5j.4. Heritage resources inset map.

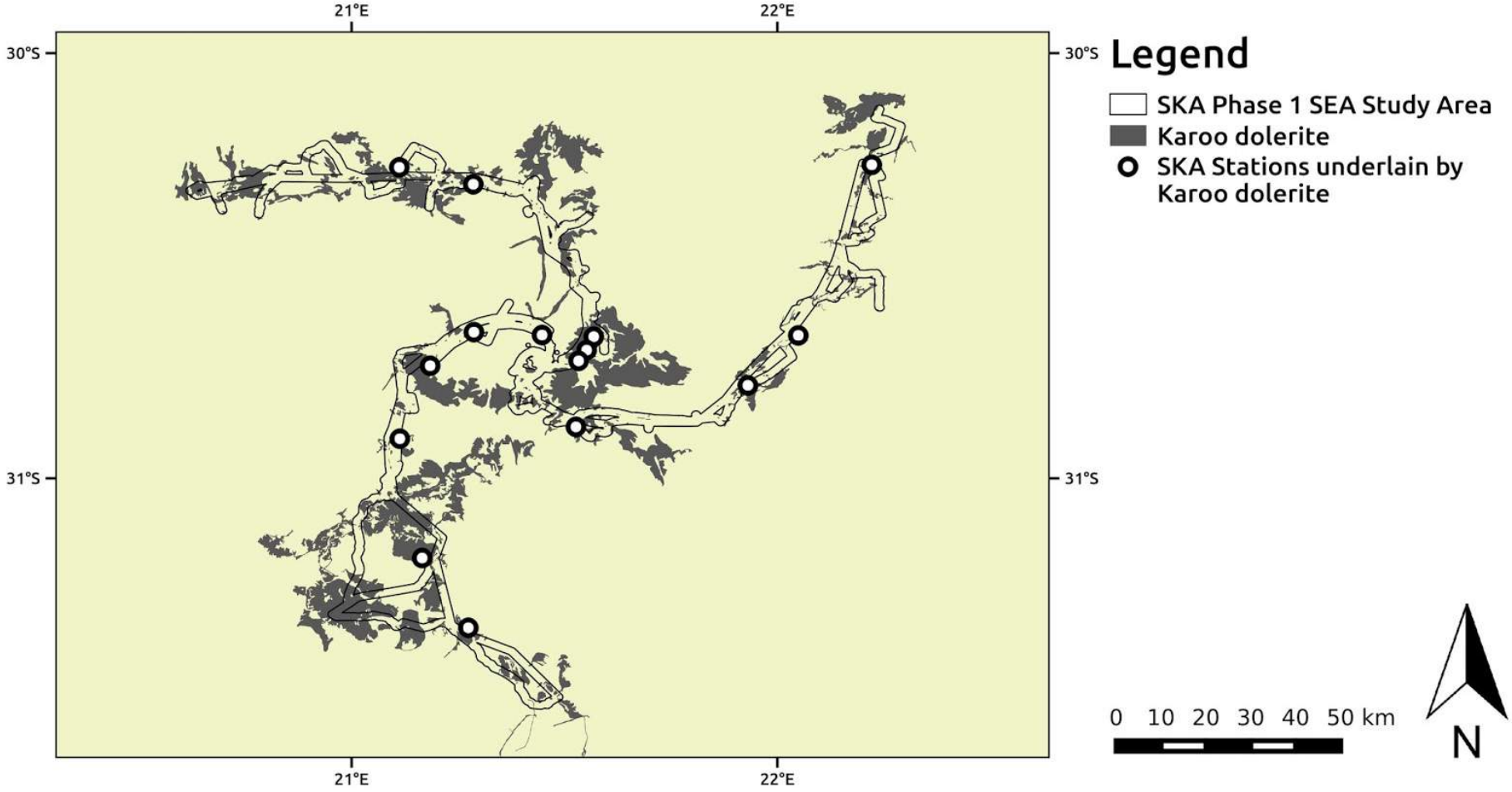

Figure 6a. SKA Phase 1 SEA Study Area, with Karoo dolerite and affected SKA Stations indicated. Dolerite outcrops are sensitive for possible engraved rock art sites.

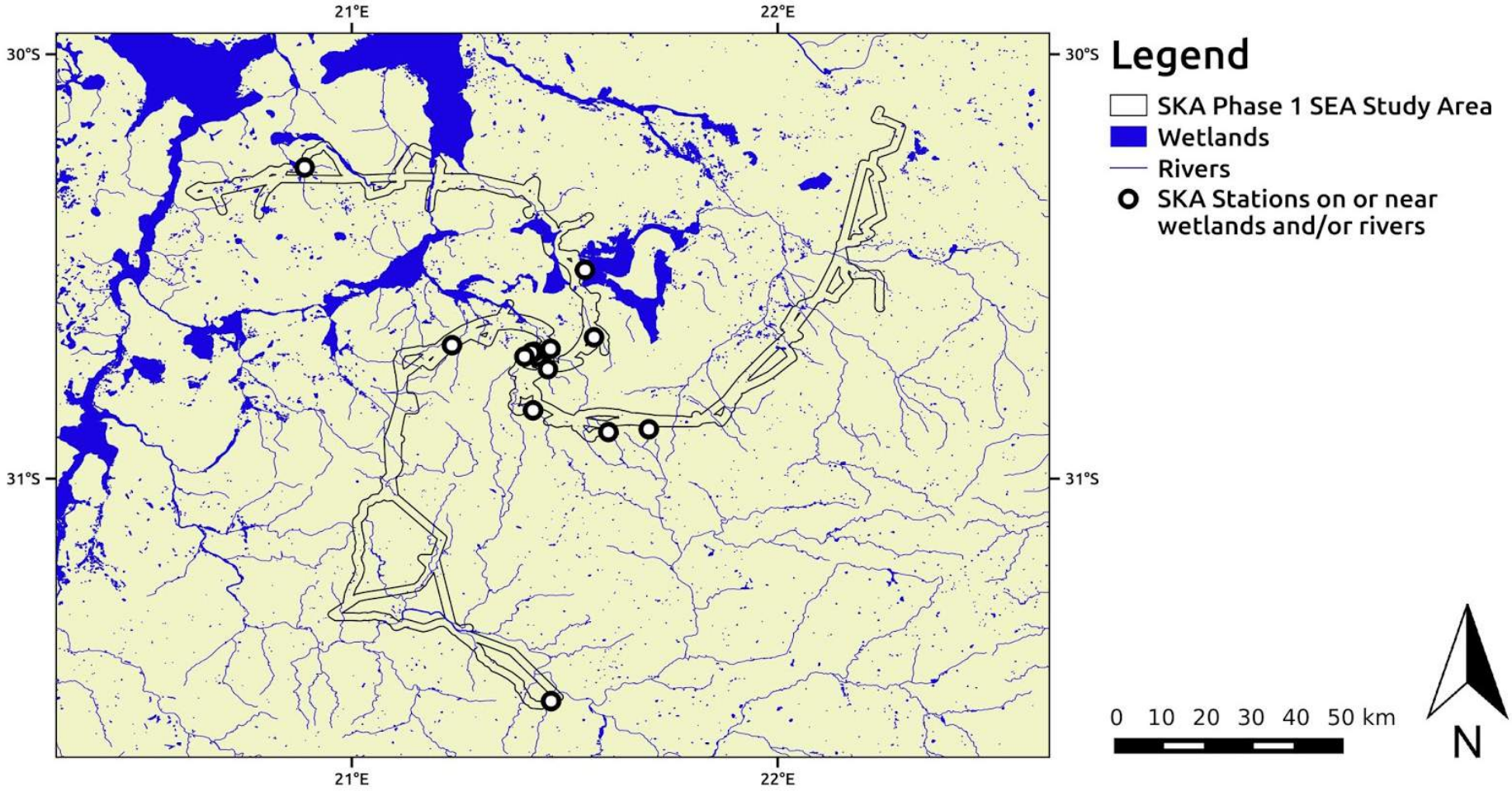

Figure 6b. SKA Phase 1 SEA Study Area, with rivers, wetlands and affected SKA stations indicated.

4. Fieldwork brief

Archaeological fieldwork will involve detailed foot survey at the SKA stations and be directed at locating Stone Age artefact scatters, historical structures (e.g. kraals) and rock engravings on dolerite boulders and outcrops (see Figs. 7a-b for satellite images with stations indicated). Palaeontological fieldwork will focus on recording any fossil material in accessible bedrock exposures in the SKA Phase 1 study area in order to improve the characterisation of the palaeontological sensitivity of the area.

Equipment used in the field will include digital cameras for taking high-resolution photographs, handheld GPS devices for recording sites and survey tracks, as well as mobile Android phones for site recording with the SAHRIS Site Recording App developed by CTS and OpenHeritage. Sites recorded in the field will be uploaded directly onto SAHRIS through the app.

One member of the archaeological survey team ("CORE FIELD MEMBER") will survey all SKA stations from SKA_S1_06, SKA_S2_08 and SKA_S3_06 towards the core. The good network of access roads and relatively short distances between stations will allow transport between these stations to be achievable on foot. The other member of the archaeological survey team ("SPIRAL ARMS FIELD MEMBER") will survey SKA stations from SKA_S1_07, SKA_S2_09 and SKA_S3_07 away from the core. The greater distances between the outer stations means that travel between stations needs to be done by vehicle.

The following stations have a lower priority in terms of archaeology since they are not underlain by Karoo dolerite and are not near water features (rivers, pans and wetlands):

- Spiral arm 1: SKA_S1_09, SKA_S1_10, SKA_S1_12, SKA_S1_13, SKA_S1_17
- Spiral arm 2: SKA_S2_09, SKA_S2_13, SKA_S2_16
- Spiral arm 3: SKA_S3_07, SKA_S3_08 , SKA_S3_12, SKA_S3_14

The spiral arms field member needs to survey only 19 of the 31 stations from SKA_S1_07, SKA_S2_09 and SKA_S3_07 away from the core. This will save a significant amount of time and resources given the great distances between stations and sometimes indirect road networks.

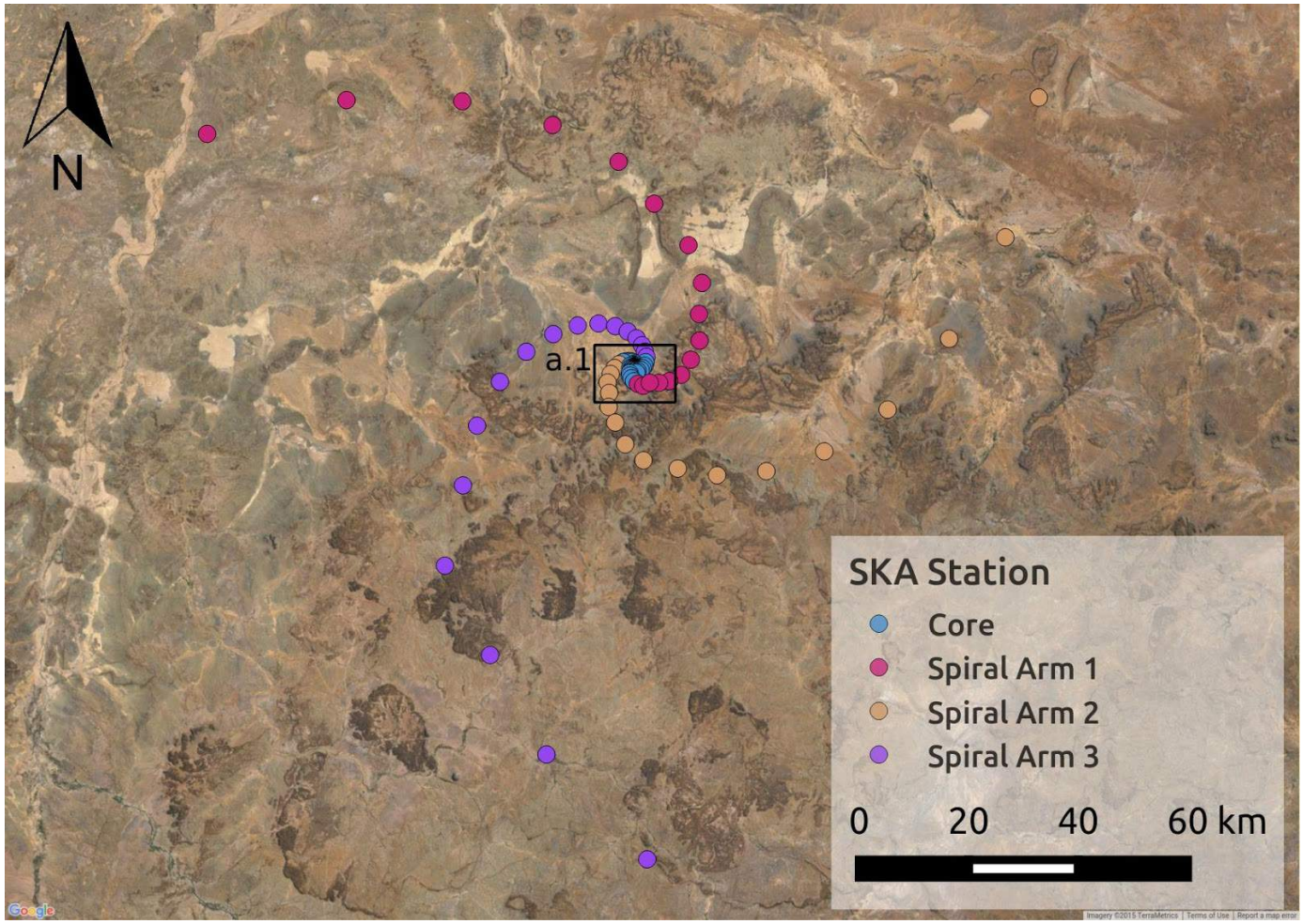

Figure 7a. Satellite image with SKA receptors indicated (see Fig. 7a.1. for inset map).

