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A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED HIDDEN VALLEY WIND ENERGY FACILITY, NEAR SUTHERLAND, NORTHERN CAPE PROVINCE

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NOTE: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA) for compiling a Phase 1 Archaeological Impact Assessment (AIA).

1. EXECUTIVE SUMMARY

1. Purpose of the Study

The purpose of the study was to conduct and compile a phase 1 archaeological impact assessment (AIA) for the proposed establishment of the ACED Hidden Valley Wind Energy Facility for three development phases, near Sutherland, Northern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage.

2. Brief Summary of Findings

2.1.1. Phase 1 – Proposed Karusa Wind Farm to be located on the Farm De Hoop 202, Farm Standvastigheid 201, and Portion 1, 2, 3 and the remainder of Farm Rheebokke Fontein 209:

No archaeological heritage remains were documented within the areas proposed for the development of the wind turbines. However, a historical farmstead complex was documented on the farm De Hoop 202 and a historical family graveyard and a dry packed stone walling boundary fence runs across the Farm Standvastigheid 201.

2.1.2. Phase 2 – Proposed Soetwater Wind Farm to be located on the remainder of and Portion 1 of Farm Orange Fontein 203, Annex Orange Fontein 185, Farm Leeuwe Hoek 183 and Farm Zwanepoelshoek 184:

No archaeological heritage remains were documented within the areas proposed for the development of the wind turbines. However, a historical farmstead complex and associated infrastructure and a family graveyard as well as a dry packed stone walling dwelling that occurs alongside the farm gravel road were documented on Portion 1 of the Farm Orange Fontein 203. The ruins of clay packed stone walling cottage and a dry packed stone walling kraal were documented on remainder of Portion 1 of the Farm Orange Fontein 203.

2.1.3. Phase 3 – Proposed Great Karoo Wind Farm to be located on Farm Kentucky 206 and Portion 1 of Farm Wolvenkop 207:

No archaeological heritage remains were documented within the areas proposed for the development of the wind turbines. However, a historical farmstead complex and associated infrastructure occurs in one of the valleys as well as two graveyards within the vicinity of the current farmstead complex were documented on the Farm Kentucky 206.

2.2. Recommendations

The area is of a medium-high cultural sensitivity, the following recommendations must be considered:

1. See section 12. For full conclusions and recommendations for the protection of all the sensitive heritage resources.

2. A professional archaeologist (with an already authorised collection permit) must be appointed during all the construction and development activities of the substation alternatives for the Hidden Valley Substation (Phase 1) and the Great Karoo Substation (Phase 3), when the favoured alternatives have been confirmed, including vegetation clearing and the excavation activities to monitor and identify possible archaeological material remains and features that may occur below the surface and make further appropriate recommendations on removing and / or protecting the archaeological material remains and features.

3. If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/ excavation can be undertaken.

4. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

3. BACKGROUND INFORMATION

The phase 1 archaeological impact assessment (AIA) report has been prepared as part of the environmental management plan for the proposed Hidden Valley Wind Energy Facility.

The proposed activity includes the construction and operation of a commercial wind energy facility as well as associated infrastructure. The proposed facility is foreseen to accommodate up to 650MW of total generating capacity, which includes:

- Up to 207 wind turbines;
- Up to three 132Kv on-site substations;
- One 400Kv substation;
- Overhead power lines;
- Access roads;
- Office building / on-site office; and
- Lay down areas.

The proposed Hidden Valley Wind Energy Facility development will take place in three phases of development:

- Phase 1 – Proposed Karusa Wind Farm (to be located on Farm De Hoop 202, Farm Standvastigheid 201, and Portion 1, 2, 3 and the remainder of Farm Rheebokke Fontein 209);
- Phase 2 – Proposed Soetwater Wind Farm (to be located on the remainder of, and Portion 1 of Farm Orange Fontein 203, Annex Orange Fontein 185, Farm Leeuwe Hoek 183 and Farm Zwanepoelshoek 184); and
- Phase 3 – Proposed Great Karoo Wind Farm (to be located on Farm Kentucky 206 and Portion 1 of Farm Wolvenkop 207).

Developer:

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Terms of Reference (ToR)

- Provide an indication of the methodology used in determining the significance of potential environmental (archaeological heritage) impact by conducting and compiling the phase 1 archaeological impact assessment (AIA);

- Describe all environmental issues (archaeological heritage) that were identified during the phase 1 archaeological impact assessment (AIA) and;
- Assess the significance of direct, indirect and cumulative impacts on the environment (archaeological heritage) for the three phases of development separately.

4. BRIEF LEGISLATIVE REQUIREMENTS

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

Archaeology, palaeontology and meteorites

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

36. (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of the site –

(i) exceeding 5000m^2 in extent, or

(ii) involving three or more erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;

(d) the re-zoning of a site exceeding 10 000m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

5. BRIEF ARCHAEOLOGICAL BACKGROUND

No systematic archaeological research has been conducted within this region of the Northern Cape, therefore little is known about the archaeology of the immediate area proposed for the Hidden Valley Wind Energy Facility. However two heritage impact assessments have been conducted to south of Sutherland (Hart 2005; Hart *et al.* 2010; Rossouw 2007) and two within the Witteberg region near to Matjiesfontein (Hart, 2007; Hart and Miller nd), and a mitigation phase excavation (Evans *et al.* 1985) has been undertaken at two small rock shelters in the grounds of the South African Astronomical Observatory near Sutherland during November 1983 and March 1984. The wider Karoo landscape has been occupied by humans since the Early Stone Age (ESA), spanning an occupation period of about 1.5 million years. Archaeological evidence is usually observed as surface scatters and is widely dispersed across the landscape. Caves are uncommon in the Karoo and open sites (Early Stone Age to the last 2000 years) generally consist of single-level occupations near sources of water such as rivers, streams and springs. Rock engravings are widespread over the Karoo landscape, substantial research has been conducted within the Northern and Western Cape areas of the Karoo (Parkington *et al.* 2008). Early travellers and *trekboere* (Dutch farmers) started entering this part of the Northern Cape towards the end of the 18th century and colonial settlement increased towards the second half of the 19th century.

An archaeological desktop study was prepared during August 2011 (see Booth, C. 2011. An Archaeological Desktop Study for the Proposed Establishment of the Hidden Valley Wind Energy Facility and Associated Infrastructure On A Site South Of Sutherland, Northern Cape Province. Prepared for Savannah Environmental (Pty) Ltd).

6. DESCRIPTION OF THE PROPERTY

6.1. Area Surveyed

Location:

The area for the proposed Hidden Valley Wind Energy Facility is located approximately 50km south of Sutherland and 22km north of Matjiesfontein within the Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape Province. The proposed area is about 340km^2 in extent and is situated to the east of the R354 regional road that runs between Matjiesfontein in the Western Cape and Sutherland in the Northern Cape.

The proposed area for development is hilly and mountainous with the western section of the Klein Roggeveld Berge falling within the boundary of the proposed development. Several perennial rivers such as the Portugals, Komberg and Meintjiesplaas run through the proposed area and smaller dams and reservoirs also occur within the proposed area. The vegetation cover falls within the Western Mountain Karoo ecogeographic subregion, comprising of the typical Karoo grasses and scrubland.

6.2. Maps

1:50 000 Maps: 3220DA VERLATEKLOOF, 3220DB KOMSBERG, 3220DC SWARTLAND, and 3220DD KOORNPLAATS

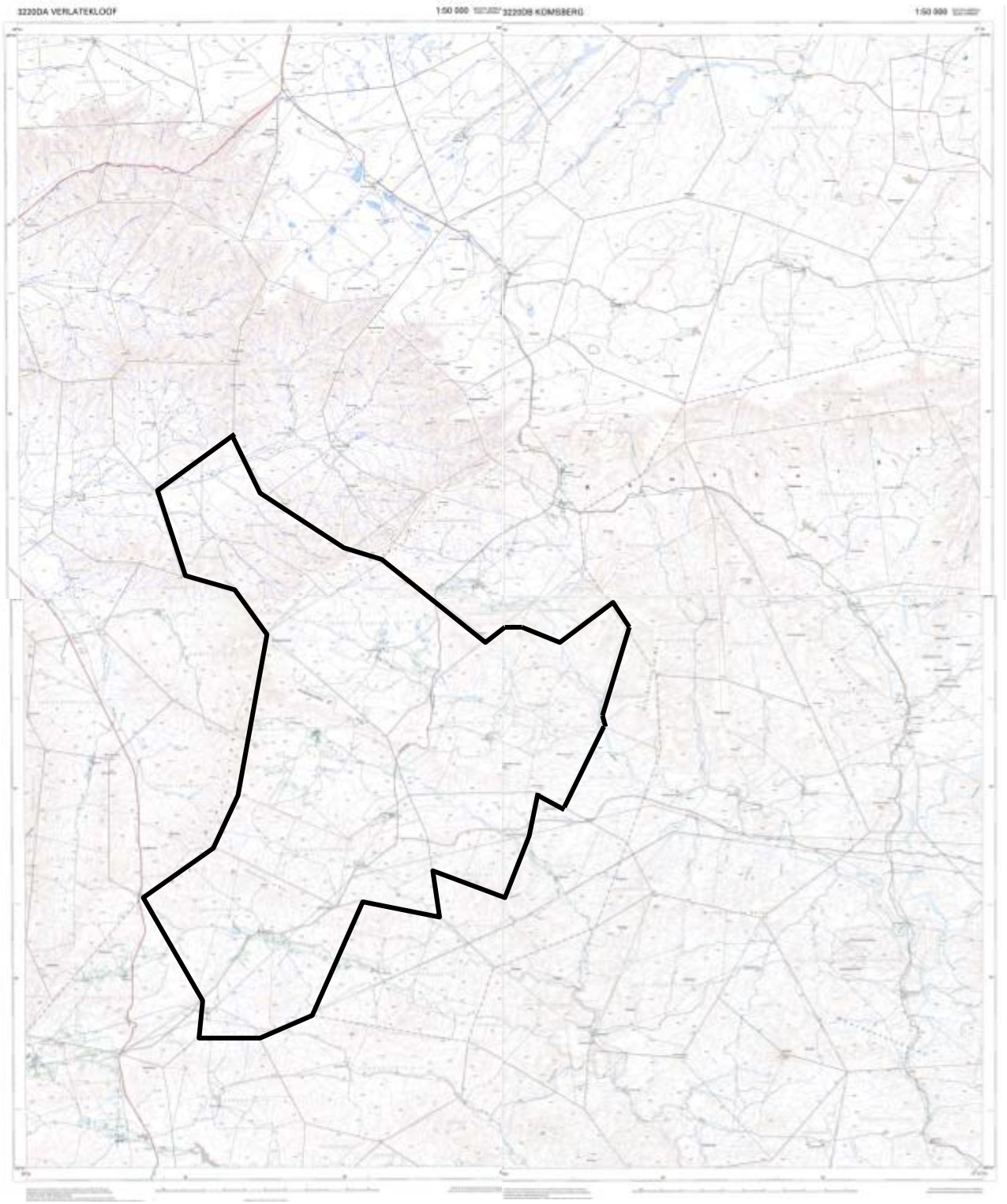

Figure 1. Map 1. 1:50 000 maps 3220DA VERLATEKLOOF, 3220DB KOMSBERG, 3220DC SWARTLAND, and 3220DD KOORNPLAATS stitched together to indicate the area for the proposed Hidden Valley Wind Energy Facility.