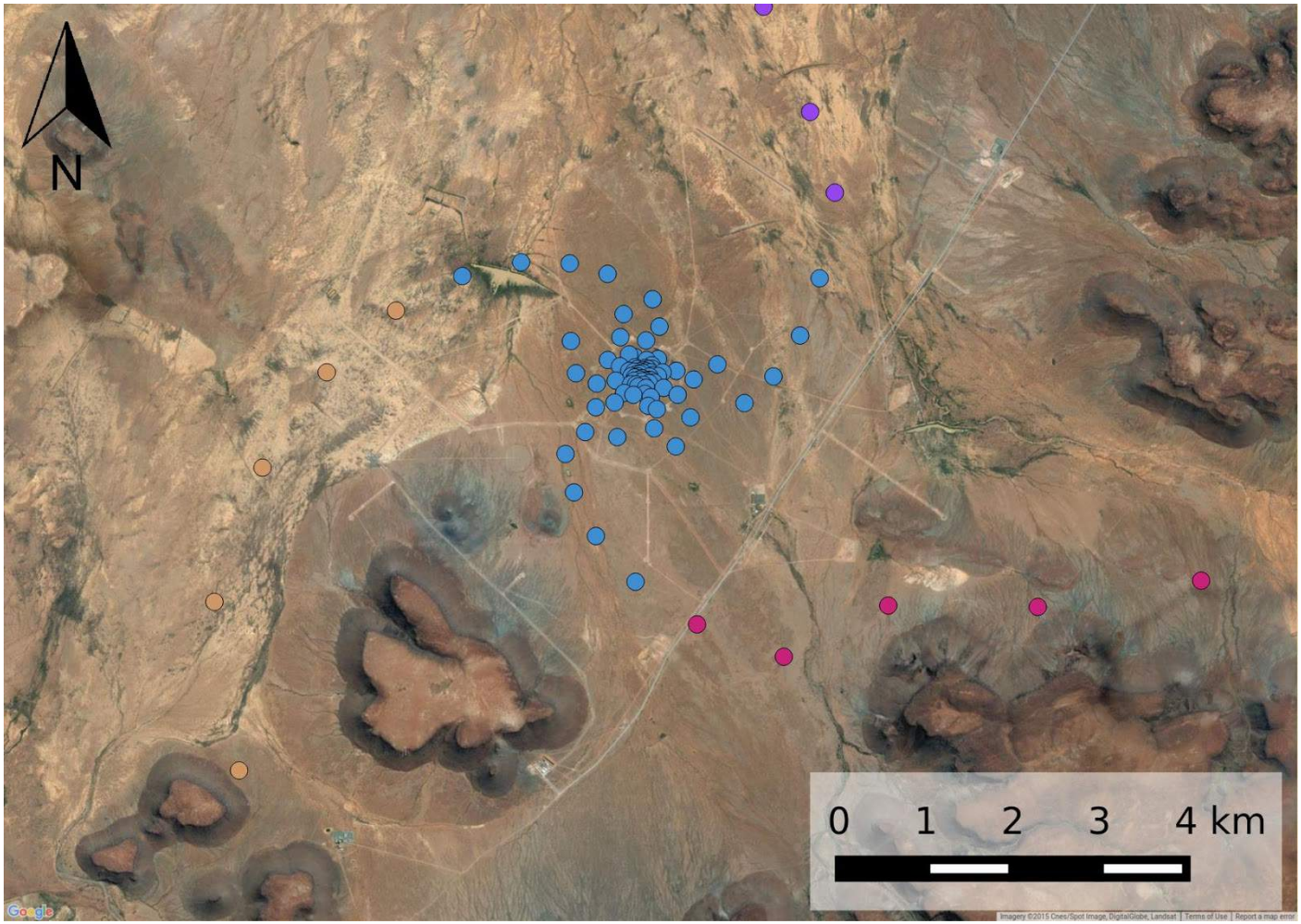

Figure 7a.1. Inset map indicating SKA receptors in core area.

Figure 7b.1. Satellite image with SKA receptor SKA_1_01 indicated.

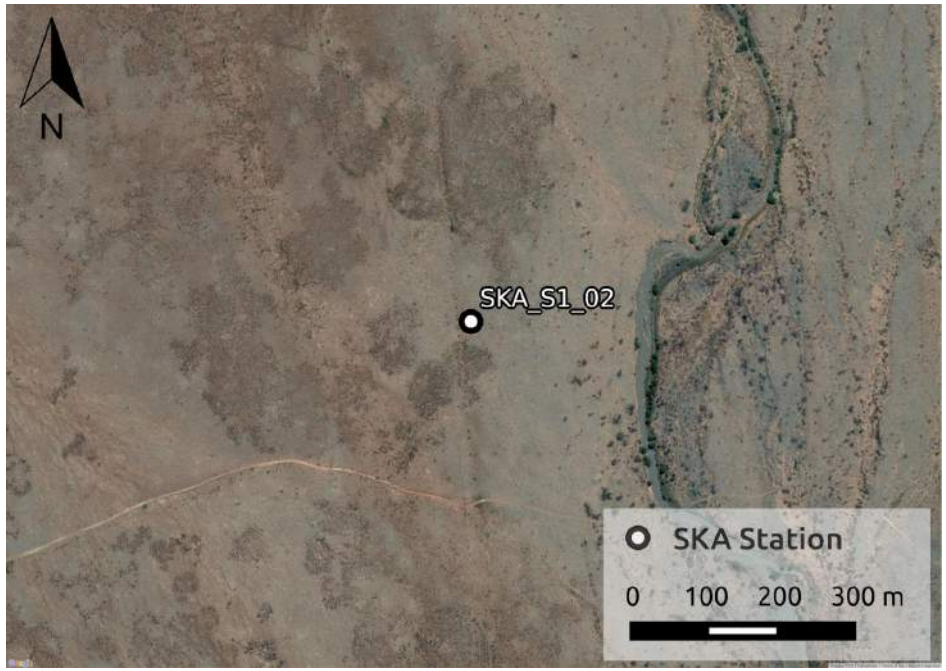

Figure 7b.2. Satellite image with SKA receptor SKA_1_02 indicated.

Figure 7b.3. Satellite image with SKA receptor SKA_1_03 indicated.

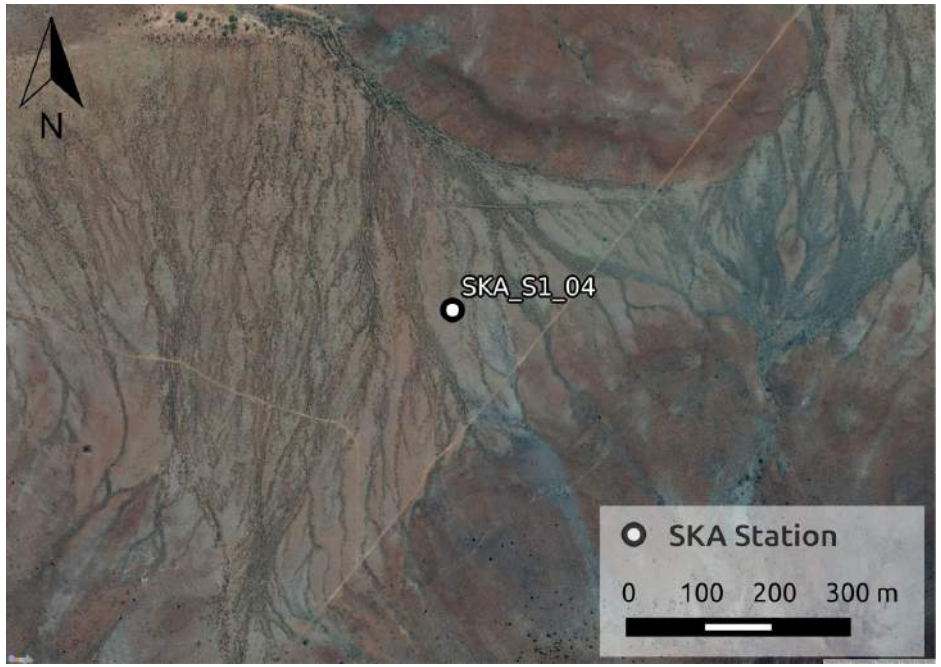

Figure 7b.4. Satellite image with SKA receptor SKA_1_04 indicated.

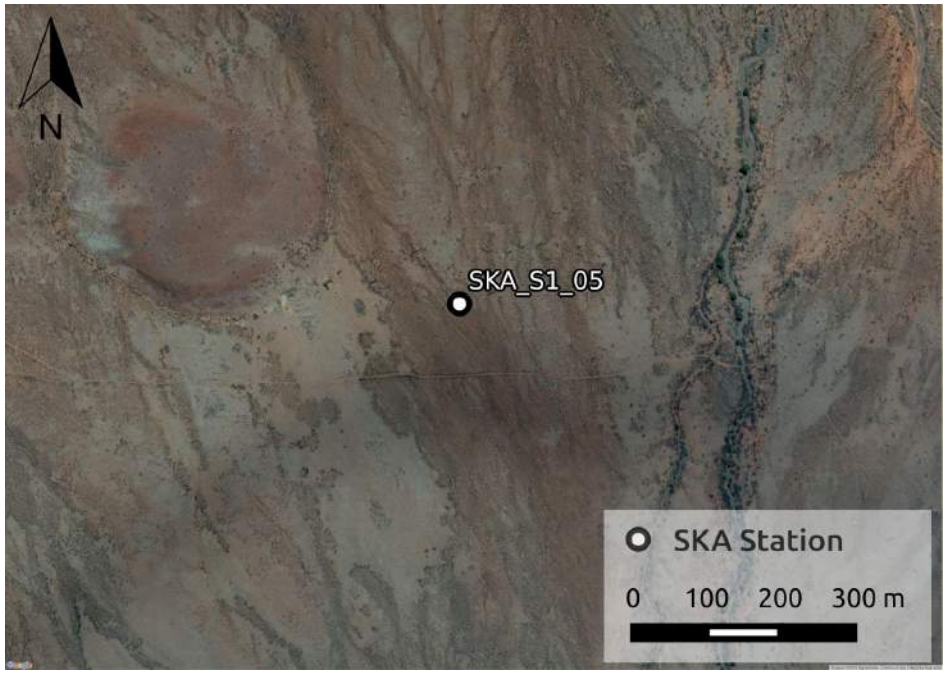

Figure 7b.5. Satellite image with SKA receptor SKA_1_05 indicated.

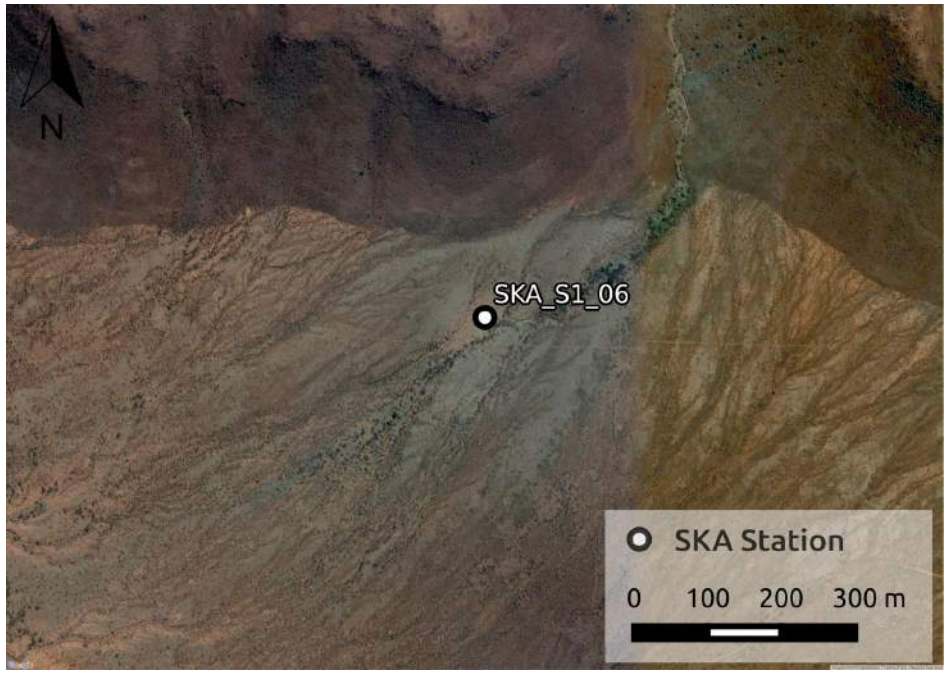

Figure 7b.6. Satellite image with SKA receptor SKA_1_06 indicated.

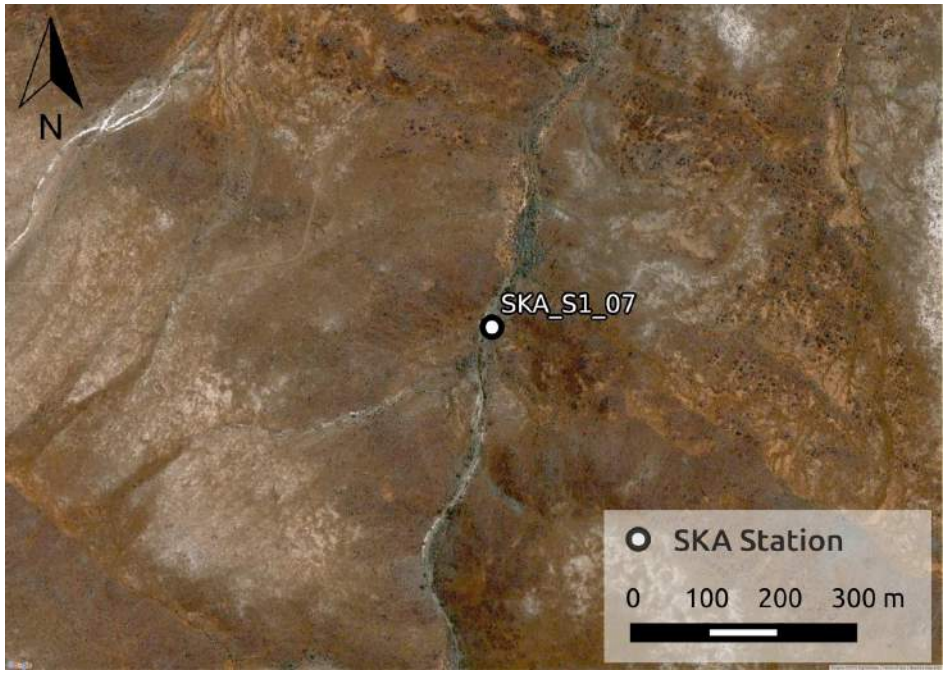

Figure 7b.7. Satellite image with SKA receptor SKA_1_07 indicated.

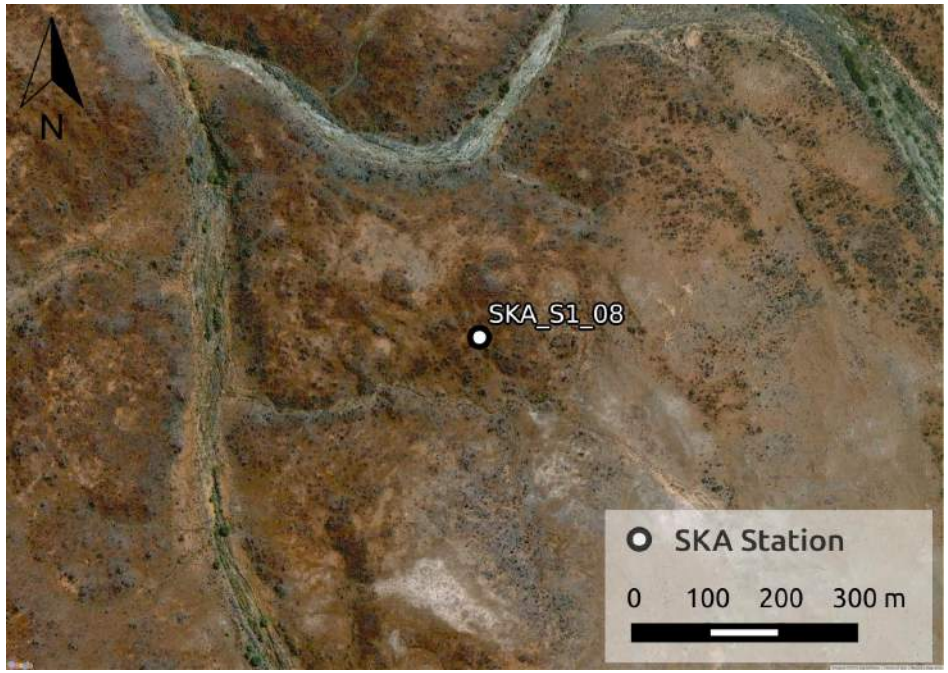

Figure 7b.8. Satellite image with SKA receptor SKA_1_08 indicated.