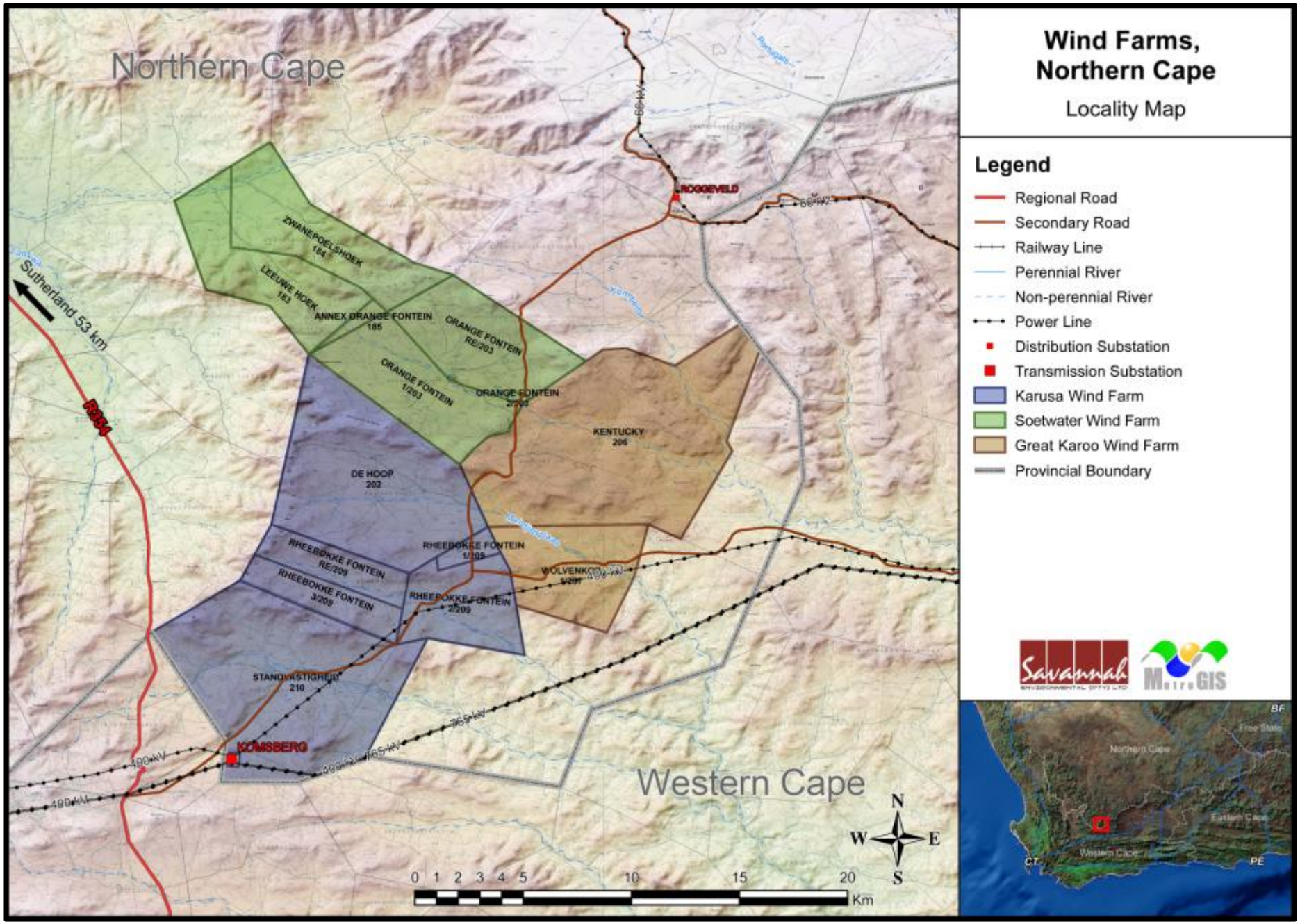

Figure 2. Map 2. Locality and layout of the area for the proposed Hidden Valley Wind Energy Facility showing the three development phases (map provided by Savannah Environmental (Pty) Ltd).

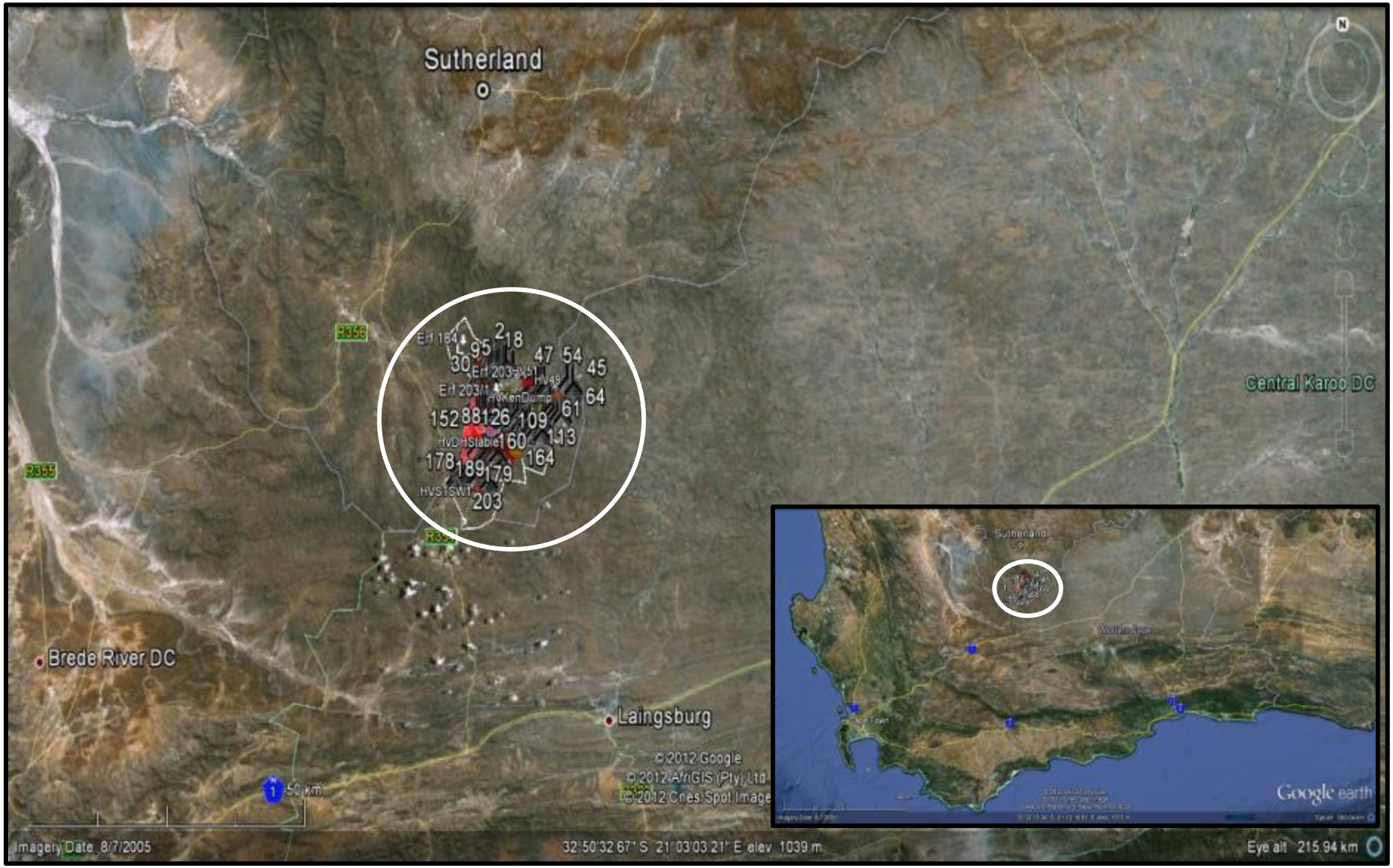

Figure 3. Map 3. Aerial view of the area proposed for the Hidden Valley Wind Energy Facility (turbine positions provided by Savannah Environmental (Pty) Ltd).

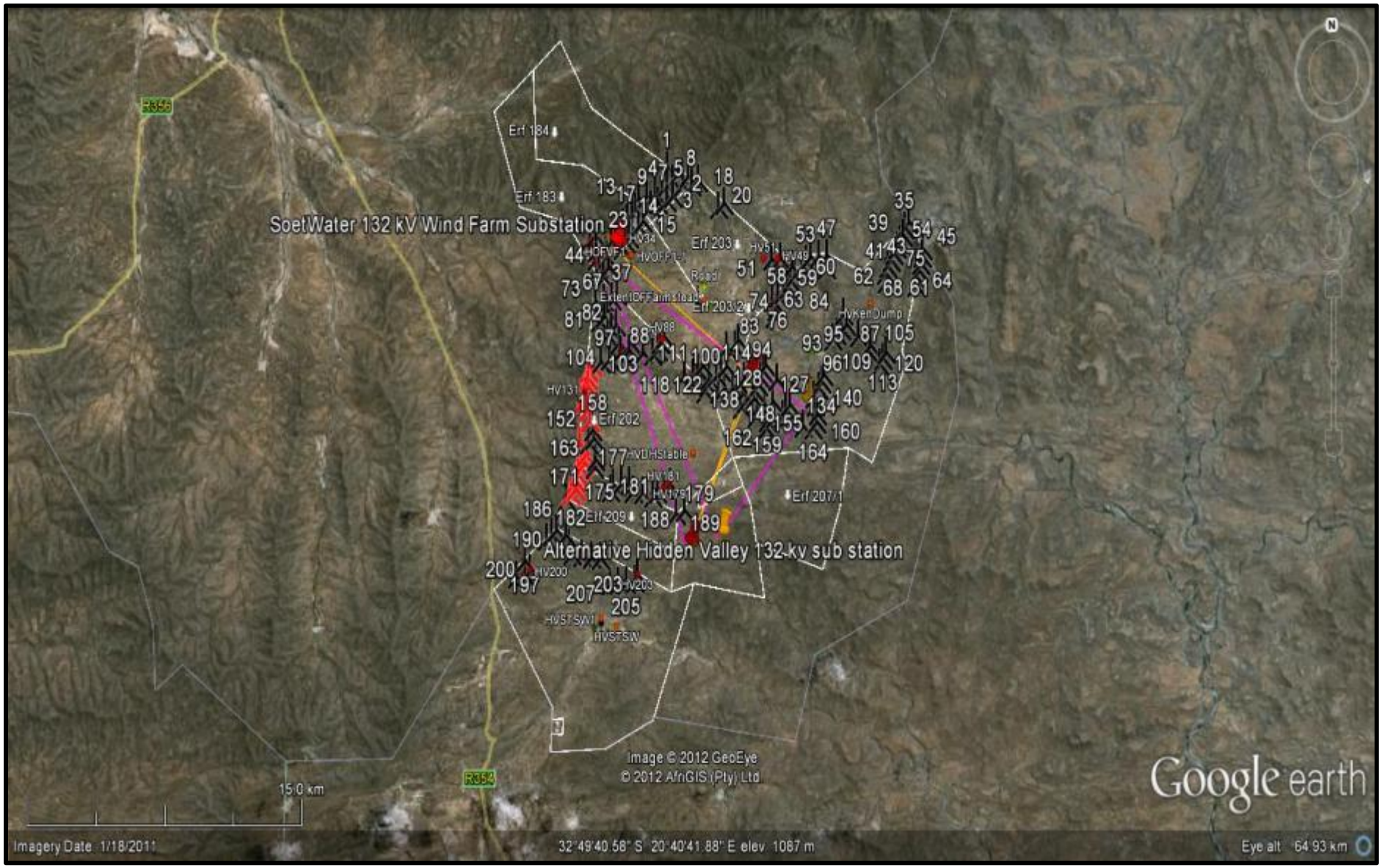

Figure 4. Map 4. Close-up aerial view of the area proposed for the Hidden Valley Wind Energy Facility (turbine positions provided by Savannah Environmental (Pty) Ltd.

7. ARCHAEOLOGICAL INVESTIGATION

The archaeological investigation was conducted on foot by investigating the proposed wind turbine positions on the flat top hills. The informal gravel roads were followed in a vehicle where access to the hilltops was available. The sides of the farm gravel roads were investigated for any possible archaeological remains in the event of road widening for access during the construction and development activities. The GPS co-ordinate readings and photographs were taken using a Garmin Oregon 550 unit.

The sensitive heritage resources have been plotted on Maps 2-15. The methodology and archaeological and other heritage resource findings for the three phases of development will be discussed separately as required in the terms of reference and in consideration of the impact significance rating.

7.1. Phase 1 – Proposed Karusa Wind Farm to be located on the Farm De Hoop 202, Farm Standvastigheid 201, and Portion 1, 2, 3 and the remainder of Farm Rheebokke Fontein 209

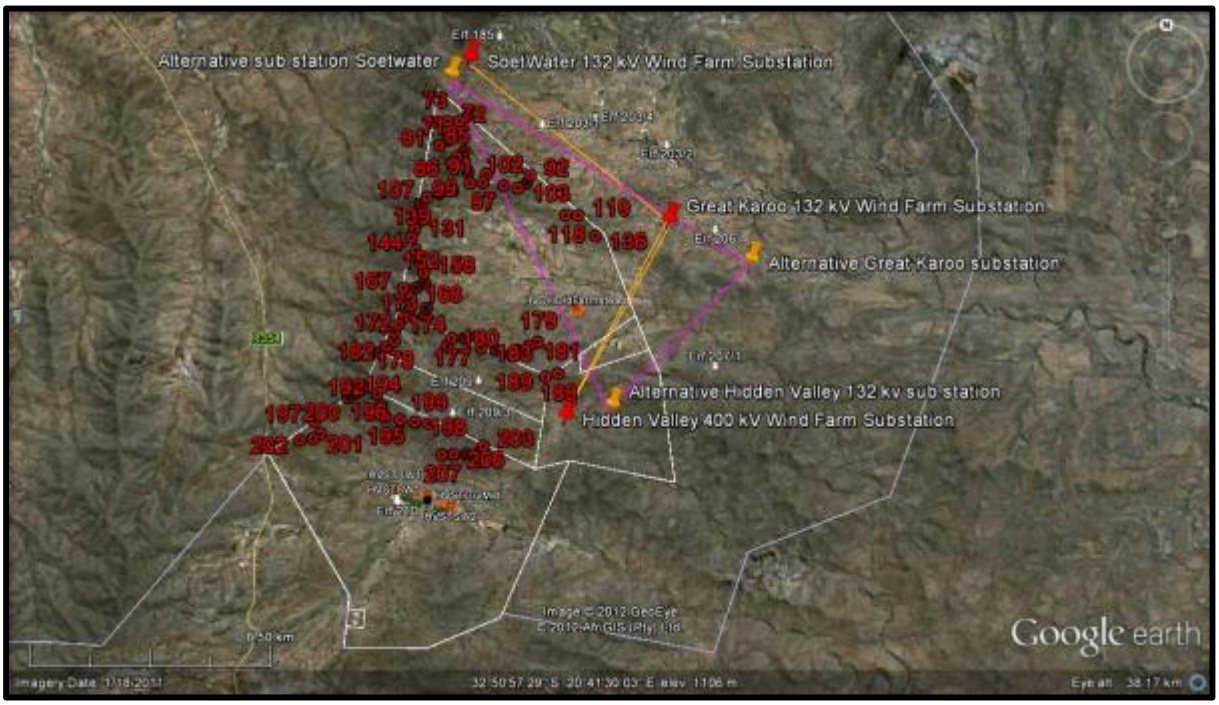

Figure 5. Map 5. Close-up aerial view of the proposed Karusa Wind Farm (Phase 1) showing the layout position of the wind turbines, alternatives for the substations, and sensitive heritage resource areas.

The first phase of the proposed Hidden Valley Wind Energy Facility will comprise of 74 wind turbines and one substation. The wind turbines are proposed to be situated on the relatively flat hilltops. Two alternative areas for the substations, both to be positioned on the flat land areas have been proposed for the Phase 1 substation (Hidden Valley 400 kV Wind Farm Substation and the Alternative Hidden Valley 132kV Substation) on Portion 2 of the Farm Rheebokke Fontein 209.

The proposed areas for the wind turbines were mostly covered in Karoo vegetation comprising scrublands and grasses. The archaeological visibility was obscured in some areas where dense vegetation occurred; overall, archaeological visibility was good (Figures 6-9). No archaeological heritage remains, features, or sites were observed during the investigation.

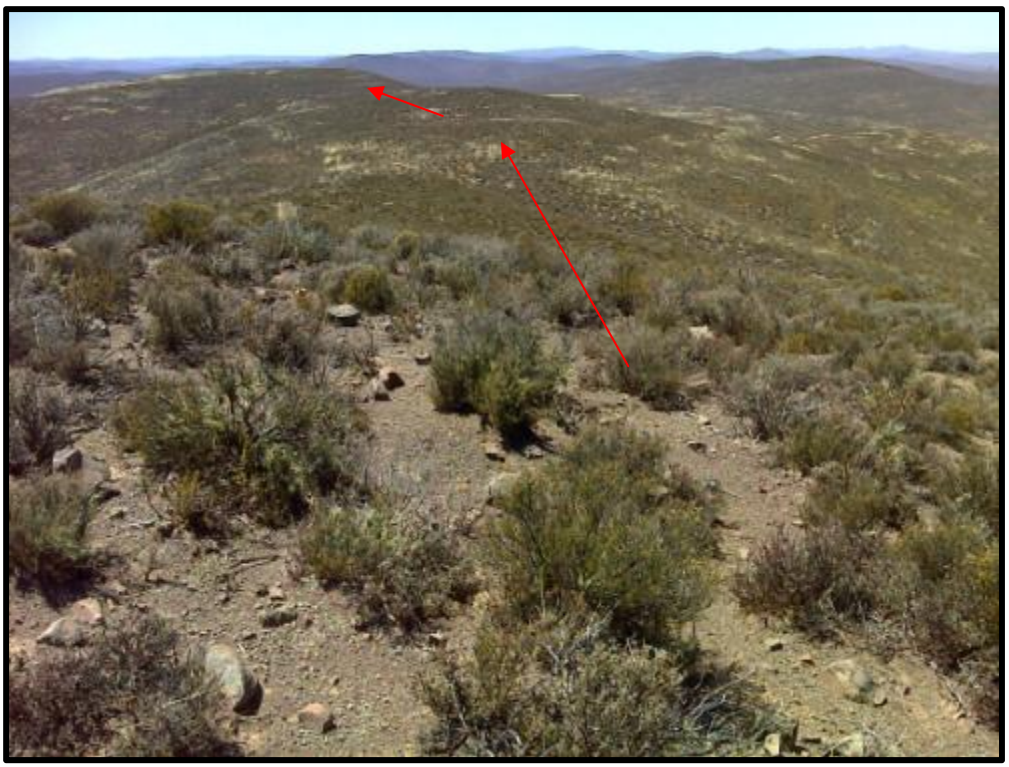

Figure 6. View of the landscape and examples of the areas proposed for the wind turbines (red arrows).

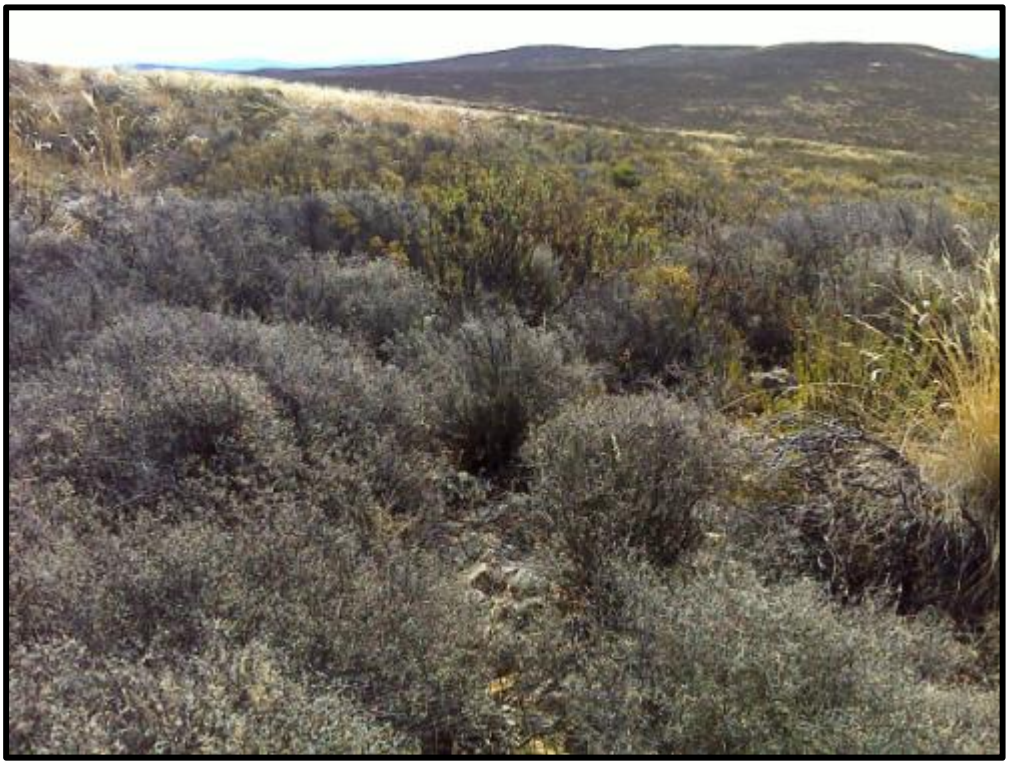

Figure 7. View of the dense grass vegetation.

Figure 8. View of the landscape and area proposed for the wind turbines.

Figure 9. View of the dense grass vegetation and areas proposed for the wind turbines.

Although no archaeological material remains were encountered during the survey, several historical archaeological features occur within the area proposed for

development. A dry stone packed wall boundary fence and a graveyard were documented on the Farm Standvastigheid 201 and a predominantly stone walling farmstead complex was documented on the Farm De Hoop 202. These have been highlighted as they occur adjacent to or nearby the possible access roads.

7.1.1. Sensitive heritage resources on the Farm Standvastigheid 201

Figure 10. Map 6. Aerial view of the sensitive heritage resources on the Farm Standvastigheid 201.

A dry stone packed walling boundary fence extends for approximately 1072m west-east and north of the main road through the valley (HVSTSW1, Figure 10, Map 6.) (Figures 11-12). The farm gravel road that extends from the current farmstead complex to the north passes through the stone wall. The portions of the stone wall on both sides of the farm gravel road have collapsed, possibly from the disturbance caused by the construction of the road. However, the stone wall remains intact towards the west. The wall is approximately 1m in width and 1m in height. It is possible that this road may be a main access road during the construction and development activities and, therefore, may impact the portions of the stone wall adjacent to the farm gravel road.

The dry packed stone wall boundary fence continues south of the main road through the valley and ends at the fence line of the neighbouring farm to the east (HVSTSW, Figure 10, Map 6.) (Figure 13). The stone wall is approximately 1m in width and 50cm in height. This portion of the stone wall is protected behind the fence line and should not be impacted during construction and development activities.

Figure 11. View of the collapsed portion of the dry packed stone wall adjacent to the farm gravel road (HVSTSW1).

Figure 12. View of the intact stone wall towards the west (HVSTSW1).

Figure 13. View of the stone wall south of the main road through the valley (HVSTSW).

An historical family graveyard ("Conradie") is situated approximately 250m north-west the current farmstead main house (HVSTGrvMid, Figure 10, Map 6.) (Figures 14-15). The farm gravel road that extends to the north from the farmstead complex directly passes the graveyard; however, the graveyard is protected by a boundary fence. The graveyard contained both formal graves of family members as well as informal stone packed burials of farm labourers. The formal graves, all containing headstones, date from the late 1800's until recently (one of the latest dates being 1990). The informal stone packed graves belonging to the farm labourers contain makeshift headstones from stone slabs and wooden crosses, and in some cases contain no indication of make-shift headstones. It is possible that the road that passes the graveyard may be a main access route during the construction and development activities and, therefore, may impact on the graveyard.

The dry packed stone walling kraal (orange circle, Figure 10, Map 6.) has been highlighted as it occurs next to the road that runs through the current farmstead complex. The road may be a possible access road during the construction and development activities and, therefore, may impact on the kraal.

Although no archaeological remains, features, and sites were documented within the proposed area for development on the Farm Standvastigheid 201, other sensitive heritage resources were encountered adjacent to farm gravel roads that may be considered as possible access routes during the construction and development activities of the wind energy facility. These sensitive heritage resources have been highlighted and the appropriate recommendations have been considered for the protection and conservation of the stone wall features and graveyard.

Figure 14. View of graveyard from the farm gravel road (HVSTGrvMid).

Figure 15. View of the mixed formal and informal graves within the Graveyard (HVSTGrvMid).

7.1.2. Sensitive Heritage Resources on the Farm De Hoop 202

Figure 16. Map 7. Close-up aerial view of the sensitive heritage area on the Farm De Hoop 202.