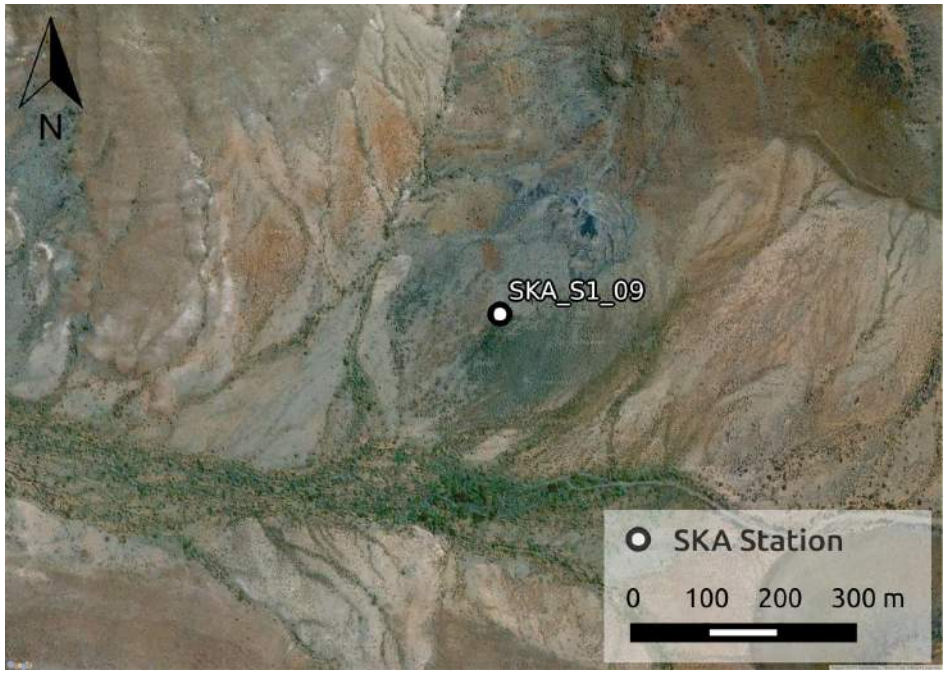

Figure 7b.9. Satellite image with SKA receptor SKA_1_09 indicated.

Figure 7b.10. Satellite image with SKA receptor SKA_1_10 indicated.

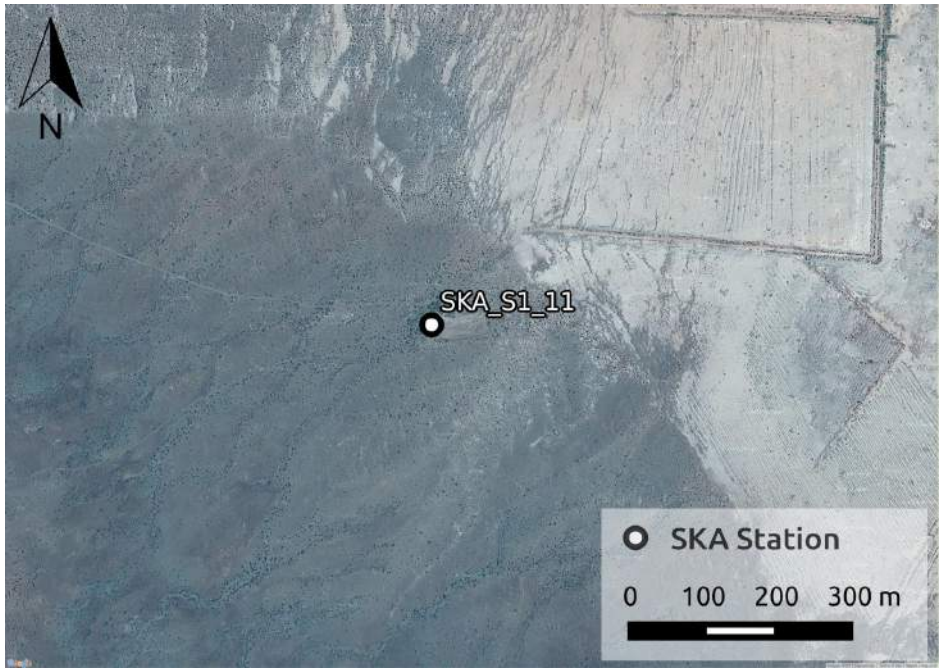

Figure 7b.11. Satellite image with SKA receptor SKA_1_11 indicated.

Figure 7b.12. Satellite image with SKA receptor SKA_1_12 indicated.

Figure 7b.13. Satellite image with SKA receptor SKA_1_13 indicated.

Figure 7b.14. Satellite image with SKA receptor SKA_1_14 indicated.

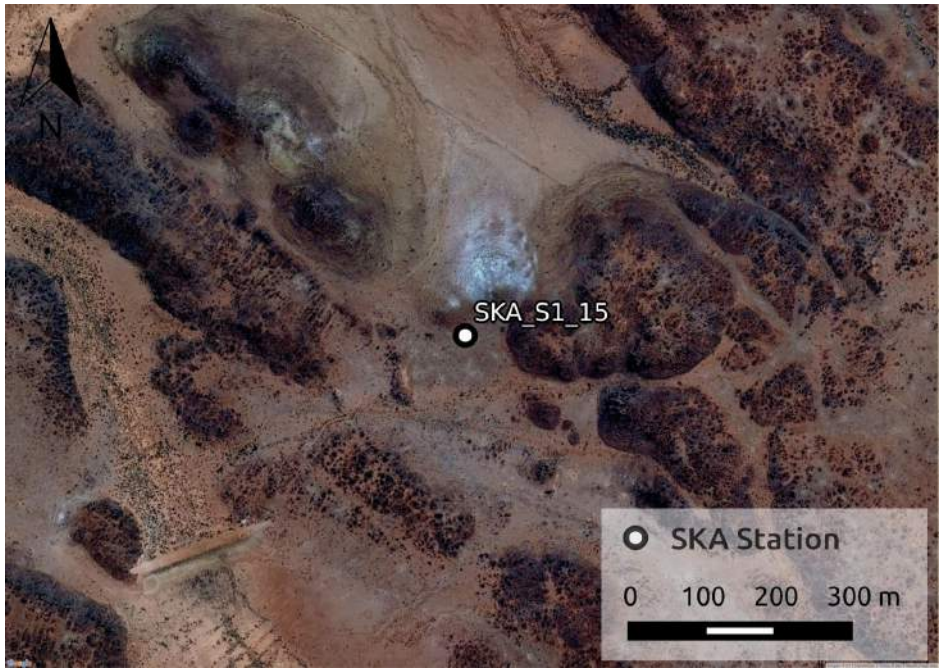

Figure 7b.15. Satellite image with SKA receptor SKA_1_15 indicated.

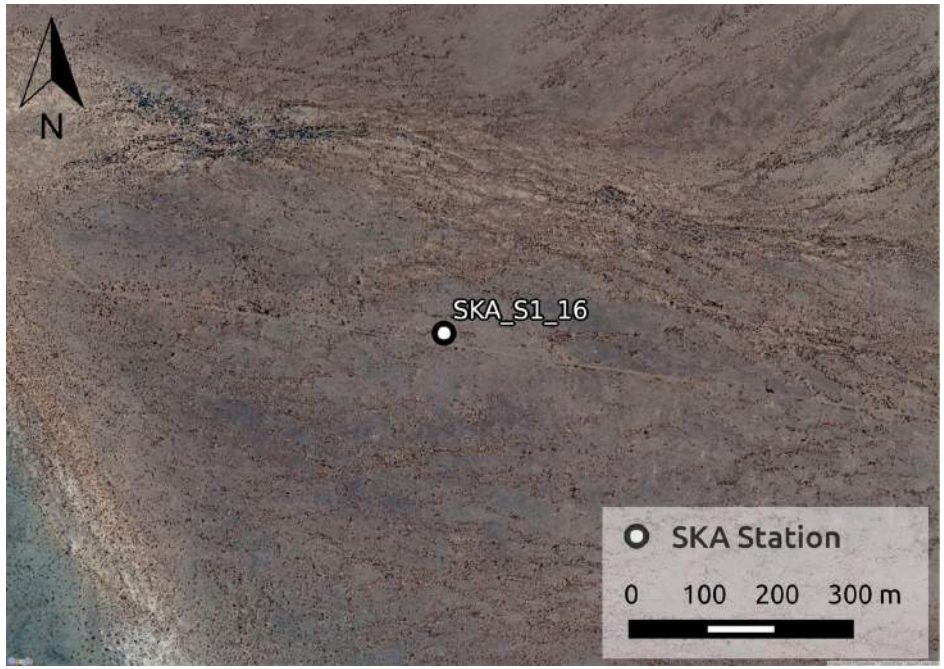

Figure 7b.16. Satellite image with SKA receptor SKA_1_16 indicated.

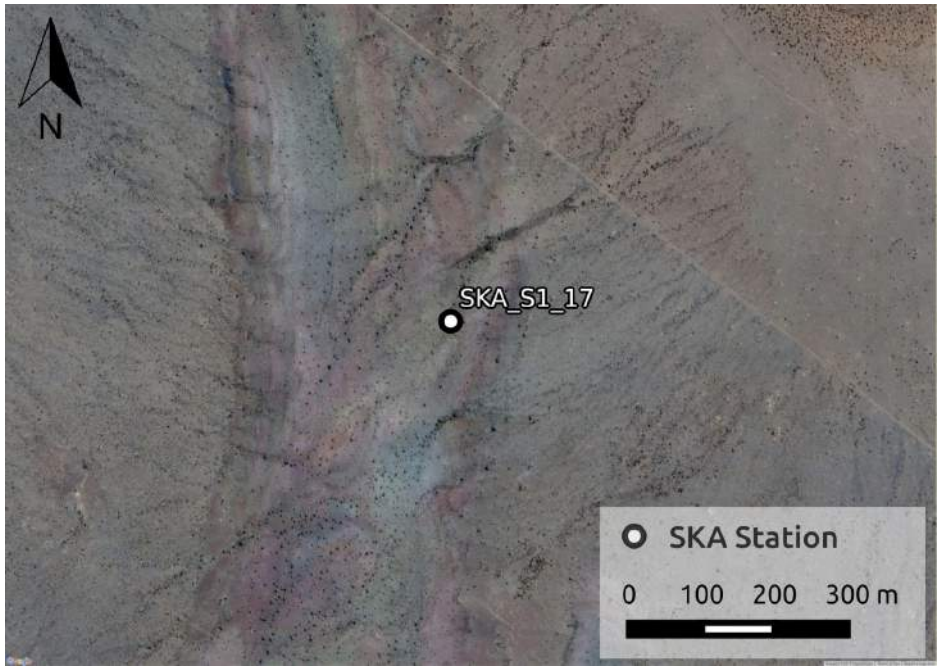

Figure 7b.17. Satellite image with SKA receptor SKA_1_17 indicated.

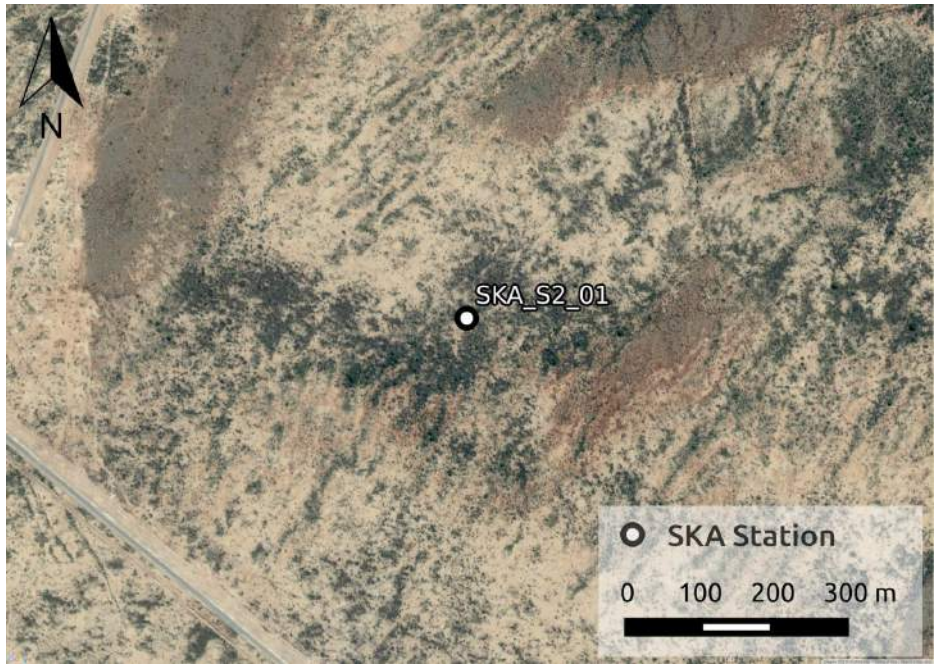

Figure 7b.18. Satellite image with SKA receptor SKA_2_01 indicated.

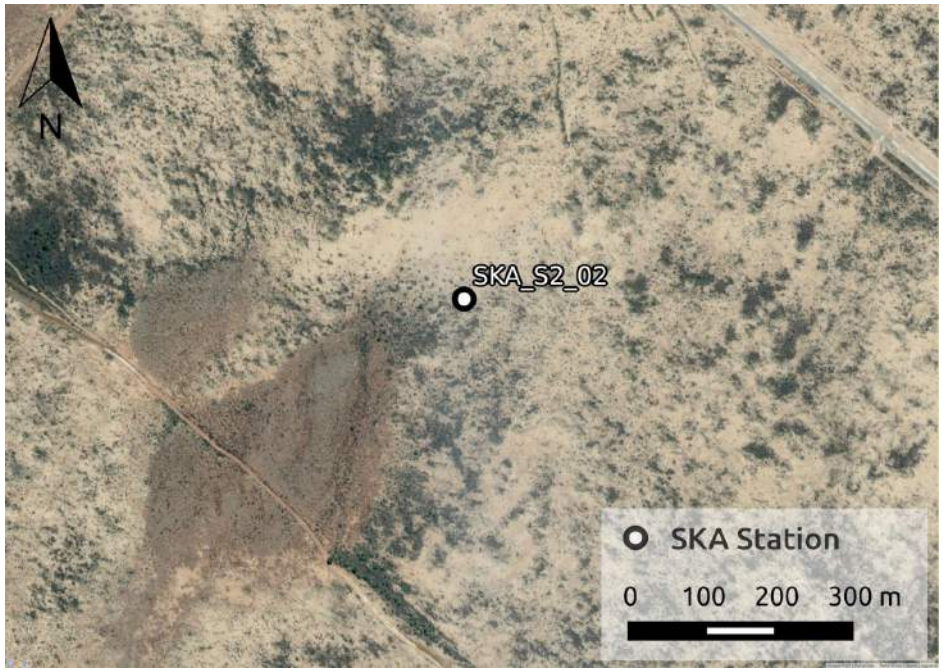

Figure 7b.19. Satellite image with SKA receptor SKA_2_02 indicated.