A predominantly stone walling built farmstead complex, with an estimated area of 300mx300m in extent, is situated about 2km west from the main road through the valley on the Farm De Hoop 202 (HVDHOldFarmstead, Figure 16, Map7.). The farmstead complex comprises the ruins of three clay packed stone walling cottages, a dry packed stone walling kraal situated near to the cottages, a stable, and a built-up dam and pond. The ruin of the main clay packed stone walling cottage is situated 60m south of the farm gravel road that that runs through farmstead complex area (Figures 17-18). The two entry/exit walls and doorways remain relatively stable.

The ruins of two clay packed stone walling cottages are situated approximately 60m south of the ruins of the main cottage. These structures have collapsed and only some of the interior walls remain intact (Figure 19). The dry packed stone walling kraal is situated about 50m south of the ruins of the main cottage and to the east of the ruins of the two cottages. Most of the stone walling has collapsed (Figure 20). The ruins of dry packed stone walling stables, identified by the stone paving floors, are situated north-east of the built-up stone walling dam. The stone walling of the ruins have mostly collapsed (HVDHStable, Figure 16, Map 7.) (Figure 21). The ruins of the stables are situated close to the farm gravel road that runs through the farmstead complex. A built-up stone packed dam and pond are situated east of the stables (Figure 22). The stone packed pond is situated next to the farm gravel road. Corrugated iron feeding pens, which are currently still in use, are situated north of the ruins of the main cottage and south of the ruins of the stables, in both cases, on the other side of the farm gravel road that runs through the farmstead complex.

Although no archaeological remains, features, or sites were documented within the proposed area for development on the Farm De Hoop 202, other sensitive heritage resources were encountered adjacent to farm gravel roads that may be considered as possible access routes during the construction and development activities of the wind energy facility. These sensitive heritage resources have been highlighted and the appropriate recommendations have been considered for the protection and conservation of the stone wall features and graveyard.

Figure 17. View of the ruins of the main clay packed stone cottage.

Figure 18. Close-up of the ruins of the main clay packed stone cottage.

Figure 19. View of the ruin of the two clay stone packed cottages.

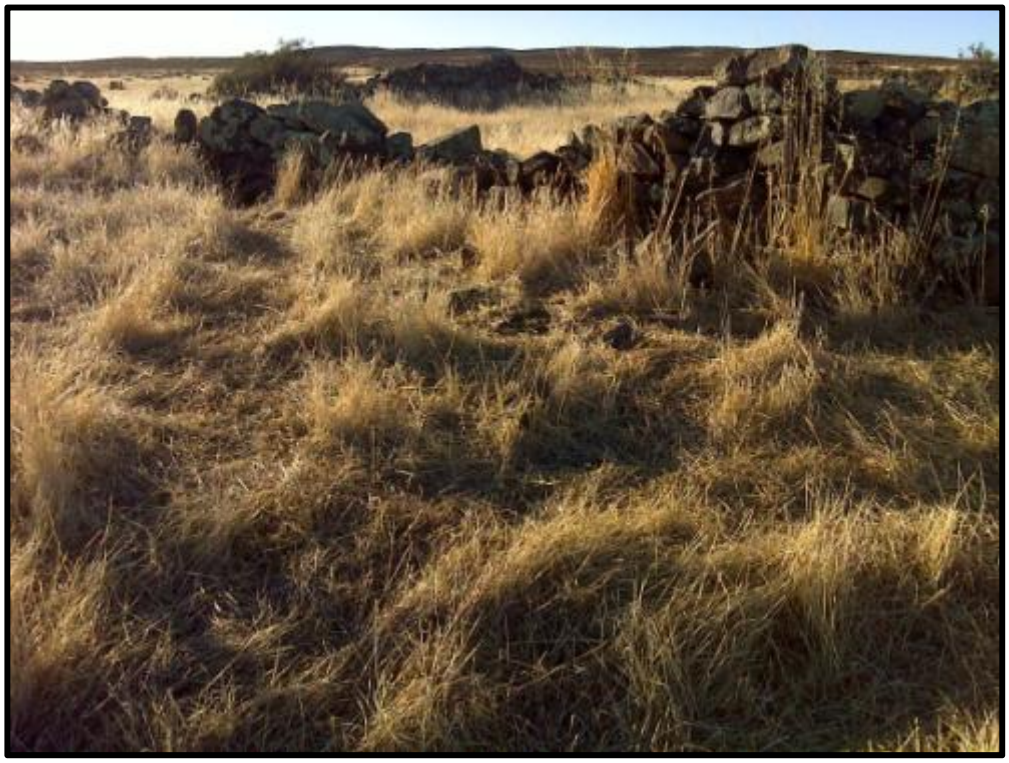

Figure 20. View of the ruins of the dry stone walling kraal.

Figure 21. View of the ruins of the horse stables (HVDHStable).

Figure 22. View of the built-up stone pond and the built-up dam to The right.

7.2. Phase 2 – Proposed Soetwater Wind Farm to be located on the remainder of and Portion 1 of Farm Orange Fontein 203, Annex Orange Fontein 185, Farm Leeuwe Hoek 183 and Farm Zwanepoelshoek 184

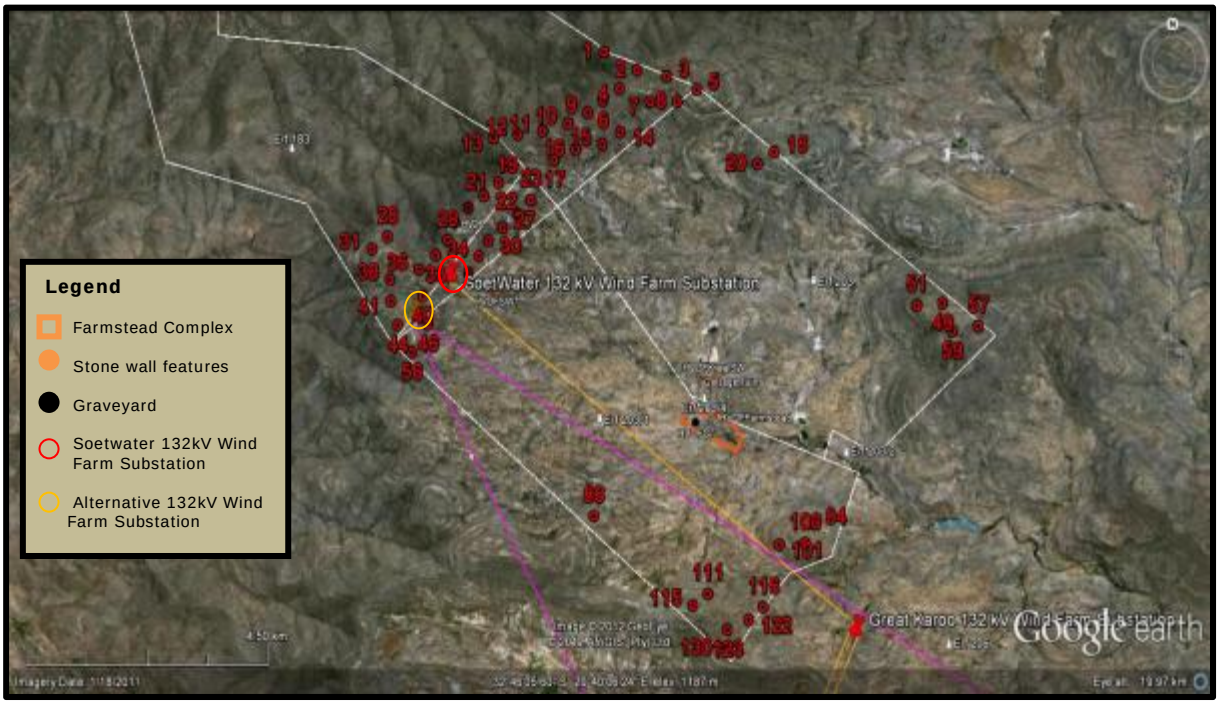

Figure 23. Map 8. Close-up aerial view of the proposed Soetwater Wind Farm (Phase 2) showing the layout position of the wind turbines, alternatives for the substations, and sensitive heritage resource areas.

The second phase of the proposed Hidden Valley Wind Energy Facility will comprise of 54 wind turbines and one substation. The wind turbines are proposed to be situated on the relatively flat hilltops. Two alternative areas, both within the vicinity of the wind turbines on the flat top hills, have been proposed for the Phase 2 substation (Soetwater 132kV Wind Farm Substation and the alternative Soetwater Wind Farm Substation) on the Farm Annex Orange Fontein 185.

The proposed areas for the wind turbines were mostly covered in Karoo vegetation comprising scrubland and karoo grasses. The archaeological visibility was difficult in some areas where dense vegetation occurred; overall, archaeological visibility was good (Figures 24-27). No archaeological heritage remains were observed during the investigation.

Figure 24. View of the landscape and proposed areas for the wind turbines (red arrows).

Figure 25. View of the landscape and area proposed for the wind turbines.

Figure 26. View of the landscape and proposed areas for the wind turbines (red arrows).

Figure 27. View of the landscape and proposed areas for the wind turbines (red arrows).

Although no archaeological material remains, features, or sites were encountered during the survey, other sensitive heritage features occur within the area proposed for development. A dry packed stone walling dwelling and large predominantly stone built farmstead complex was documented on the Portion 1 of the Farm Orange Fontein 203 and the ruins of a clay packed stone wall cottage and a dry packed stone walling kraal was documented on the remainder of Portion 1 of the Farm Orange Fontein. These have been highlighted as they occur adjacent to or nearby the possible access roads.

7.2.1. Sensitive heritage resources on remainder of and Portion 1 of Farm Orange Fontein 203

1. Dry Packed Stone Walling Dwelling on the Portion 1 of Farm Orange Fontein 203:

Figure 28. Map 9. Close-up aerial view of the dry packed stone walling dwelling on Portion 1 of the Orange Fontein.

A dry stone packed walling dwelling was documented next to the farm gravel road leading to the current wind mast (HVOFSW1, Figure 28, Map 9). Most of structure is still intact although some areas of the wall have already collapsed and is currently overgrown by bushes (Figures 29-31). The roof or cover that may have been attached is not evident. A few fragments of broken glass and ceramic sherds were scattered south of the feature (Figure 31). The dwelling may have been occupied by a shepard/s as it is situated nearby a reservoir water point. It is highly likely that the farm gravel road may be the main access road during the construction and development activities for the wind energy facility and, therefore may impact negatively on the structure.

Figure 29. View of the dry packed stone walling dwelling from the adjacent farm gravel road (north).

Figure 30. View of the dry stone packed dwelling and proximity to the road from the south.

Figure 31. Examples of the broken glass fragments and ceramic sherds.

2. Farmstead Complex on Portion 1 of the Farm Orange Fontein 203:

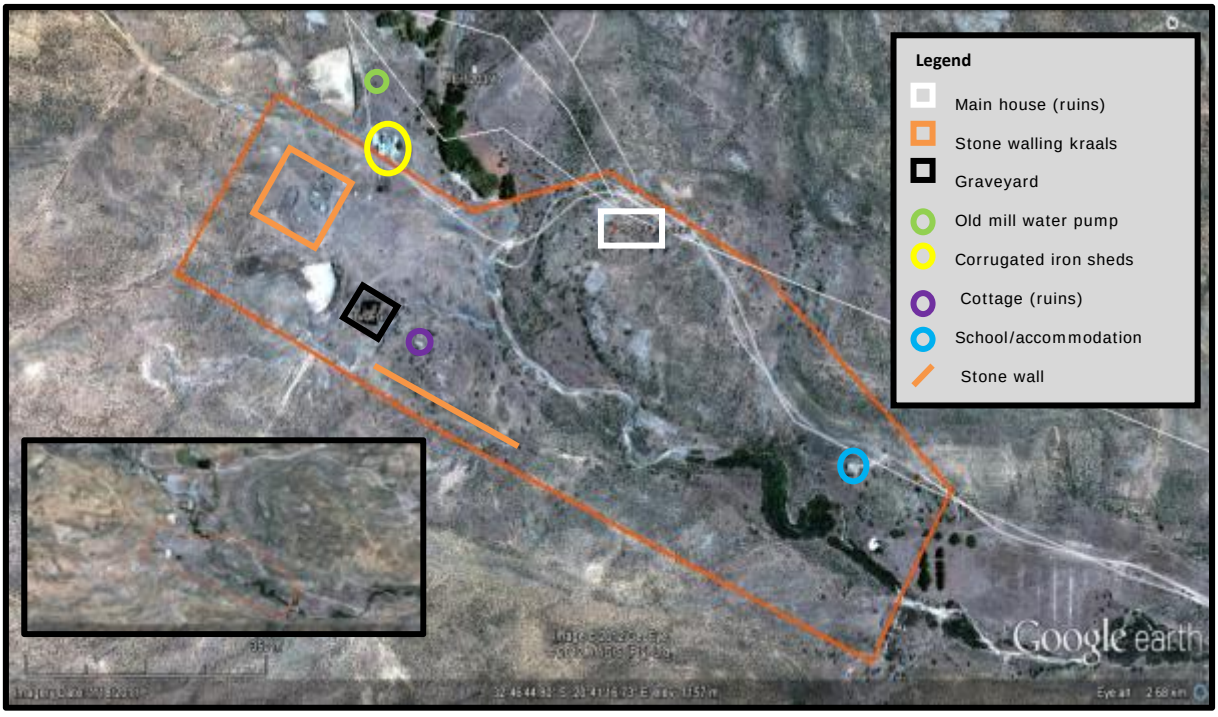

Figure 32. Map 10. Close-up aerial view of the large farmstead complex on Portion 1 of the Orange Fontein 203.