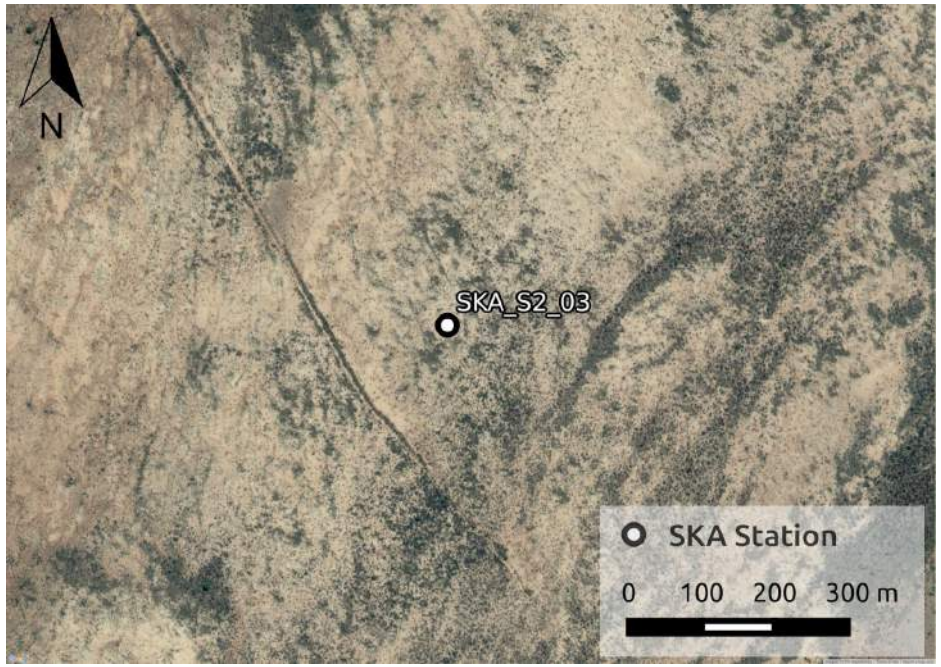

Figure 7b.20. Satellite image with SKA receptor SKA_2_03 indicated.

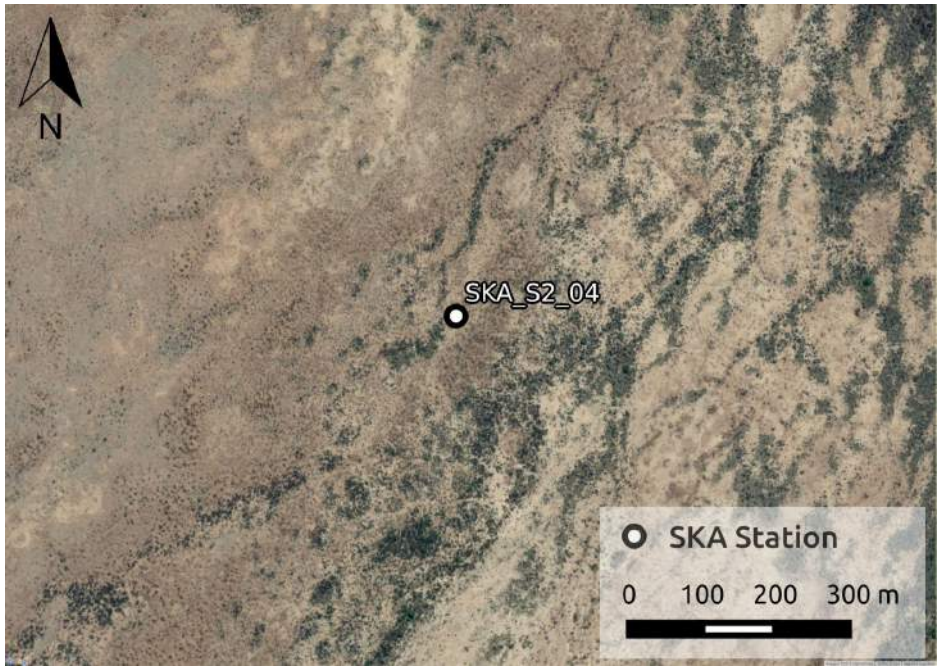

Figure 7b.21. Satellite image with SKA receptor SKA_2_04 indicated.

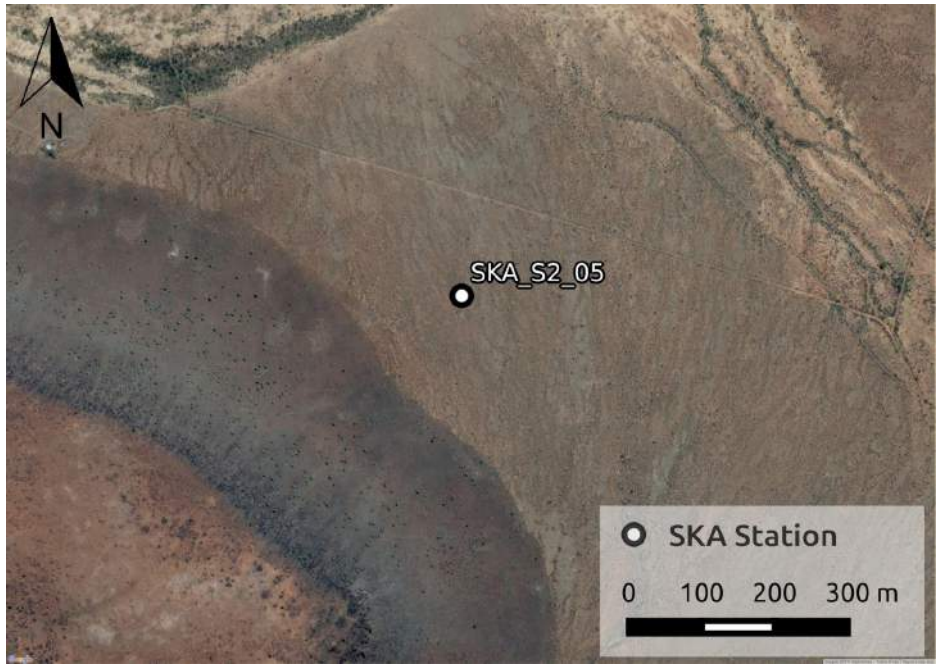

Figure 7b.22. Satellite image with SKA receptor SKA_2_05 indicated.

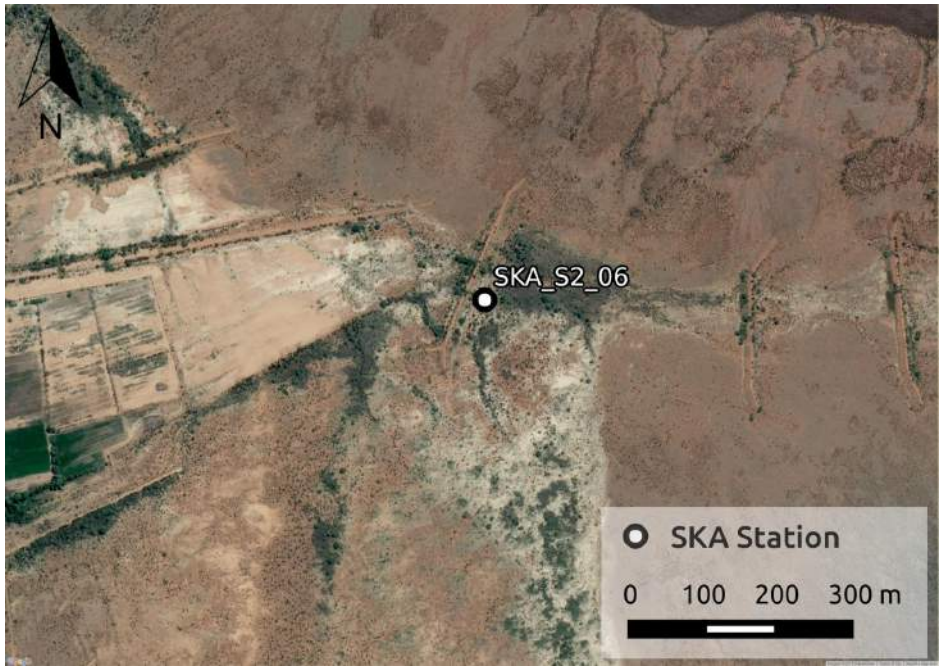

Figure 7b.23. Satellite image with SKA receptor SKA_2_06 indicated.

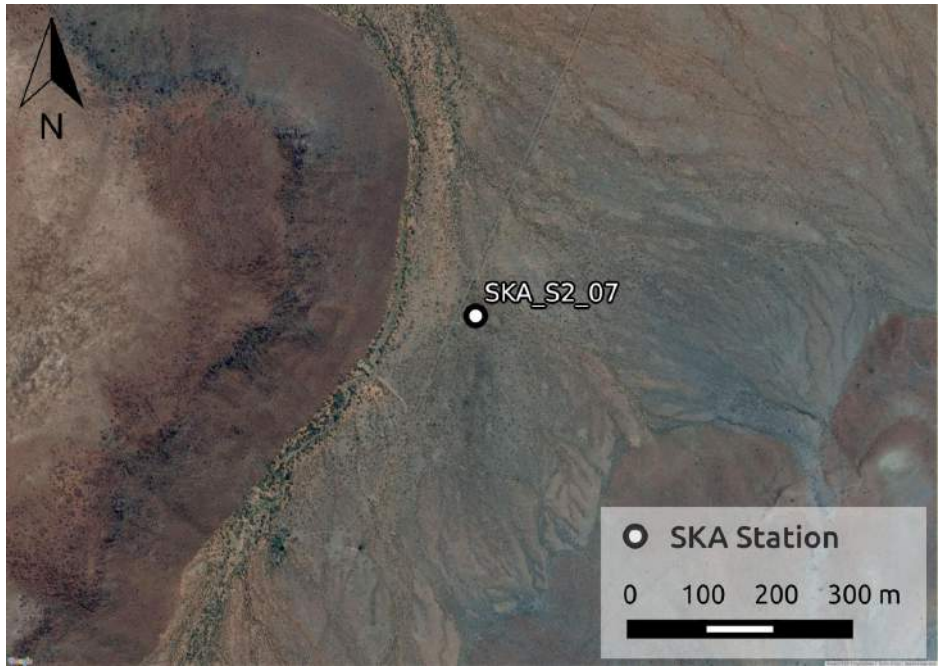

Figure 7b.24. Satellite image with SKA receptor SKA_2_07 indicated.

Figure 7b.25. Satellite image with SKA receptor SKA_2_08 indicated.

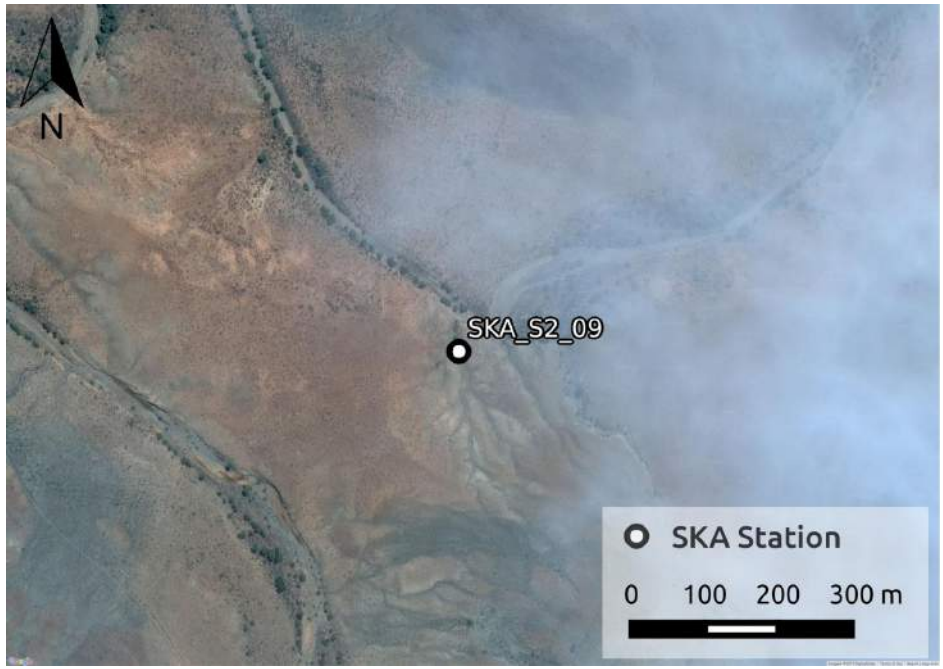

Figure 7b.26. Satellite image with SKA receptor SKA_2_09 indicated.

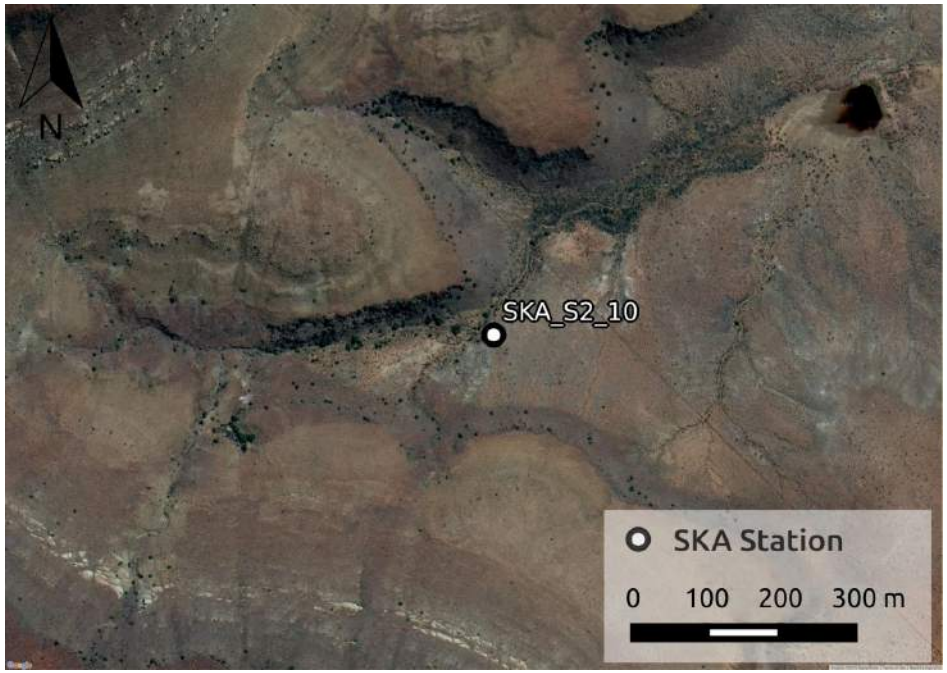

Figure 7b.27. Satellite image with SKA receptor SKA_2_10 indicated.

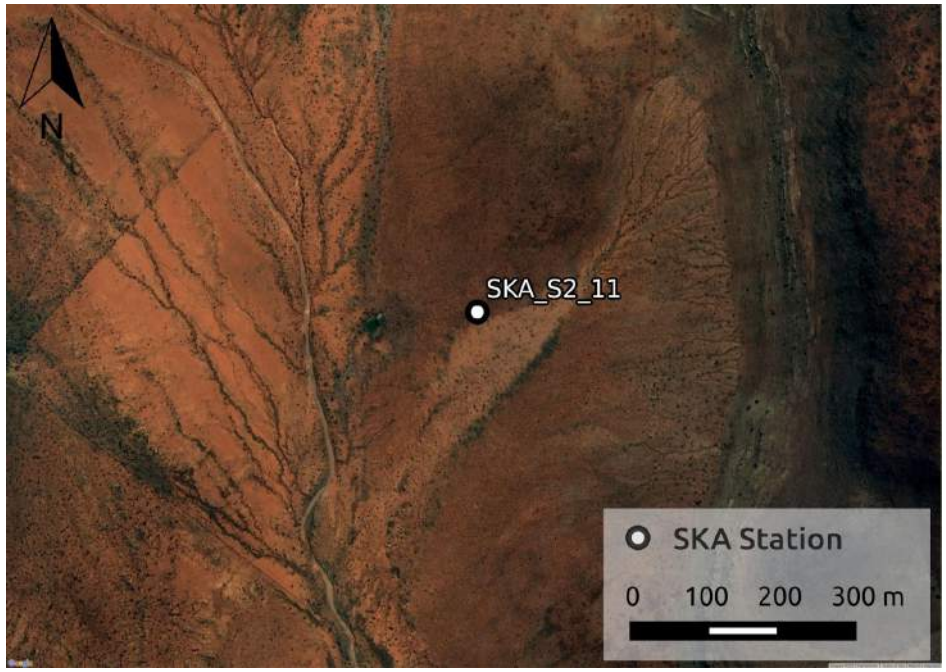

Figure 7b.28. Satellite image with SKA receptor SKA_2_11 indicated.

Figure 7b.29. Satellite image with SKA receptor SKA_2_12 indicated.

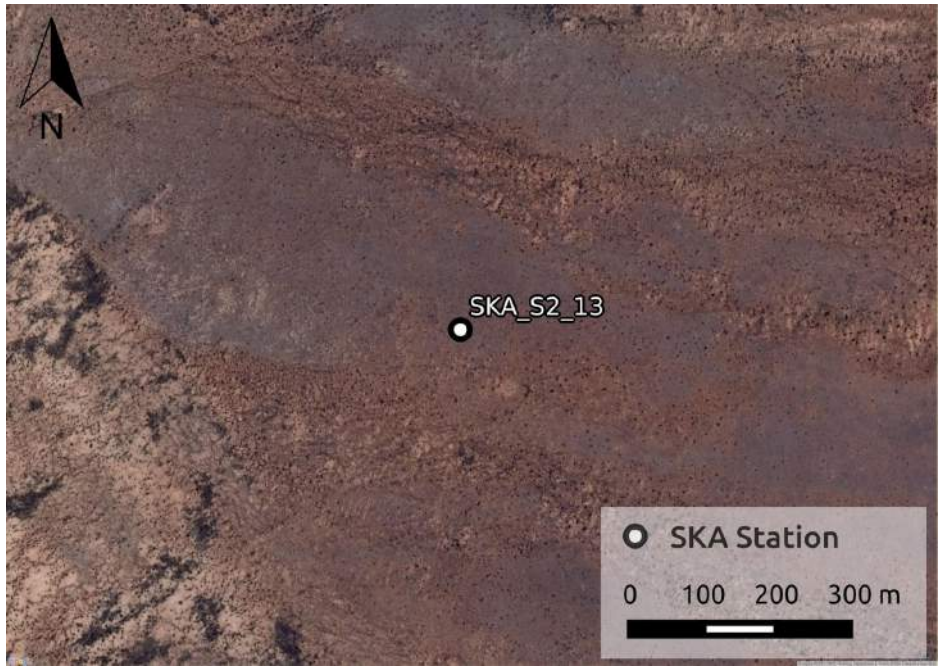

Figure 7b.30. Satellite image with SKA receptor SKA_2_13 indicated.

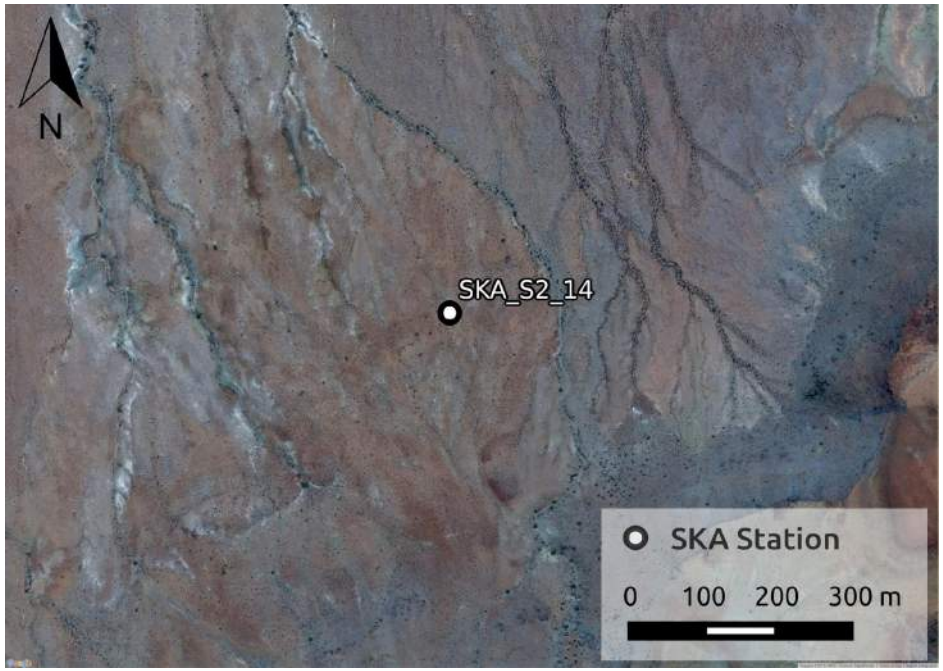

Figure 7b.31. Satellite image with SKA receptor SKA_2_14 indicated.

Figure 7b.32. Satellite image with SKA receptor SKA_2_15 indicated.

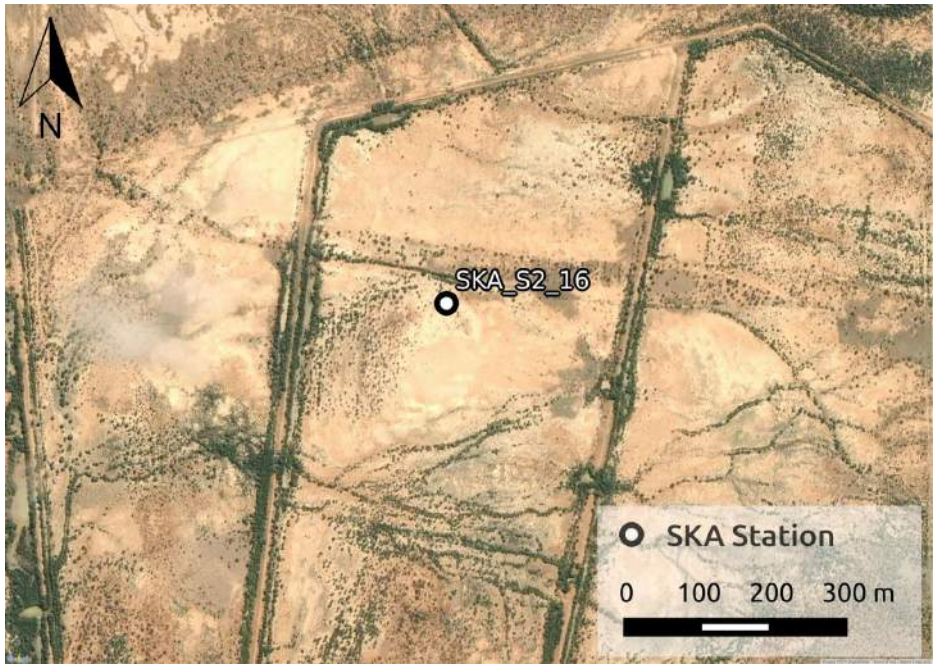

Figure 7b.33. Satellite image with SKA receptor SKA_2_16 indicated.

Figure 7b.34. Satellite image with SKA receptor SKA_2_17 indicated.

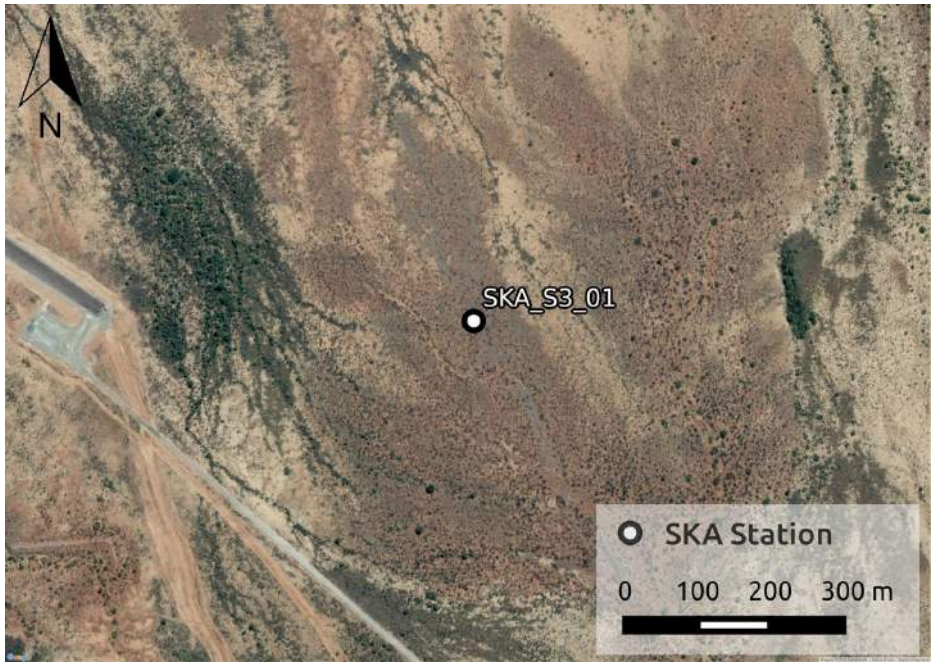

Figure 7b.35. Satellite image with SKA receptor SKA_3_01 indicated.

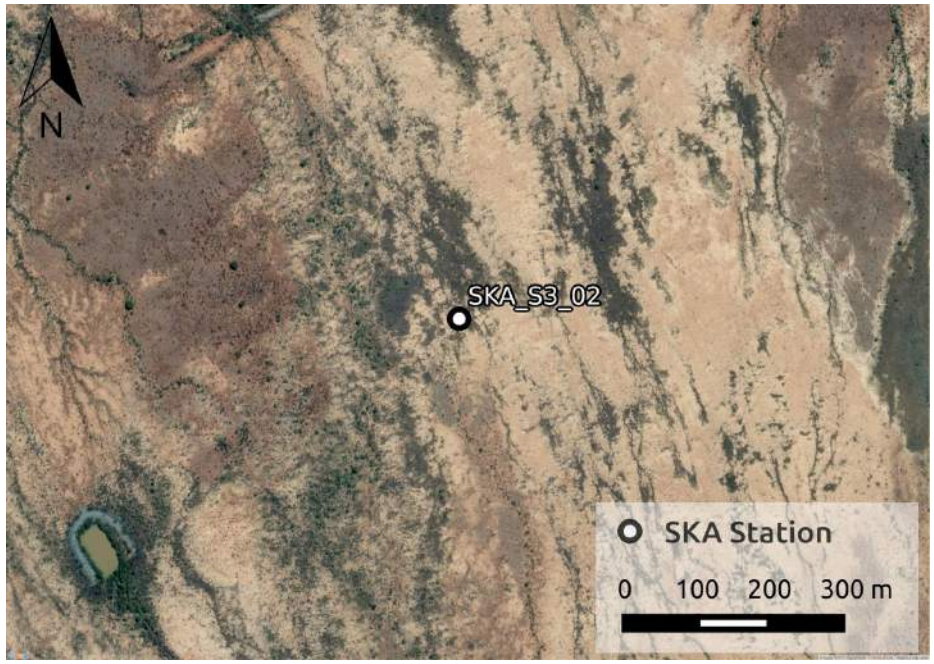

Figure 7b.36. Satellite image with SKA receptor SKA_3_02 indicated.

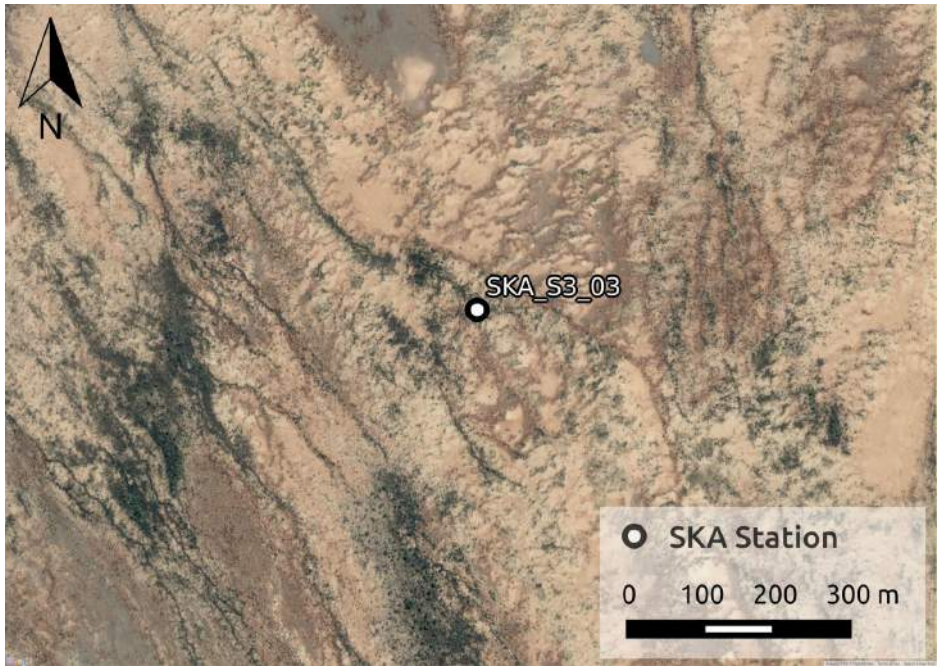

Figure 7b.37. Satellite image with SKA receptor SKA_3_03 indicated.