A large farmstead complex and associated infrastructure is situated on the north central boundary of Portion 1 the Farm Orange Fontein 203 (HVOFFarmstead, Figure 32, Map 10). The nearest neighbouring farmstead is situated approximately 300m north on remainder of Portion 1 of the Farm Orange Fontein 203. The farmstead complex comprises a main house, the ruin of a sun-dried brick cottage, kraals, stables, and walling, animal pens and/or chicken coups, as well as a graveyard and corrugated iron sheds.

The main house is situated in the north central portion of the farmstead complex; a dry packed stone wall is located within the vicinity of the main house that may have been the entry wall. The house may possibly have been renovated or later built with modern building materials. The house is currently unused and is standing empty. The farm gravel road runs through the farmstead complex from the north and west-east, and the main house may be impacted during the construction and development activities for the wind energy facility.

The sun-dried brick cottage is situated approximately 350m south-west of the main house, on the southern bank of a non-perennial stream. The condition of the cottage is good and intact. The roof comprises sheets of corrugated iron with large rocks and bricks used as weights. A boulder has been intentionally used as part of the building structure of the cottage (Figures 33-35).

A dry packed stone feature with a corrugated iron roof and an adjacent make-shift corrugated iron structure that may have served to as chicken coups are situated slightly north of the cottage (Figure 36). The dry stone packed feature is relatively intact with only a portion of the left-hand side of the feature having collapsed. The feature has a narrow 30cm wide entrance and measures about 1.5m across the front and 1m in height.

A dry packed stone wall, approximately 1m in width and 50cm in height is situated approximately 30m south of the cottage. The wall seems to have roughly packed and remains intact (Figure 37).

A family graveyard is situated to the west of the cottage. The graveyard is protected by fencing (Figure 38). The graveyard comprises only formal graves with headstones dating from the late 1800's until the mid to late 1900's.

Dry packed stone walling kraals are situated about 150m north-west of the graveyard. The kraals are relatively large, approximately 40m x 30m, and remain intact with the recent addition of metal farm gates. A stone walling complex of stables and store rooms is situated about 40m north-east of the kraals (Figure 39). The complex comprises several stables and clay packed stone walling store rooms. The complex structure is in very good condition and remains intact. Corrugated iron sheds are situated about 75m north-east of the large stone walling complex south the farm gravel road.

An old mill water pump and reservoir are situated north-west along the farm gravel road from the corrugated iron sheds (Figure 40). It is possible that this road may be a possible access route during the construction and development activities for the wind energy facility.

The building that used to be the old farm school for the labourers' children is situated about 400m east along the road of the main house of the farmstead complex (Figure 41). The school has recently been renovated into an accommodation lodge for hunters.

Although no archaeological material remains, features, or sites were encountered during the survey, other sensitive heritage features occur on Portion 1 of the Farm Orange Fontein 203. These have been highlighted as some of the features occur adjacent to or nearby the possible access roads that may be used during the construction and development phases for the wind energy facility. The features that may be impacted in this instance include the stone walling dwelling (HVOFSW1, Figure 28, Map 9) and the structures that are situated next to or nearby the farm gravel road of the farmstead complex (HVOFFarmstead, Figure 32, Map 10). These structures include the old farmschool / accommodation lodge, the empty main house, the corrugated iron sheds, the stable and store complex and the old mill water pump. The appropriate recommendations have been considered for the protection and conservation of the sensitive heritage resources.

Figure 33. View of the back (right-hand side) of the cottage.

Figure 34. View of the back (left-hand side) of the cottage.

Figure 35. Close-up of the clay / mud packed plastering.

Figure 36. View of the dry packed stone walling to the south.

Figure 37. View of the dry stone walling and corrugated iron feature.

Figure 38. View of the graveyard situated within the farmstead complex area.

Figure 39. View of the dry packed stone walling kraals and stables.

Figure 40. View of the original mill water pump.

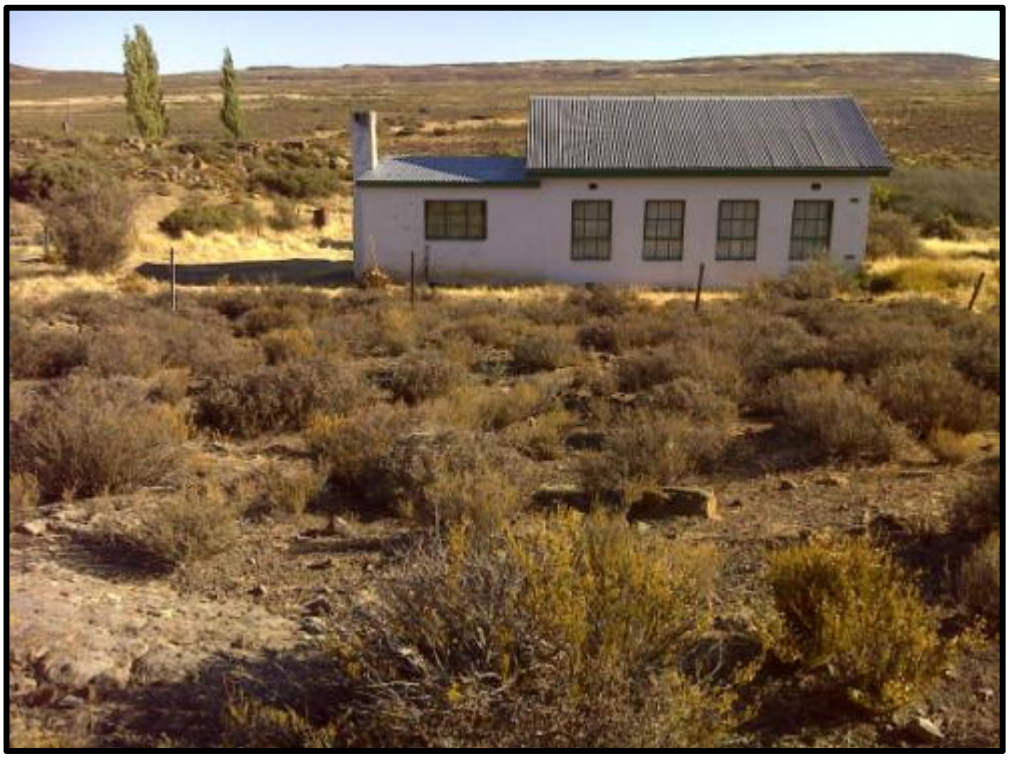

Figure 41. The old school / hunters accommodation lodge.

3. Clay Packed Stone Walling Cottage Ruins and Dry Packed Stone Walling Kraal on the remainder of Portion 1 of the Farm Orange Fontein 203

Figure 44. Map 11. Close-up aerial view of the ruins of the stone walling cottage and kraal.

The ruin of a clay packed stone walling cottage and a dry packed stone walling kraal are situated within the vicinity of the current farmstead on remainder of Portion 1 of the Farm Orange Fontein 203 (CottageRuins, Figure 44, Map 11). The ruin of the cottage is situated at the western extent of the farmstead area. Most of the stone walls of the cottage have collapsed and only a section of the middle interior wall remains standing. Clay/mud was used as a binder for the stone walling. There may have been another stone walling structure next to the cottage as either the foundation of the building is still visible and stretches to the edge of the farm gravel road or it may be the collapsed debris from the cottage (Figures 45-47).

A dry packed stone walling kraal is situated about 200m north-east of the ruin of the cottage, near to the current farm labourers cottages (Figure 48). The kraal has been built on the side of a low hill and is approximately 50m x 40m in extent. It is currently unused.

Although no archaeological material remains, features, or sites were encountered during the survey, other sensitive heritage features occur on remainder of Portion 1 of the Farm Orange Fontein 203. These have been highlighted as the ruin of the cottage and associated remains (CottageRuins, Figure 44, Map 11) occur adjacent to or nearby the possible access road that may be used during the construction and development phases for the wind energy facility. The appropriate recommendations have been considered for the protection and conservation of the sensitive heritage resources.

Figure 45. View of the ruins of the cottage and foundations.

Figure 46. Close-up of the ruins of the cottage.

Figure 47. Close-up of the remaining interior middle wall.

Figure 48. View of the dry packed stone walling kraal.

7.3. Phase 3 – Proposed Great Karoo Wind Farm to be located on Farm Kentucky 206 and Portion 1 of Farm Wolvenkop 207

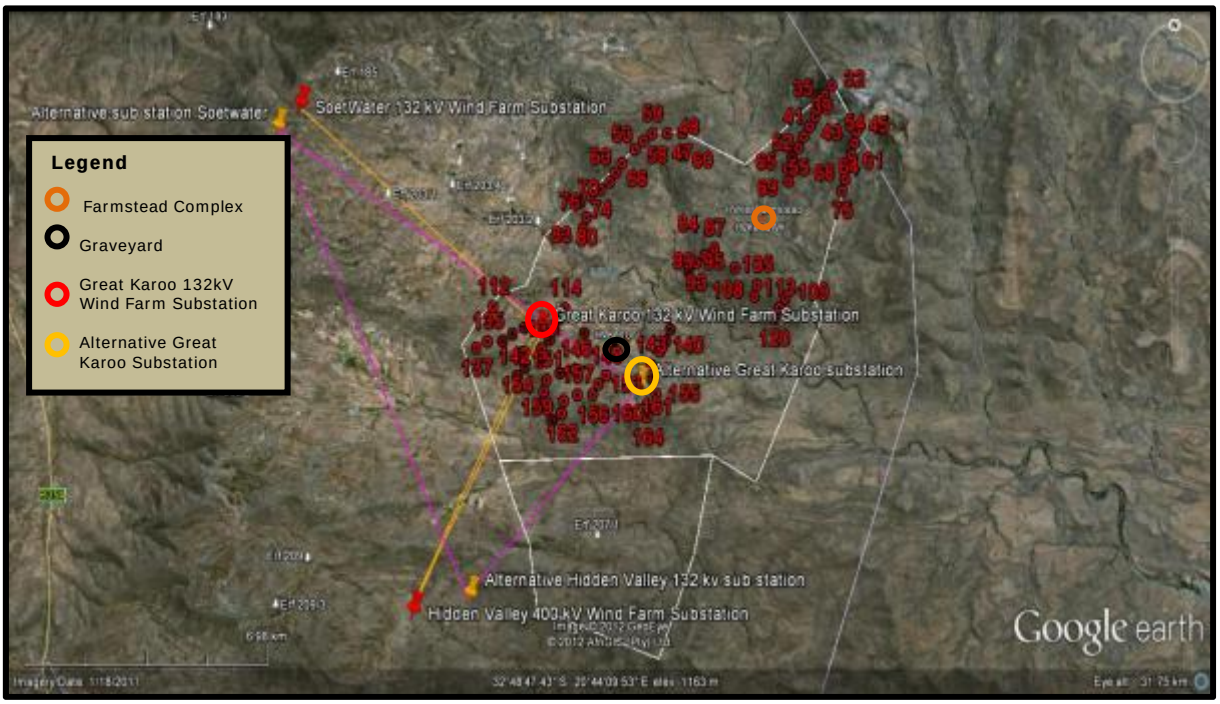

Figure 49. Map 12. Close-up aerial view of the proposed Groot Karoo Wind Farm (Phase 3) showing the layout position of the wind turbines, alternatives for the substations, and sensitive heritage resource areas.