Figure 7b.38. Satellite image with SKA receptor SKA_3_04 indicated.

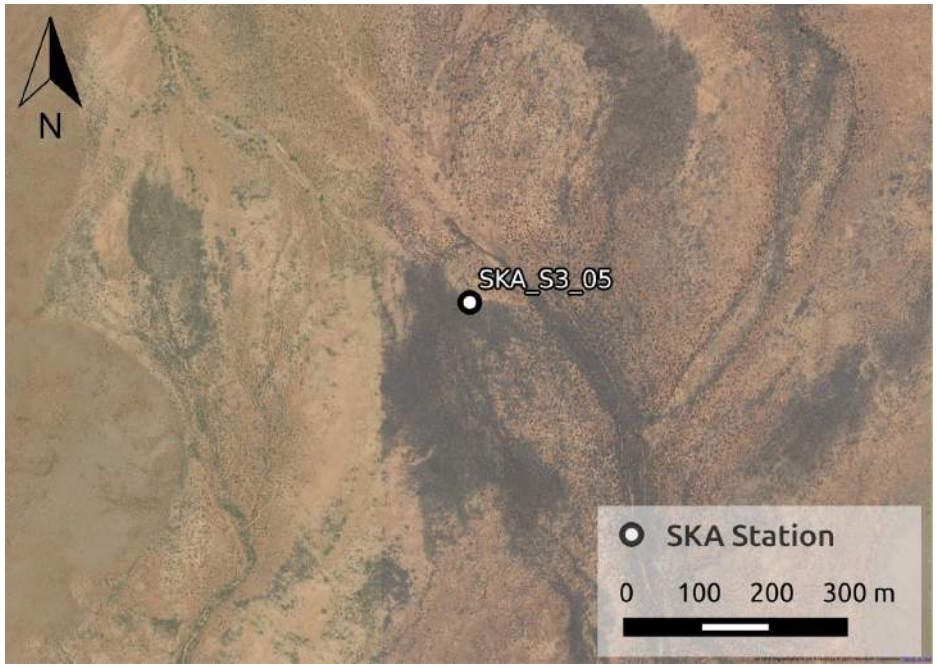

Figure 7b.39. Satellite image with SKA receptor SKA_3_05 indicated.

Figure 7b.40. Satellite image with SKA receptor SKA_3_06 indicated.

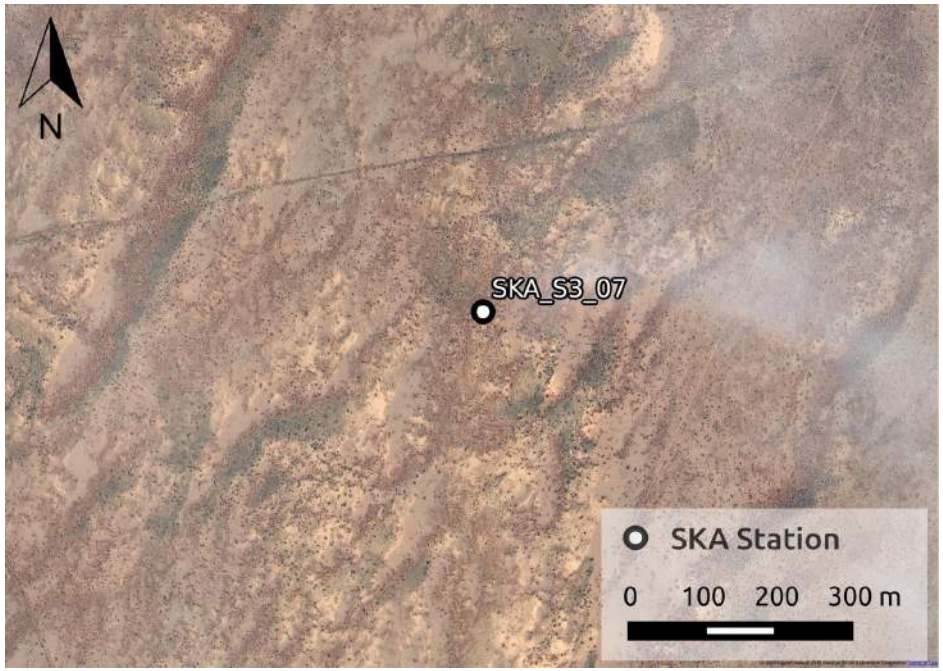

Figure 7b.41. Satellite image with SKA receptor SKA_3_07 indicated.

Figure 7b.42. Satellite image with SKA receptor SKA_3_08 indicated.

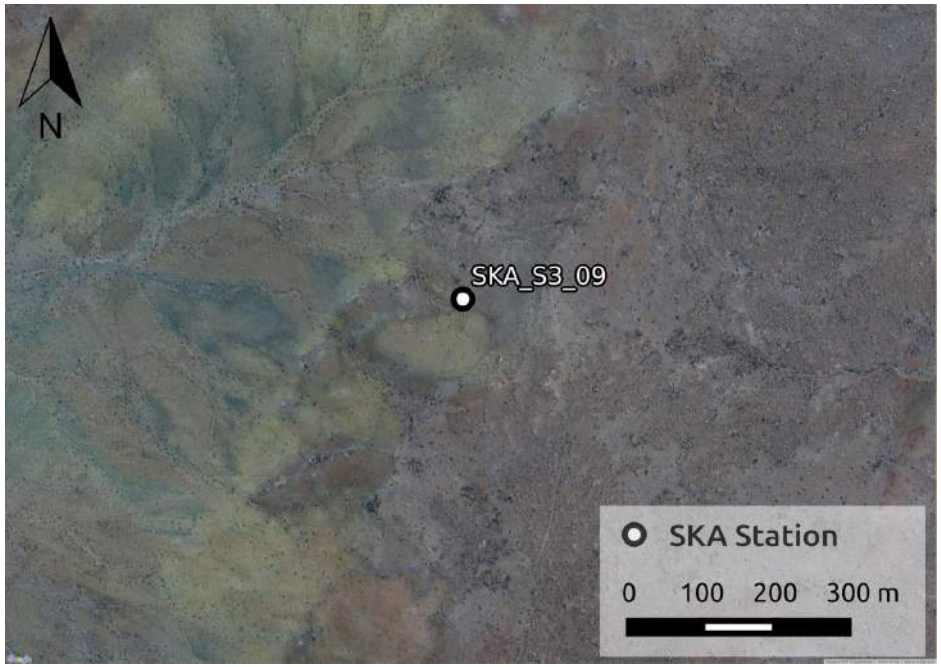

Figure 7b.43. Satellite image with SKA receptor SKA_3_09 indicated.

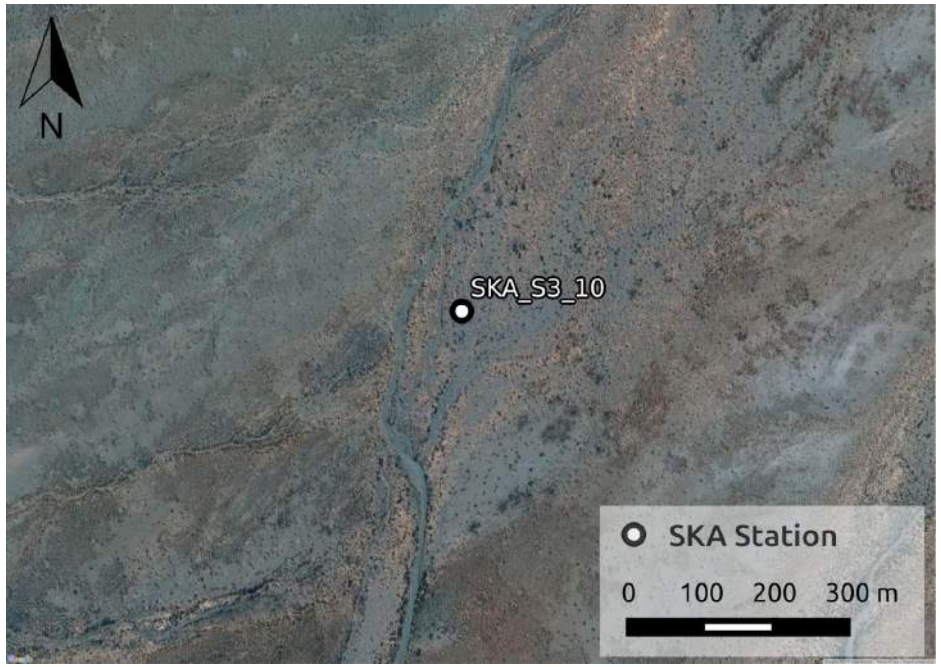

Figure 7b.44. Satellite image with SKA receptor SKA_3_10 indicated.

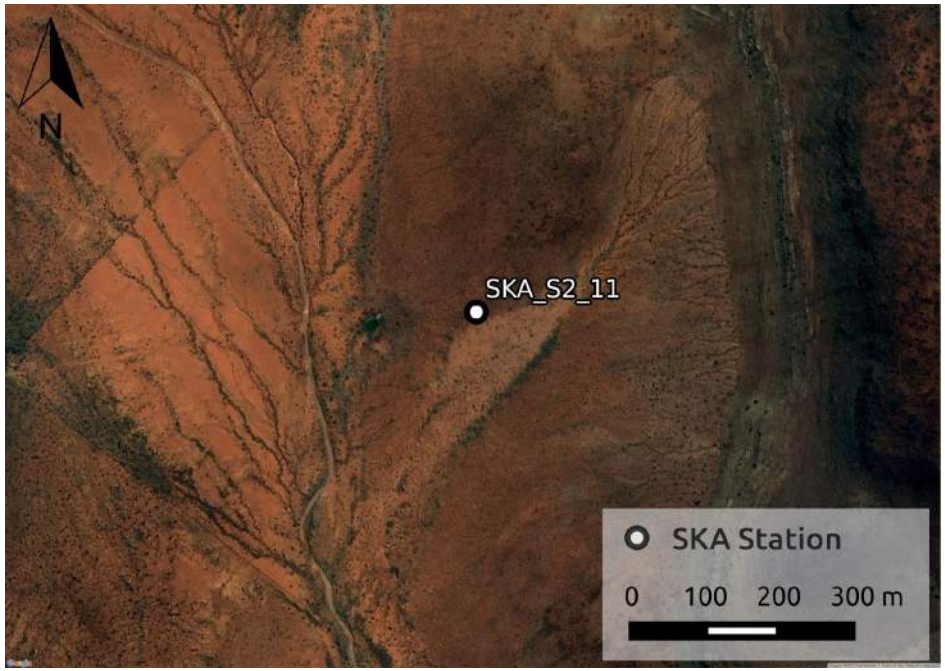

Figure 7b.45. Satellite image with SKA receptor SKA_3_11 indicated.

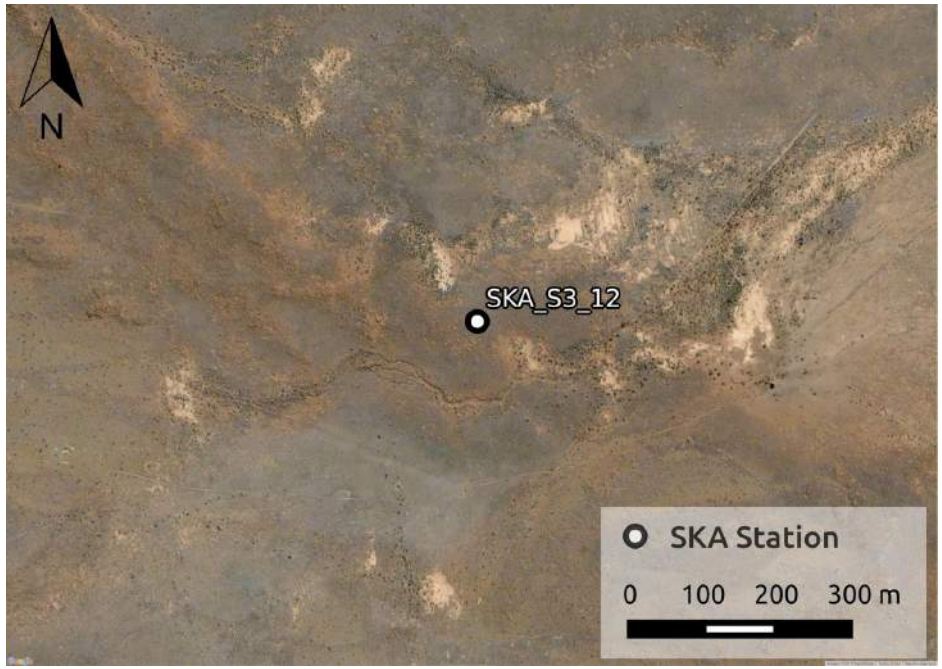

Figure 7b.46. Satellite image with SKA receptor SKA_3_12 indicated.

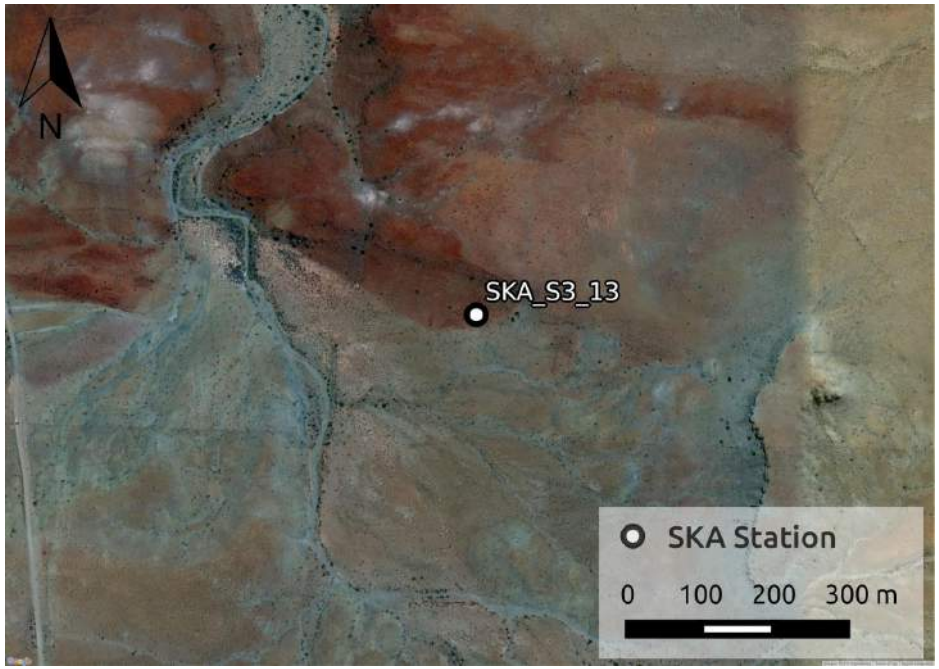

Figure 7b.47. Satellite image with SKA receptor SKA_3_13 indicated.

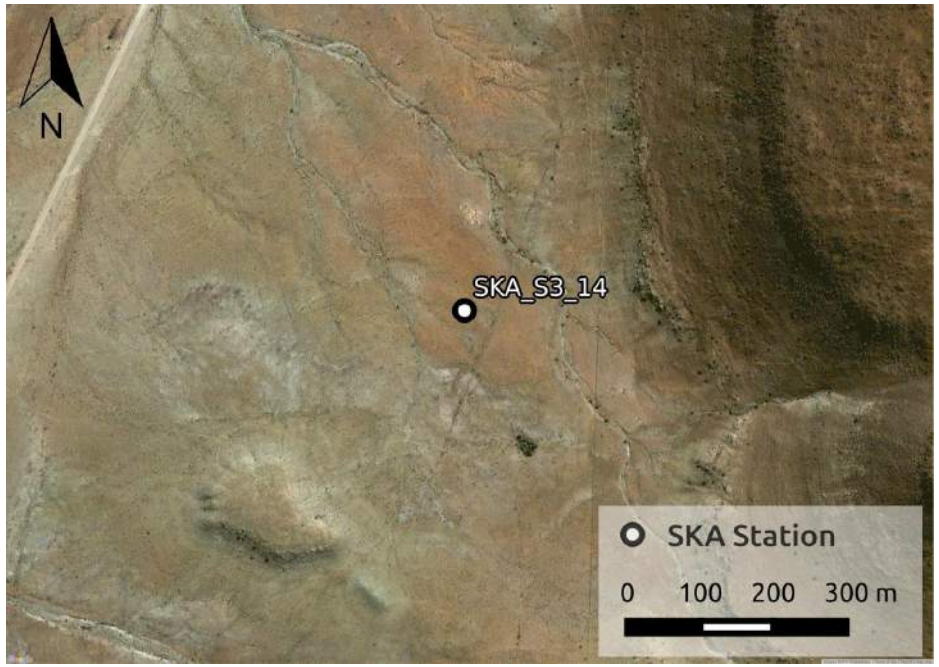

Figure 7b.48. Satellite image with SKA receptor SKA_3_14 indicated.

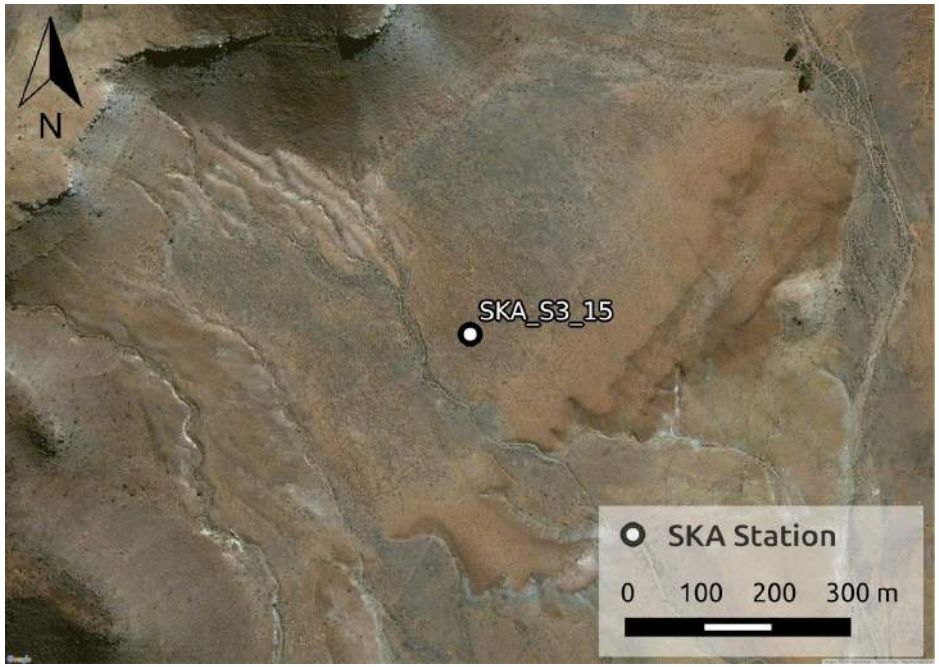

Figure 7b.49. Satellite image with SKA receptor SKA_3_15 indicated.

Figure 7b.50. Satellite image with SKA receptor SKA_3_16 indicated.

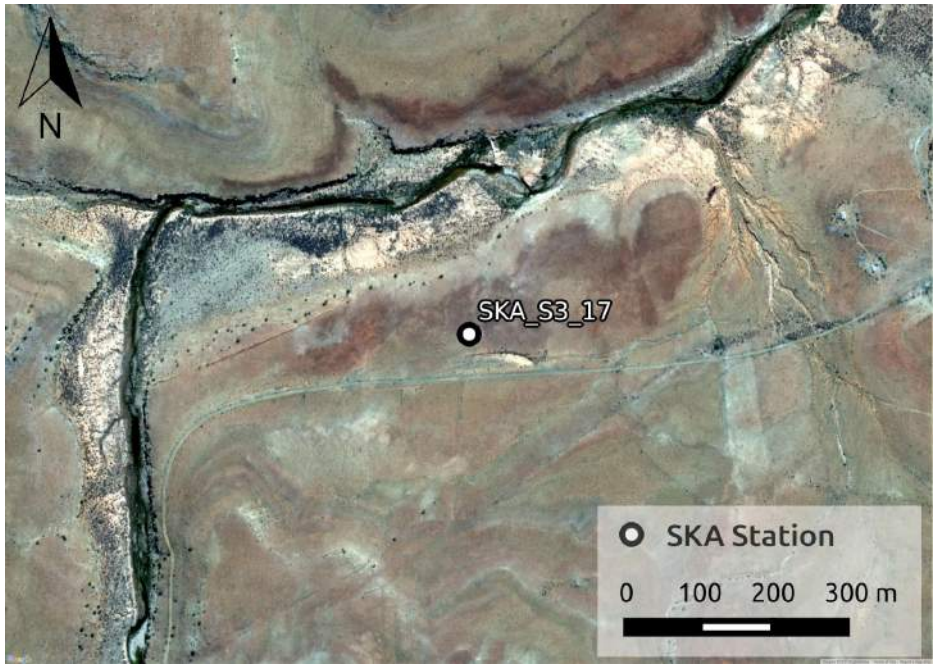

Figure 7b.51. Satellite image with SKA receptor SKA_3_17 indicated.

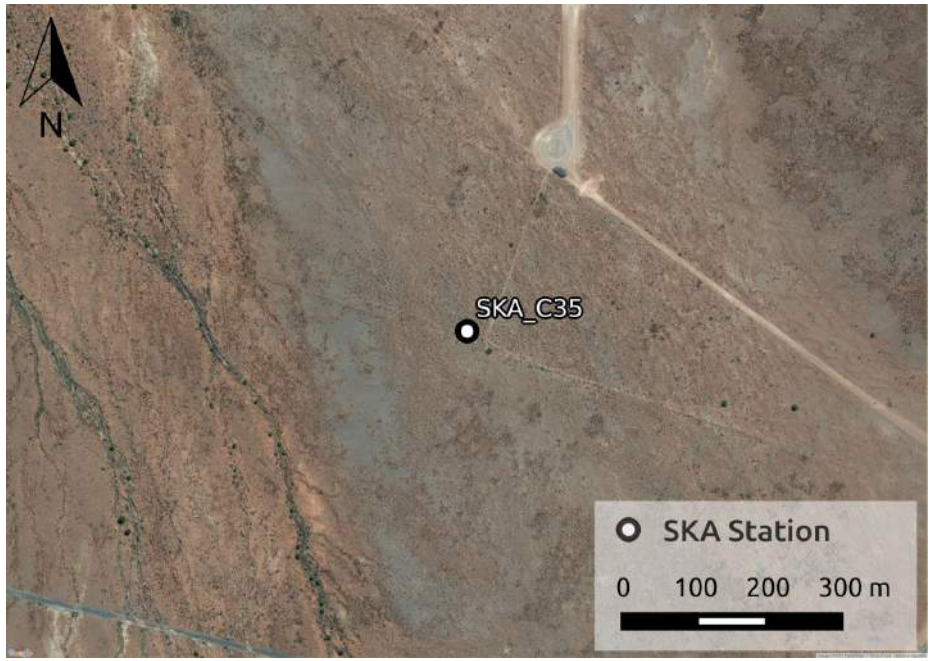

Figure 7b.52. Satellite image with SKA receptor SKA_C35 indicated.

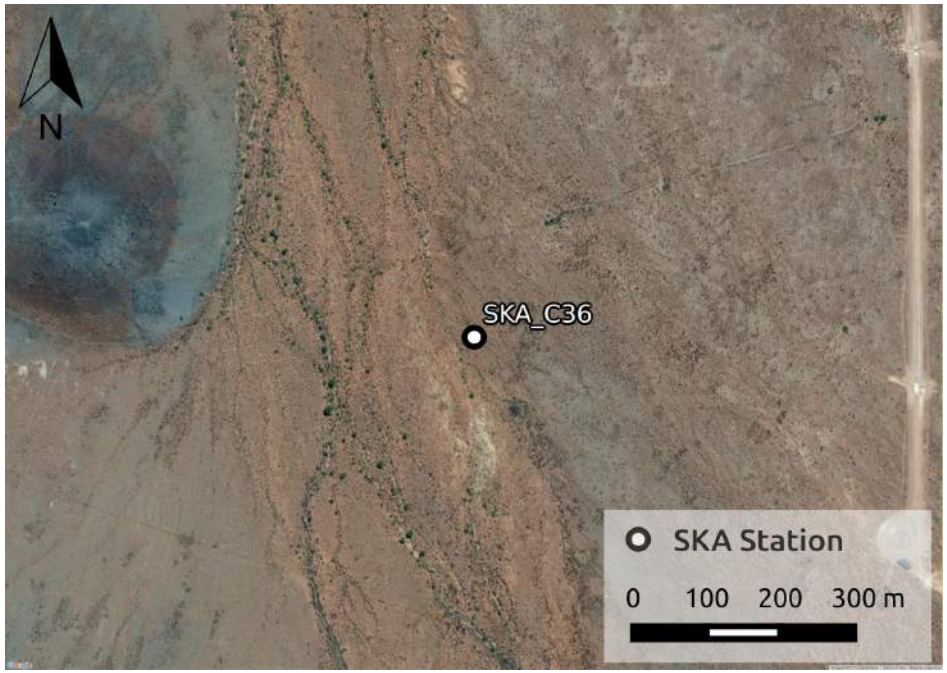

Figure 7b.53. Satellite image with SKA receptor SKA_C36 indicated.

Figure 7b.54. Satellite image with SKA receptors SKA_C37 and SKA_C38 indicated.

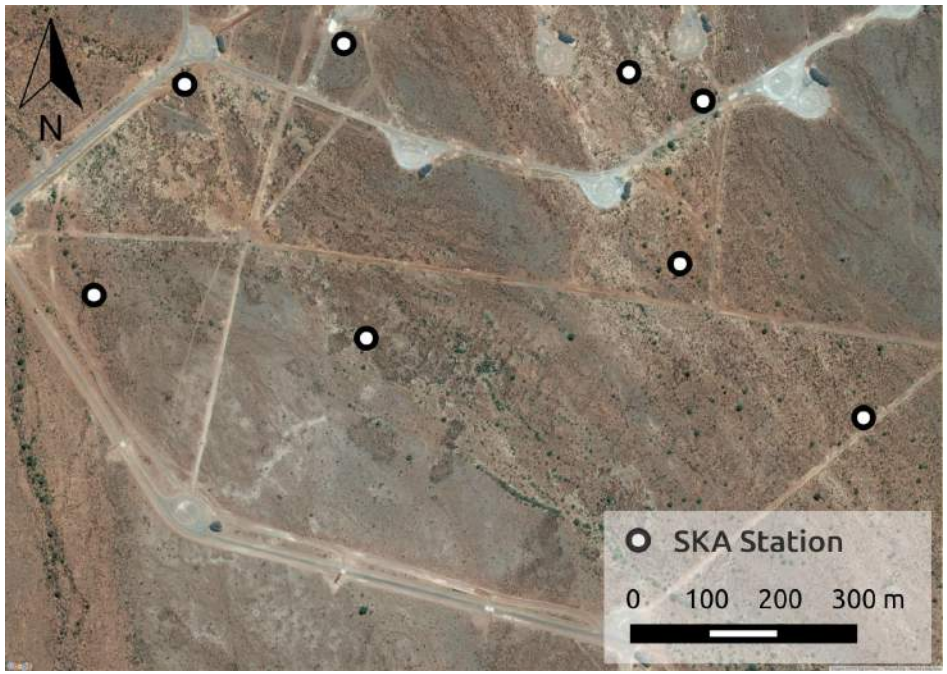

Figure 7b.55. Satellite image with SKA receptors in core area indicated.

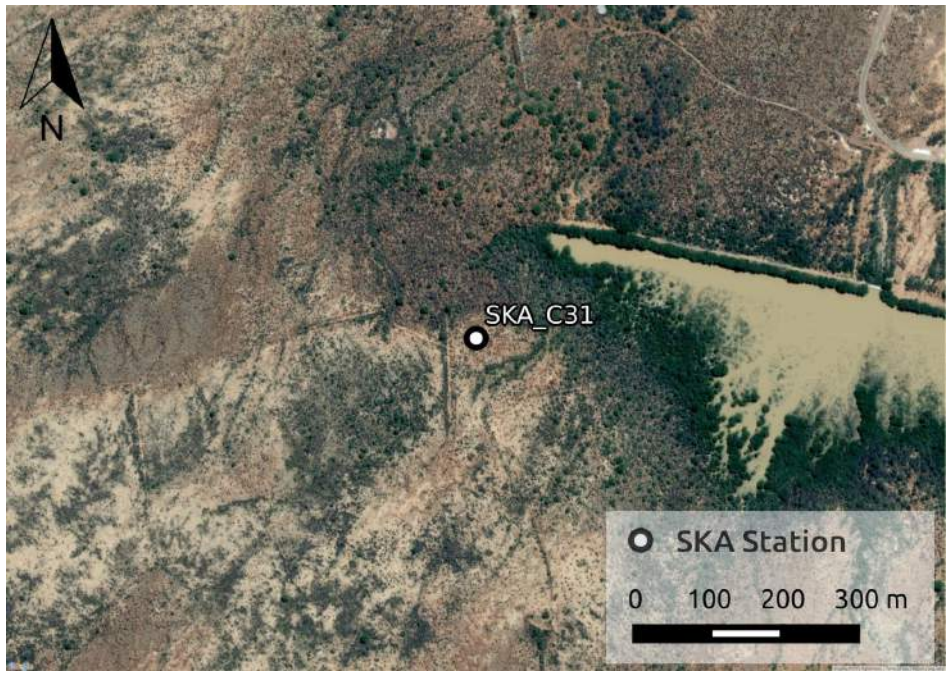

Figure 7b.56. Satellite image with SKA receptor SKA_C31 indicated.