The third phase of the proposed Hidden Valley Wind Energy Facility will comprise of 77 wind turbines and one substation. The turbines are proposed to be situated on the relatively flat hilltops. Two alternative areas, both within the vicinity of the proposed wind turbines on the relatively hilltops to the west and east of the current farmstead complex have been proposed for the Phase 3 substation (Great Karoo 132kV Wind Farm Substation and the Alternative Great Karoo Substation) on the Farm Kentucky 308.

The proposed areas for the wind turbines were mostly covered in Karoo vegetation comprising shrubs and karoo grasses. The archaeological visibility was difficult in some areas where dense vegetation occurred; overall, archaeological visibility was good (Figures 49-52). No archaeological heritage remains were observed during the investigation.

Figure 49. View of the landscape and areas proposed for the wind turbines (red arrow).

Figure 50. View of the landscape and area proposed for the wind turbines (red arrows).

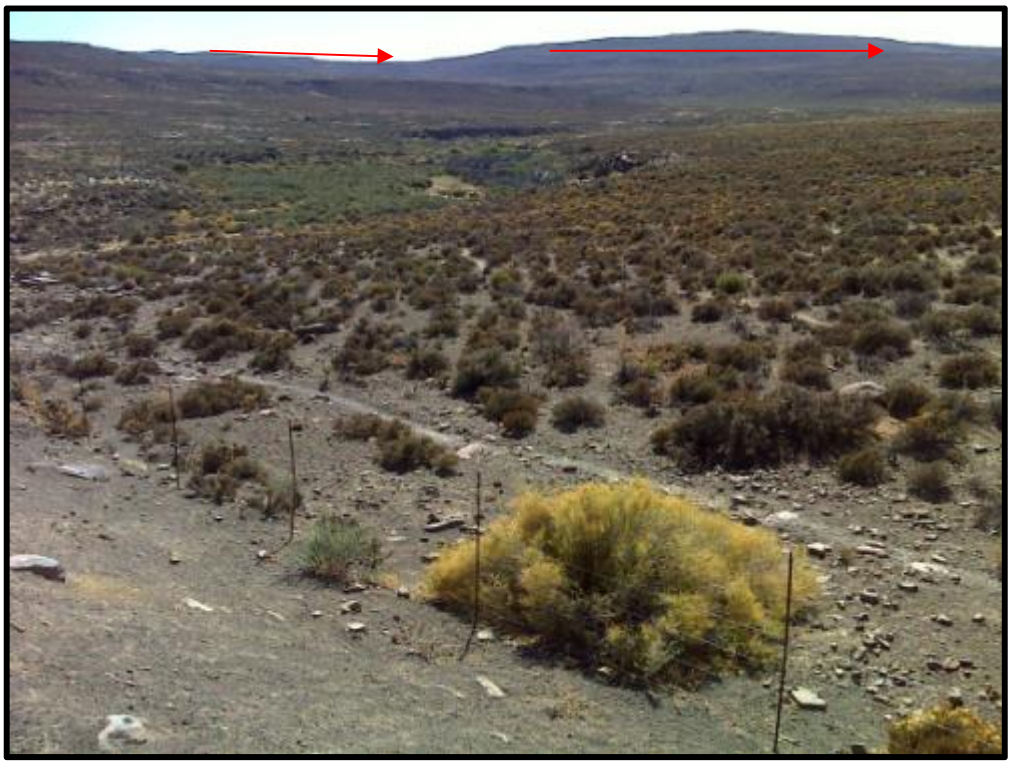

Figure 51. View of the landscape and area for the wind turbines.

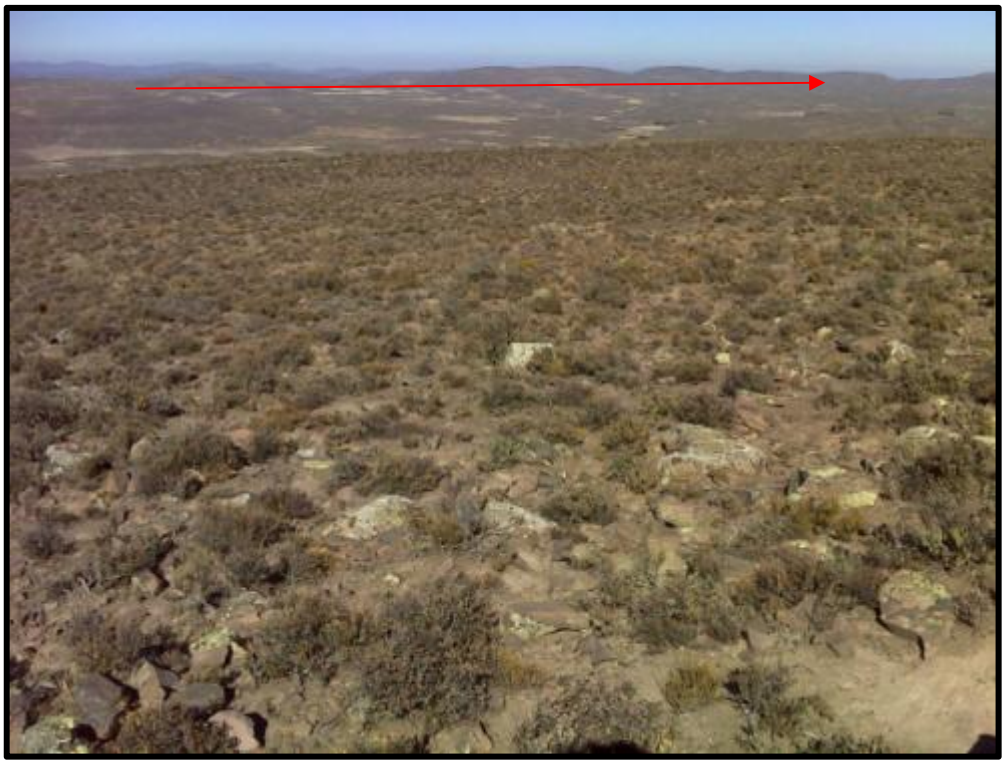

Figure 52. View of the landscape and area for the wind turbines.

7.3.1. Sensitive Heritage Resources on the Farm Kentucky 206

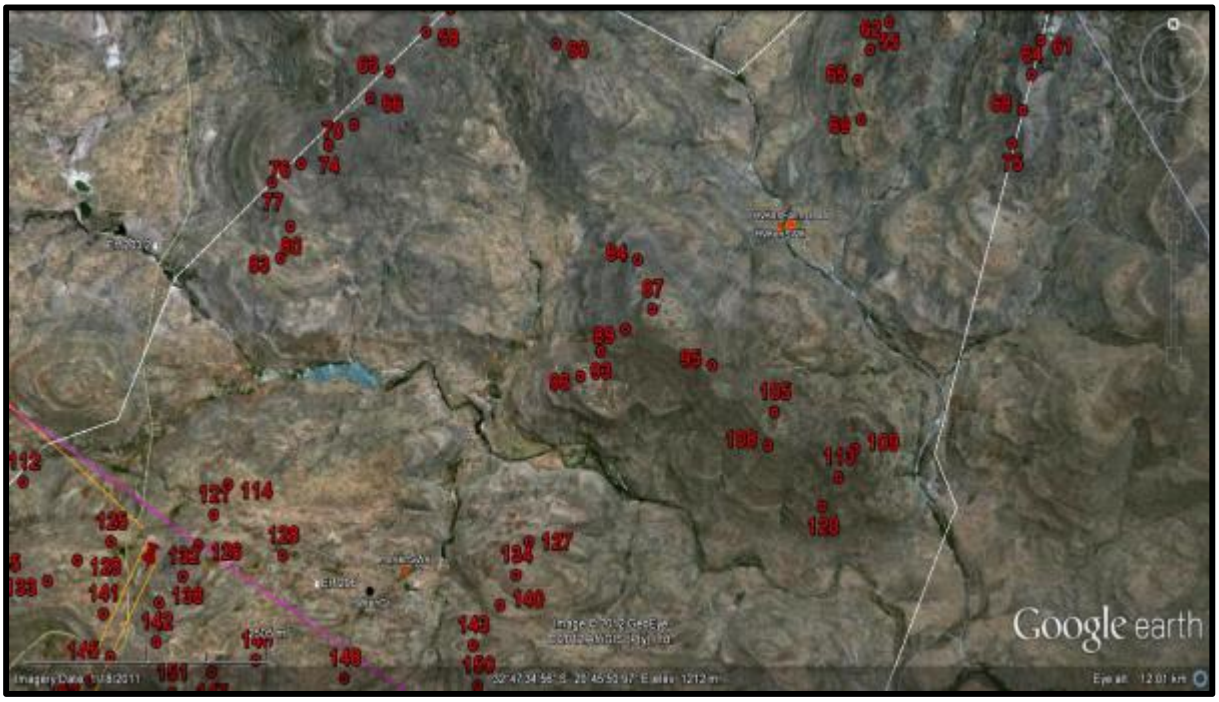

Figure 53. Map 13. Aerial view of the sensitive heritage resources on the Farm Kentucky 206.

Although no archaeological heritage remains, features, or sites were documented within the area proposed for development, however, historical archaeological features, structures and artefacts were encountered on the Farm Kentucky 206 (Figure 53. Map 13). A family graveyard and an informal labourers' graveyard are situated near to the current farmstead complex. The ruin of a large dry stone walling kraal is also situated near to the current farmstead. The ruins of a stone walling built large farmstead complex were documented within one of the valleys. These have been highlighted as they occur adjacent to or nearby the possible access roads.

1. Sensitive heritage resources situated close to the current farmstead complex on the Farm Kentucky 206.

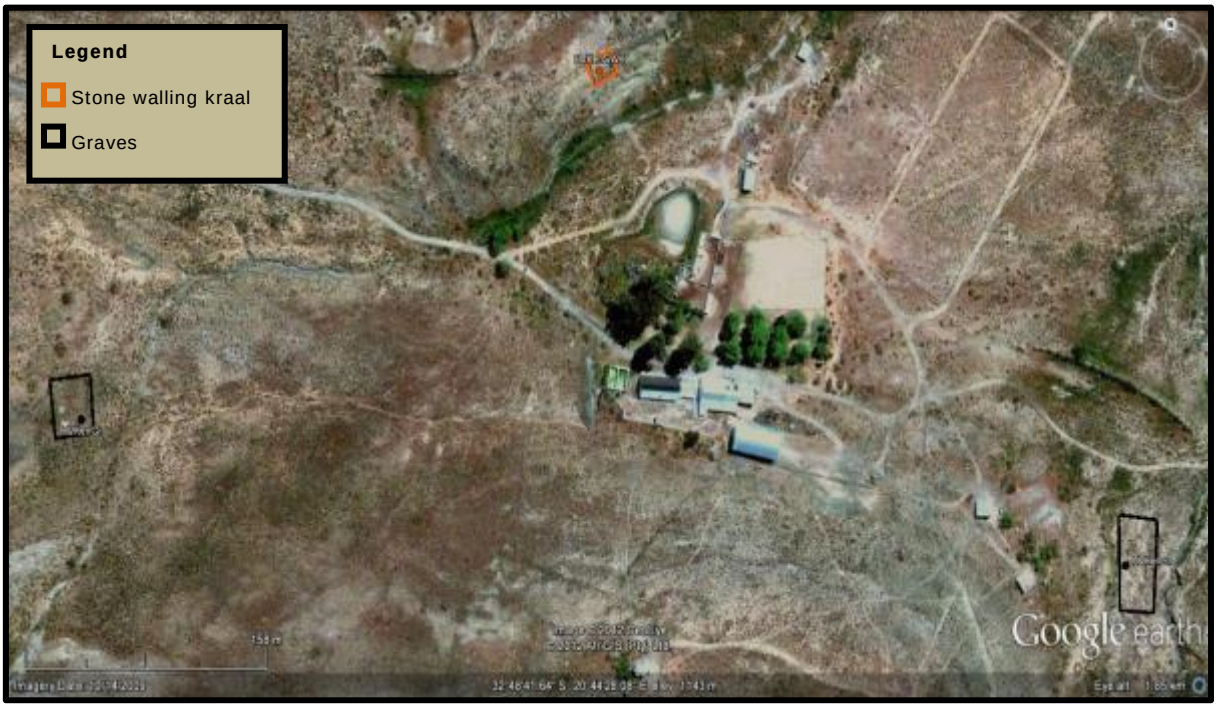

Figure 54. Map 14. Close-up aerial view of the two graveyards and the krall near t the main farmhouse.

A relatively large, approximately 20m x 20m in extent, dry packed stone walling kraal is situated about 200m of the main farmhouse within the vicinity of the current farmstead complex (HVKenSWK, Figure 54, Map 14). The kraal has been built on the slight gradient slope of a low hill above one of the farm gravel roads that lead around the farmstead complex. Several of the kraal walls have collapsed. The kraal is no longer in use.

Two graveyards are situated within the vicinity of the current farmstead complex (HVKenGr, Figure 54, Map 14). The family graveyard is situated 300m west of the main house and comprises mainly formal graves with headstones and two stone packed graves with make-shift flat stone slab headstones (Figure 55). The dates of graves date range from the early 1900's until the mid 1900's. The graves are cordoned off by a boundary fence and gate. The farm labourers' graveyard is situated east of the current labourers' cottages about 5m from a relatively large donga that runs passes the houses. The presentation of the graveyard is less formal and is not cordoned of by fencing (Figure 56). The graves comprise mainly stone packed graves with make-shift headstones including flat stone slabs, as well as stone and wooden crosses.

It is unlikely that these features should be impacted by the construction and development activities for the wind energy facility as the graves are situated between 80m and 150m away from the farm gravel road.

Figure 55. View of the formal family graveyard with stone packed graves.

Figure 56. View of the farm labourers' graveyard near the cottages.

2. Farmstead Complex on the Farm Kentucky 206.

Figure 57. Map 15. Close-up aerial view of the large farmstead complex and kraal.

A relatively large farmstead complex, approximately 90m x 75m in extent and a separate dry stone walling kraal are situated in one of the valleys on the Farm Kentucky 206 (HVKenFarmstead and HVKenSWK, Figure 57, Map 15). The main farmstead area is situated on the eastern side of a perennial stream and the separate kraal on the western side. The main clay packed stone walling cottage is in relatively good condition, although portions of the exterior walls have collapsed (Figures 58-59). The architectural design is visible in the remaining walls although the materials used for the roof are no longer evident. Two additional cottages are situated to the west of the main house (Figure 60). Only the bottom halves of these structures remain intact. The ruin of the storeroom is situated immediately south of the main cottage. Half of floor is raised presumably to pull in a wagon for loading (Figure 61). The ruin of the stable is in relatively good condition and intact (Figure 62). The floor is stone packed the trough still evident within the structure. The ruin of a dry packed stone walling kraal is situated south of the two cottages within the western half of the farmstead complex (Figure 63). The natural environment and layout of large boulders were used as parts of the kraal walls. One kraal is situated within the vicinity of the cottages. Broken glass fragments and ceramic shards are scattered over most of the farmstead complex area, however, a distinct dump area containing a denser scatter and possibly a deeper deposit of broken glass and ceramics well as fauna, is situated between the kraal and the cottages in the western half of the farmstead complex (Figure 64). Again the natural environment was taken into consideration for the placing of the separate dry stone walling kraal on the western side of the perennial stream. The kraal has been built on a slight gradient slope of a low hill and contains a natural boulder bedrock floor. A farm gate and fence have

been added since the original construction. The kraal is currently being used during the winter grazing period to house domestic stock and the walls are regularly maintained.

Figure 58. View of the ruin of the main cottage.

Figure 59. Close-up view of the ruins of the main cottage.

Figure 60. View of one of the ruins of the two cottages.

Figure 61. View of the ruin of the storeroom.

Figure 62. View of the stable.

Figure 63. View of the kraal within the farmstead complex.

Figure 64. Scatter of broken glass and ceramic sherds over the general farmstead complex area.

Figure 65. View of the large kraal separate from the farmstead complex.

8. DESCRIPTION OF SITES

8.1. Phase 1 – Proposed Karusa Wind Farm to be located on the Farm De Hoop 202, Farm Standvastigheid 201, and Portion 1, 2, 3 and the remainder of Farm Rheebokke Fontein 209

1. Graveyard on the Farm Standvastigheid 201 (HVSTGrvMid):

Mixed formal family graves and informal labourers' stone packed burials. The dates of the formal graves with headstones range from the late 1800's until the late 1900's. The fenced/cordoned graveyard is situated adjacent to the farm gravel road within the vicinity of the current farmstead complex.

2. Dry Packed Stone Walling Kraal of the Farm Standvastigheid 201 (no reference on map):

The dry packed stone walling kraal is situated directly north of the farm gravel road within the vicinity of the current farmstead complex.

3. Dry packed stone walling boundary fences/walls on the Farm Standvastigheid 201 (HVSTSW1 and HVSTSW):

Two dry packed stone walling boundary walls occur on the flat lands north- west and south-east of the current farmstead area. HVSTSW1 extends for approximately 1072m and is about 1m in width and 1m in height. The opposite sections of the wall adjacent to the farm gravel road have collapsed, however, the rest of the wall extend west remain relatively intact. HVSTSW extends for approximately 500m east to the boundary of the neighbouring farm and is about 1m in width and 50cm in height. The wall is situated with the farm boundary fence directly south of the main road that runs through the valley.

4. Farmstead Complex on the Farm De Hoop 202 (HVDHOldFarmstead):

The stone walling farmstead complex comprises one main cottage and two additional cottages. A mixture of clay/mud has been used as the binding for the packed stones. The complex also includes a dry packed stone walling kraal situated south of the main cottage and stables situated to west. A built-up stone dam and pond also occur within the farmstead complex area.

8.2. Phase 2 – Proposed Soetwater Wind Farm to be located on the remainder of and Portion 1 of Farm Orange Fontein 203, Annex Orange Fontein 185, Farm Leeuwe Hoek 183 and Farm Zwanepoelshoek 184

1. Dry Packed Stone Walling Dwelling on Portion 1 of the Farm Orange Fontein 203 (HVOFSW1):

The ruin of a dry packed stone walling dwelling, possibly occupied by shepards, is situated adjacent to the farm gravel road that leads to the wind turbines.

2. Farmstead Complex on Portion 1 of the Farm Orange Fontein 203 (HVOFFarmstead):

The stone walling farmstead complex comprises one main recently renovated or built main house and associated stone walling boundary walls and a sun-dried brick and clay/mud plastered cottage. The cottage is situated on the southern bank of a non-perennial stream. A dry packed stone wall extends east-west to the south of the cottage. A family graveyard is situated west of the cottage. The complex also includes a dry packed stone walling kraal situated west of the graveyard and cottage and stables are situated to the north –east of the kraal. Corrugated iron sheds, possibly still in use, are included within this farmstead complex. An old mill water pump and reservoir are situated along the farm gravel road to the north-west of the main farmstead complex area.

3. Clay Packed Stone Walling Cottage on remainder of Portion 1 of the Farm Orange Fontein 203 (CottageRuins):

The clay packed stone walling cottage is situated to the west of the current main farm house and north of the farm gravel road. It is possible that an additional structure may have been situated next to the cottage by the indication of possible foundations near to the farm gravel road, or it could reflect the distribution of the debris after collapse.

4. Dry Packed Stone Walling Kraal on remainder of Portion 1 of the Farm Orange Fontein 203 (HVOFKraalSW):

A dry packed stone walling kraal is situated on the slight gradient slope of a low hill near the current labourers' cottages. Historically, the kraal was used to house ostriches.

8.3. Phase 3 – Proposed Great Karoo Wind Farm to be located on Farm Kentucky 206 and Portion 1 of Farm Wolvenkop 207:

1. Dry Packed Stone Walling Kraal on the Farm Kentucky 206 (not referenced on map – for discussion purposes):

A dry packed stone walling kraal is situated within the vicinity of the current farmstead complex. The kraal has been built on the slight gradient slope of a low hill. Several of the walls have collapsed and the kraal is currently not in use.

2. Two Graveyards on the Farm Kentucky 206 (HVKenGr):

A fenced formal family graveyard with two stone packed informal burials is situated about 300m west of the current main farm house. The informal farm labourers' graveyard is situated slightly east of the labourers' cottage about 5m from the edge of a large donga. The burials are all stone packed and contain no formal headstones. The area is also not cordoned off with fencing.

3. Farmstead Complex on the Farm Kentucky 206 (HVKenFarmstead):

The stone walling farmstead complex is situated on the eastern side of a perennial stream in one of the valleys and comprises three clay packed stone walling cottages. The condition of the main cottage is in relatively good condition and the architectural design is still visible. The farmstead complex also includes a stone walling with sufficient space and arrangement for loading, stables in a relatively good condition with troughs still intact and a dry packed stone walling kraal near the ruins of the two cottages within the western half of the farmstead complex area. A general scatter of broken glass and ceramic sherds occur over the general farmstead complex area, however, a denser scatter with possible deposit of historical artefacts and fauna occurs near the two cottages in the western half of the farmstead complex area. A separate dry packed stone walling kraal is situated on the western side of the perennial stream and is still in and maintained to house domestic stock.

9. GPS CO-ORDINATES AND SITES FOR THE THREE PHASES PROPOSED HIDDEN VALLEY WIND ENERGY FACILITY, NEAR SUTHERLAND, NORTHERN CAPE PROVINCE

9.1. Phase 1 – Proposed Karusa Wind Farm to be located on the Farm De Hoop 202, Farm Standvastigheid 201, and Portion 1, 2, 3 and the remainder of Farm Rheebokke Fontein 209

REFERENCE	DESCRIPTION	CO-ORDINATES	HERITAGE GRADING
HVSTGrvMid	Graveyard	32°53'46.00"S; 20°37'18.90"E	III
HVSTSW	Dry packed stone walling	32°53'51.60"S; 20°37'46.30"E	III
HVSTSW1	Dry packed stone walling	32°53'30.70"S; 20°36'33.80"E	III
HVDOldFarmstead	Stone Walling Farmstead Complex	32°50'06.70"S; 20°40'45.60"E	III

9.2. Phase 2 – Proposed Soetwater Wind Farm to be located on the remainder of and Portion 1 of Farm Orange Fontein 203, Annex Orange Fontein 185, Farm Leeuwe Hoek 183 and Farm Zwanepoelshoek 184

REFERENCE	DESCRIPTION	CO-ORDINATES	HERITAGE GRADING
HVOFSW1	Dry packed stone walling dwelling	32°45'33.40"S; 20°38'48.80"E	III
HVOFFarmstead	Farmstead complex	32°52'07.40"S; 20°40'39.20"E	III
CottageRuins	Clay packed stone walling cottage	32°46'23.32"S; 20°41'07.01"E	III
HVOFKraalSW	Dry packed stone walling kraal	32°46'20.30"S; 20°41'17.30"E	III

9.3. Phase 3 – Proposed Great Karoo Wind Farm to be located on Farm Kentucky 206 and Portion 1 of Farm Wolvenkop 207:

REFERENCE	DESCRIPTION	CO-ORDINATES	HERITAGE GRADING
HVKenGr	Formal family graveyard	32°48'42.00"S; 20°44'14.50"E	III
HVKenGr	Informal farm labourers' graveyard	32°48'46.30"S; 20°44'41.20"E	III
HVKenFarmstead	Farmstead complex	32°46'58.00"S; 20°47'04.80"E	III

10. ASSESSMENT OF THE SIGNIFICANCE AND OF THE ARCHAEOLOGICAL AND HISTORICAL HERITAGE RESOURCES FOR THREE PHASES PROPOSED HIDDEN VALLEY WIND ENERGY FACILITY, NEAR SUTHERLAND, NORTHERN CAPE PROVINCE

10.1. Phase 1 – Proposed Karusa Wind Farm to be located on the Farm De Hoop 202, Farm Standvastigheid 201, and Portion 1, 2, 3 and the remainder of Farm Rheebokke Fontein 209

Nature: The destruction of the Graveyard (HVSTGrvMid) on the Farm Standvastigheid 201

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- An alternative access route must be proposed for the construction and development activities for the wind energy facility.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

Nature: The destruction of the Dry Packed Stone Walling Kraal on the Farm Standvastigheid 201		
	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes
Mitigation: • An alternative access route must be proposed for the construction and development activities for the wind energy facility. •		
Cumulative impacts: • Irreplaceable loss of historical heritage resources.		
Residual impacts: • Irreplaceable loss of historical heritage resources.		