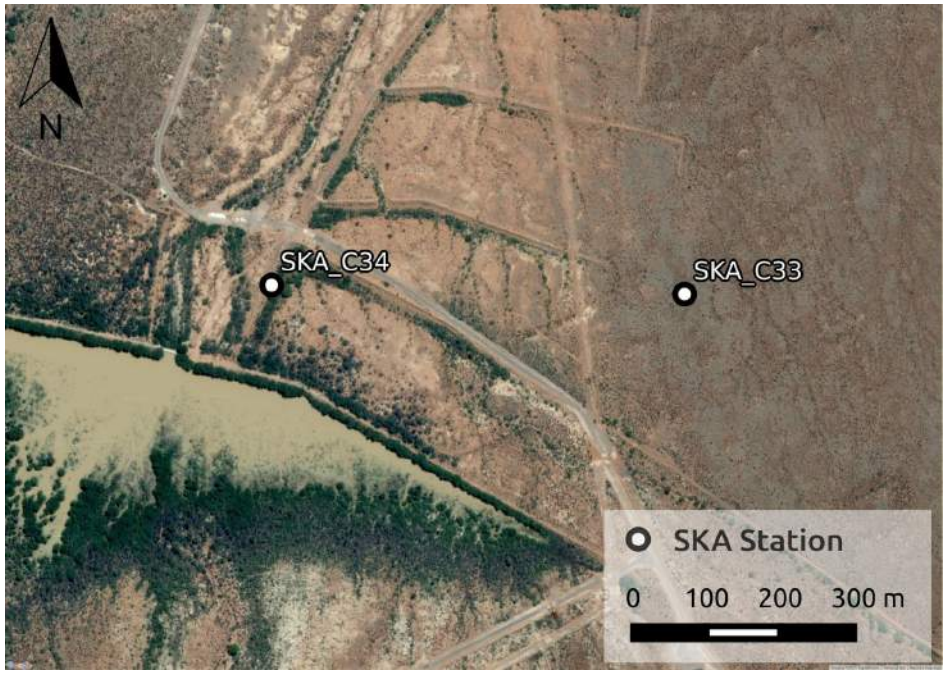

Figure 7b.57. Satellite image with SKA receptors SKA_C33 and SKA_34 indicated.

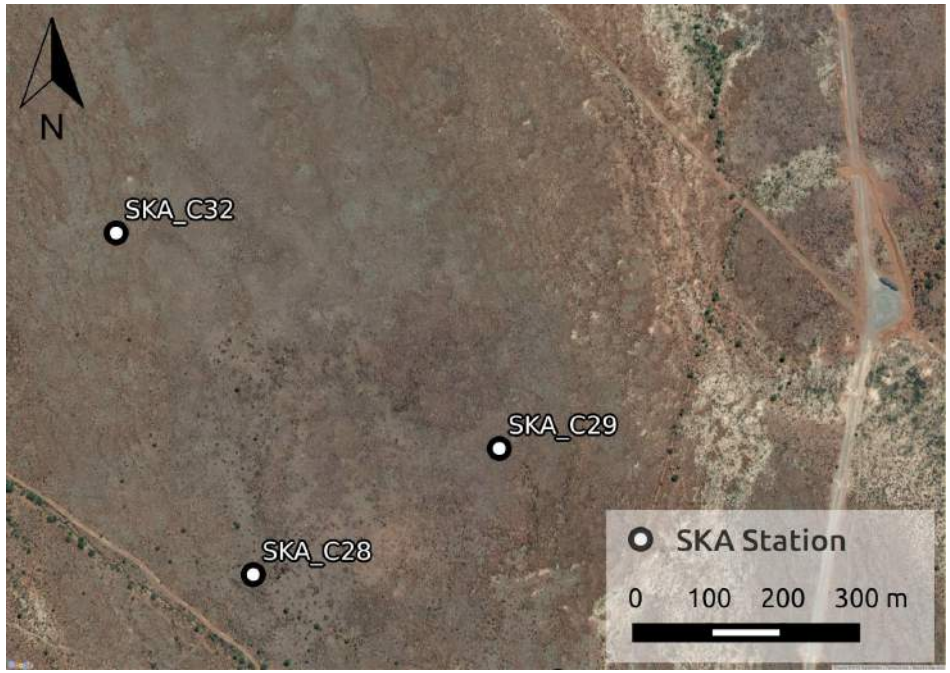

Figure 7b.58. Satellite image with SKA receptors SKA_C28, SKA_C29 and SKA_C32 indicated.

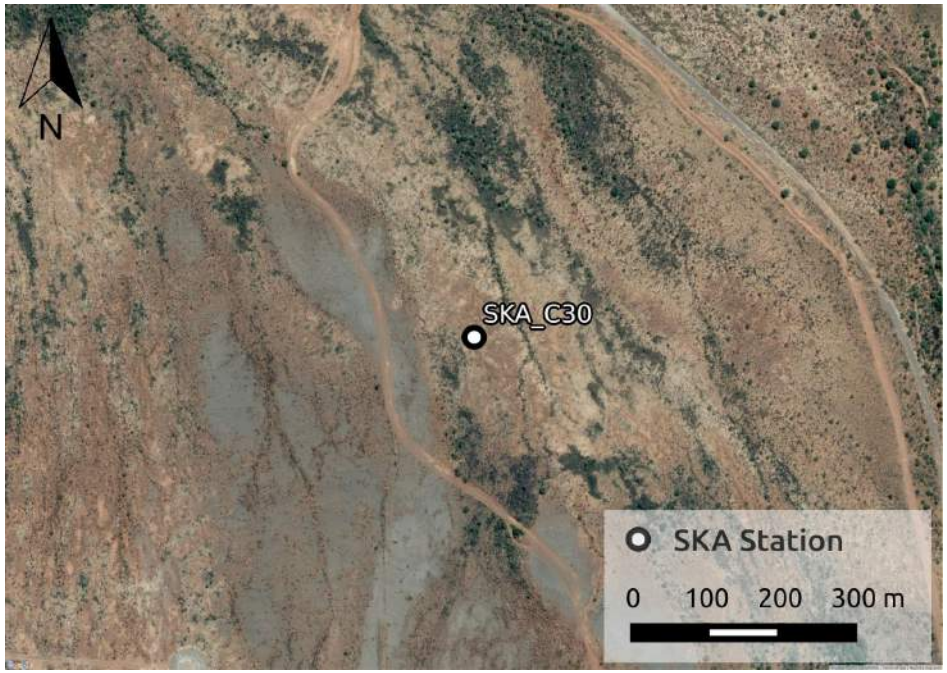

Figure 7b.59. Satellite image with SKA receptor SKA_C30 indicated.

Figure 7b.60. Satellite image with SKA receptor SKA_C26 indicated.

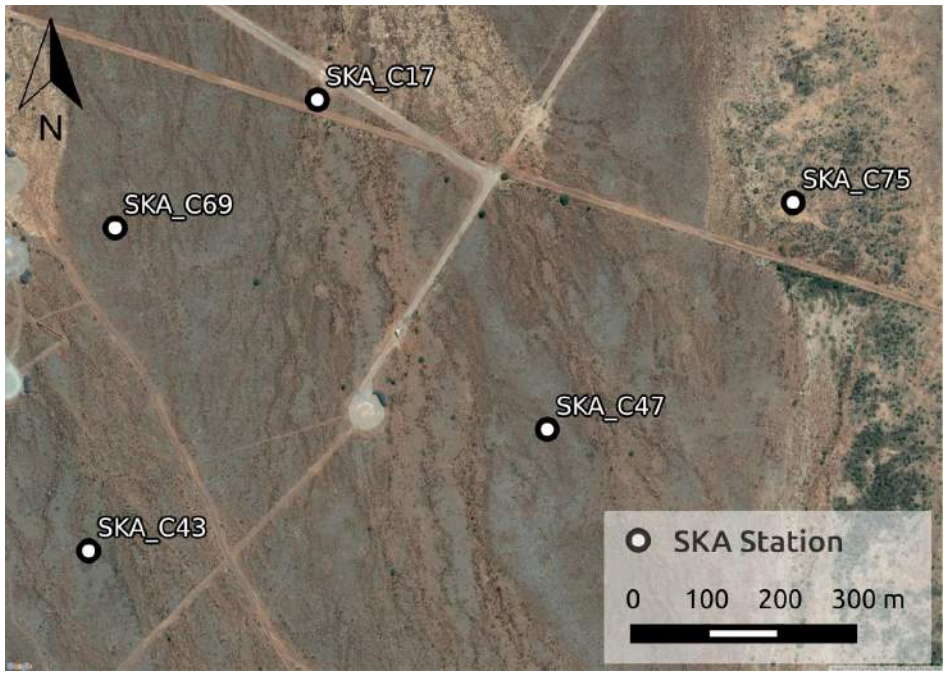

Figure 7b.61. Satellite image with SKA receptors SKA_C17, SKA_C43, SKA_C47, SKA_C69 and SKA_C75 indicated.

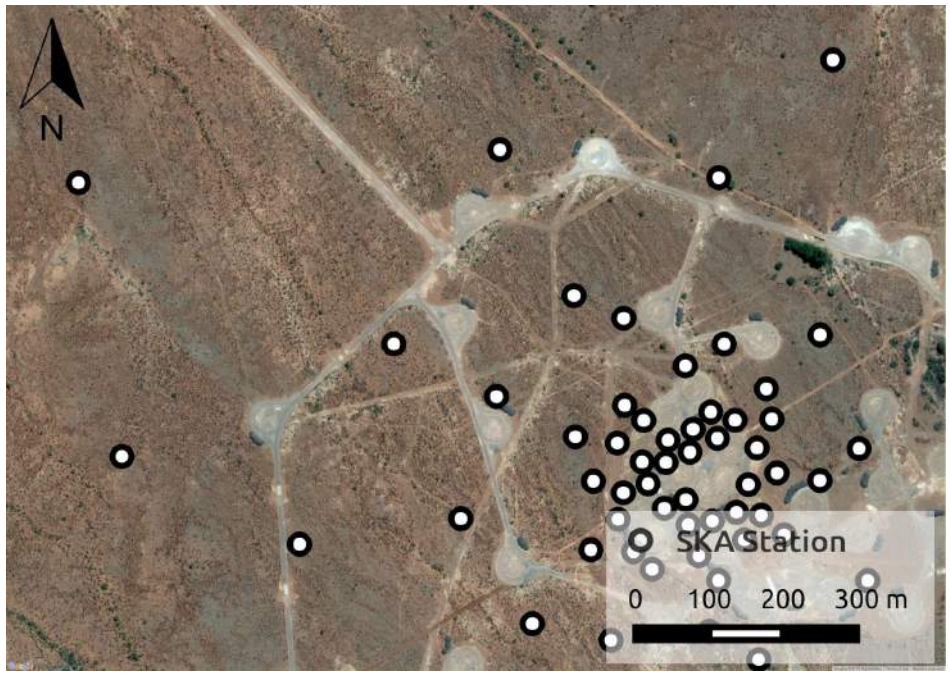

Figure 7b.62. Satellite image with SKA receptors in core area indicated.

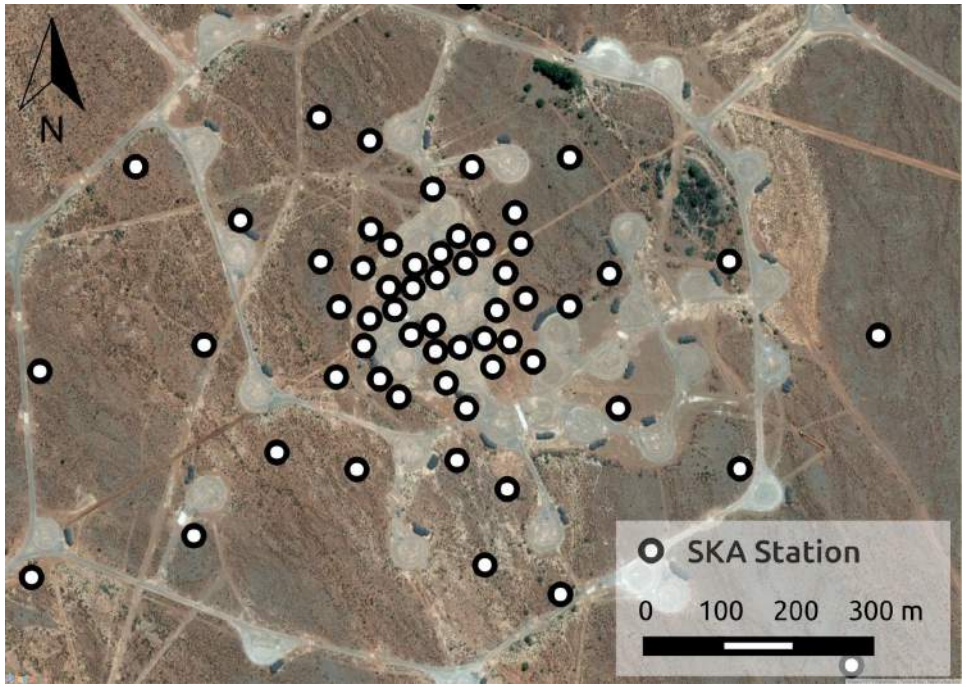

Figure 7b.63. Satellite image with SKA receptors in core area indicated.

5. Appendices

5.1. SKA stations list

(See spreadsheet)

5.2. Previous heritage surveys list

(See spreadsheet)

5.3. Heritage resources list

(See spreadsheet)

5.4. Full guide to Palaeosensitivity Map legend

	RED:	VERY HIGH - field assessment and protocol for finds is required
	ORANGE/YELLOW:	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	GREEN:	MODERATE - desktop study is required
	BLUE/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

6. References

Beaumont, P.B., Vogel, J.C. 1989. Patterns in the age and context of rock art in the Northern Cape. South African Archaeological Bulletin 44: 73-81.

Deacon, J. 1986. “My place is the Bitterpits”: the home territory of Bleek and Lloyd's /Xam San informants. African Studies 45: 135-155.

Deacon, J. 1988. The power of a place in understanding Southern San rock engravings. World Archaeology 20: 129-140.

Deacon, J. 1997. “My heart stands in the hill:” rock engravings in the Northern Cape. Kronos, Journal of Cape History 24: 18-29.

Morris, D. 1988. Engraved in Place and Time: A Review of Variability in the Rock Art of the Northern Cape and Karoo. South African Archaeological Bulletin 43: 109-120.