Nature: The destruction of the Dry Packed Stone Walling Boundary Fences/Walls on the Farm Standvastigheid 201 (HVSTSW and HVSTSW1).

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- An alternative access route must be proposed for the construction and development activities for the wind energy facility.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

Nature: The destruction of the Farmstead Complex on the Farm De Hoop 202 (HVDHOldFarmstead).

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- If there is no alternative route available for accessibility during the construction and development of the wind energy facility, and access can only occur on the road through the farmstead complex, the section through the farmstead complex may not be widened to the extent that the activities would be destructive on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established around the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

10.2. Phase 2 – Proposed Soetwater Wind Farm to be located on the remainder of and Portion 1 of Farm Orange Fontein 203, Annex Orange Fontein 185, Farm Leeuwe Hoek 183 and Farm Zwanepoelshoek 184

Nature: The destruction of the Dry Packed Stone Walling Dwelling on Portion 1 of the Farm Orange Fontein 203 (HVOFSW1)

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- A 10m perimeter boundary fence must be established before and during all construction and development activities to avoid any negative and destructive impact to the feature.
- The above mitigation measure impacts on the accessibility of the road as the 10m perimeter boundary would include the current farm gravel road a part of the protection perimeter.
- Therefore, the road should be shifted to the north if it is to be used and/or widened taking heed of the protective perimeter distance.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

Nature: The destruction of the Farmstead Complex on Portion 1 of the Farm Orange Fontein 203 (HVOFFarmstead)

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- If there is no alternative route available for accessibility during the construction and development of the wind energy facility, and access can only occur on the road through the farmstead complex, the section through the farmstead complex may not be widened to the extent that the activities would be destructive on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established around the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

Nature: The destruction of the Clay Packed Stone Walling Cottage on remainder of Portion 1 of the Farm Orange Fontein 203 (CottageRuins).

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established of the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.
- From the above mitigation measure the farm gravel road should be rerouted as the foundation/debris borders onto the farm gravel road.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

Nature: The destruction of the Dry Packed Stone Walling Kraal on remainder of Portion 1 of the Farm Orange Fontein 203 (HVOFKraalSW).

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- A 10m perimeter boundary fence around the kraal must be established road before and during all construction and development activities to identify the kraal on the landscape and avoid destructive negative impact on the structure.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

10.3. Phase 3 – Proposed Great Karoo Wind Farm to be located on Farm Kentucky 206 and Portion 1 of Farm Wolvenkop 207:

Nature: The destruction of the Graveyards on the Farm Kentucky 206 (HVKenGr).		
	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes
Mitigation: • An alternative access route must be proposed for the construction and development activities for the wind energy facility so as to avoid the destruction and/or negative impact on the graveyards.		
Cumulative impacts: • Irreplaceable loss of historical heritage resources.		
Residual impacts: • Irreplaceable loss of historical heritage resources.		

Nature: The destruction of the Stone Walling Kraal on the Farm Kentucky 206.

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- An alternative access route must be proposed for the construction and development activities for the wind energy facility so as to avoid the destruction and/or negative impact on the dry stone walling kraal.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

Nature: The destruction of the Farmstead Complex on the Farm Kentucky 206 (HVKenFarmstead).

	Without mitigation	**With mitigation**
Extent	Local (5)	Low (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (10)	Moderate (6)
Probability	Highly Probable (4)	Improbable (2)
Significance	High (80)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Low
Can impacts be mitigated?	Yes	Yes

Mitigation:

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established of the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.
- If there is no alternative route available for accessibility during the construction and development of the wind energy facility, and access can only occur on the road through the farmstead complex, passing the farmstead complex should be shifted to the east taking heed of the 10m protection perimeter boundary area to avoid the destruction and/or negative impact on the sensitive heritage structures adjacent to the farm gravel road.

Cumulative impacts:

- Irreplaceable loss of historical heritage resources.

Residual impacts:

- Irreplaceable loss of historical heritage resources.

11. CONCLUSIONS AND RECOMMENDATIONS

No pre-colonial archaeological heritage remains, features, or sites were encountered within the area proposed for the development of the wind energy facility. However, several historical archaeological remains, features and sites were documented and have been reported on in this phase 1 archaeological impact assessment (AIA). These remains, features and sites have been highlighted as they occur adjacent to the possible main access roads that will be used during the construction and development activities.

The area is of a medium-high cultural sensitivity according to the sensitive heritage remains, features, and site encountered, the following recommendations must be considered:

General Recommendations:

- Once the final decisions have been made on the positions of the Phase 1 – Phase 3 substations and the positions of the electricity pylons have been decided, a professional archaeologist (with an already authorised collection permit – if necessary) must be appointed during all construction and development activities including vegetation clearing and the excavation activities to monitor and identify possible archaeological material remains and features that may occur below the surface and make further appropriate recommendations on removing and / or protecting the archaeological material remains and features.

- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/ excavation can be undertaken.

- Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

Site Specific Recommendations:

1. Graveyard (HVSTGrvMid) on the Farm Standvastigheid 201 (Phase 1):

- An alternative access route must be proposed for the construction and development activities for the wind energy facility.

2. Dry Packed Stone Walling Kraal on the Farm Standvastigheid 201 (Phase 1):

- An alternative access route must be proposed for the construction and development activities for the wind energy facility.

3. *Dry Packed Stone Walling Boundary Fences/Walls on the Farm Standvastigheid 201 (HVSTSW and HVSTSW1) (Phase 1):*

- An alternative access route must be proposed for the construction and development activities for the wind energy facility.

4. *Farmstead Complex on the Farm De Hoop 202 (HVDHOldFarmstead) (Phase 1):*

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- If there is no alternative route available for accessibility during the construction and development of the wind energy facility, and access can only occur on the road through the farmstead complex, the section through the farmstead complex may not be widened to the extent that the activities would be destructive on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established around the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.

5. *Dry Packed Stone Walling Dwelling on Portion 1 of the Farm Orange Fontein 203 (HVOFSW1) (Phase 2):*

- A 10m perimeter boundary fence must be established before and during all construction and development activities to avoid any negative and destructive impact to the feature.
- The above mitigation measure impacts on the accessibility of the road as the 10m perimeter boundary would include the current farm gravel road a part of the protection perimeter.
- Therefore, the road should be shifted to the north if it is to be used and/or widened taking heed of the protective perimeter distance.

6. *Farmstead Complex on Portion 1 of the Farm Orange Fontein 203 (HVOFFarmstead) (Phase 2):*

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- If there is no alternative route available for accessibility during the construction and development of the wind energy facility, and access can only occur on the road through the farmstead complex, the section through the farmstead complex may not be widened to the extent that the activities would be destructive on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established around the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.

7. *Clay Packed Stone Walling Cottage on remainder of Portion 1 of the Farm OrangeFontein 203 (CottageRuins) (Phase 2):*

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established of the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.
- From the above mitigation measure the farm gravel road should be rerouted as the foundation/debris borders onto the farm gravel road.

8. *Dry Packed Stone Walling Kraal on remainder of Portion 1 of the Farm Orange Fontein 203 (HVOFKraalSW) (Phase 2):*

- A 10m perimeter boundary fence around the kraal must be established road before and during all construction and development activities to identify the kraal on the landscape and avoid destructive negative impact on the structure.

9. *Graveyards on the Farm Kentucky 206 (HVKenGr) (Phase 3):*

- An alternative access route must be proposed for the construction and development activities for the wind energy facility so as to avoid the destruction and/or negative impact on the graveyards.

10. *Stone Walling Kraal on the Farm Kentucky 206 (Phase 3):*

- An alternative access route must be proposed for the construction and development activities for the wind energy facility so as to avoid the destruction and/or negative impact on the dry stone walling kraal.

11. *Farmstead Complex on the Farm Kentucky 206 (HVKenFarmstead) (Phase 3):*

- An alternative access route must be proposed for the construction and development activities for the wind energy facility as the widening of the roads may impact on the sensitive heritage structures.
- A 10m perimeter boundary fence must be established of the sensitive heritage structures adjacent to the farm gravel road before and during all construction and development activities.
- If there is no alternative route available for accessibility during the construction and development of the wind energy facility, and access can only occur on the road through the farmstead complex, passing the farmstead complex should be shifted to the east taking heed of the 10m protection perimeter boundary area to avoid the destruction and/or negative impact on the sensitive heritage structures adjacent to the farm gravel road.

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13. GENERAL REMARKS AND CONDITIONS

NOTE: This report is a phase 1 archaeological impact assessment (AIA) only and does not include or exempt other required specialist assessments as part of the heritage impact assessments (HIAs).

The National Heritage Resources Act (Act No. 25 of 1999, Section 35 [Brief Legislative Requirements]) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources including all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic, or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasized that the conclusions and recommendations expressed in this phase 1 archaeological impact assessment (AIA) are based on the visibility of archaeological remains, features and, sites and may not reflect the true state of affairs. Many archaeological remains, features and, sites may be covered by soil and vegetation and will only be located once this has been removed. In the event of such archaeological heritage being uncovered (such as during any phase of construction activities), archaeologists or the relevant heritage authority must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Resources Act No. 25 of 1999 (NHRA 25 of 1999).

Archaeological Specialist Reports (desktops and AIA's) will be assessed by the relative heritage resources authority. The final decision rests with the heritage resources authority that may confirm the recommendations in the archaeological specialist report and grant a permit or a formal letter of permission for the destruction of any cultural sites.

APPENDIX A: GRADING SYSTEM

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- Grade I: Heritage resources with qualities so exceptional that they are of special national significance;
- 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
- Grade III: Other heritage resources worthy of conservation on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the applicable mitigation measures would allow the development activities to continue.

APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers

1. Human Remains:

All human remains exposed during all the phases of the construction activities must be reported to the archaeologist, nearest museum or relevant heritage resources authority. Construction must be halted until the archaeologist has investigated and removed the human remains. Human remains may be exposed when a grave or informal burial has been disturbed. In general, the remains are buried in a flexed position on the side and may also be buried in a sitting position with a flat stone capping the location of the burial. Developers are requested to be aware of the exposing human remains.

2. Stone Artefacts:

Stone artefacts are difficult for the layman to identify. Large accumulations of flaked stones that do not appear to have been distributed naturally must be reported. If the stone artefacts are associated with bone / faunal remain or any other associated organic and material cultural artefacts development must be halted immediately and reported to the archaeologist, nearest museum or relevant heritage resources authority.

3. Large Stone Features:

Large stone features occur in different forms and sizes, however, are reatively easy to identify. The most common features are roughly circular stone walls (mostly collapsed), usually dry packed stone, and may represent stock enclosures, the remains of wind breaks or, cooking shelters. Other features consist of large piles of stones of different sizes and heights are known as *isisivane*. These features generally occur near river and mountain crossings. The purpose and meaning of the *isisivane* are not fully understood, however, interpretations include the representation of burial cairns and symbolic value.

4. Freshwater Shell Middens:

Accumulations of freshwater shell middens comprising mainly freshwater mussel occur along the muddy banks of rivers and streams and were collected by pre-colonial communities as a food resource. The freshwater shell middens generally contain stone artefacts, pottery, bone and, sometimes even human remains. Freshwater shell middens may be of various sizes and depths, an accumulation that exceeds $1m^2$ in extent must be reported to the archaeologist, nearest museum or, relevant heritage resources authority.

5. Historical Artefacts and Features:

These are relatively easy to identify and include the foundations and remains of buildings, packed dry stone walling representing domestic stock kraals. Other items

include historical domestic artefacts such as ceramics, glass, metal and military artefacts and dwellings.

6. Fossil Bone:

Fossil bones may embedded in geological deposits. Any concentrations of bone whether fossilized or not must be reported.