

**McGregor Museum**  
**Department of Archaeology**



**Archaeological Impact Assessment**  
**Phase 1:**  
**Proposed development of PV Power**  
**Station at Herbert, near Douglas,**  
**Northern Cape**

David Morris  
McGregor Museum, Kimberley  
June 2010

## **Archaeological Impact Assessment, Phase 1: Proposed development of PV Power Station at Herbert, near Douglas, Northern Cape**

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### **Introduction**

This report is commissioned by Irmé van Zyl of Van Zyl Environmental Consultants cc (+2772 222 6194; +2772 222 6194; fax 086 624 0306; tel +2754 338 0722 +2754 338 0722; email [ibvanzyl@telkomsa.net](mailto:ibvanzyl@telkomsa.net), P.O. Box 567, Uptington, 8800, South Africa). It provides a Phase 1 Archaeological Impact Assessment for the site of a proposed PV power station at Herbert near Douglas.

### **Specialist and legislative framework**

The author of this report is an archaeologist accredited as a Principal Investigator by the Association of Southern African Professional Archaeologists. Previous experience includes research and impact assessments in the Northern Cape including the area around Douglas.

The author works independently of the organization commissioning this specialist input, and provides this report within the framework of the National Heritage Resources Act (No 25 of 1999).

The National Heritage Resources Act No. 25 of 1999 (NHRA) protects heritage resources which include archaeological and palaeontological objects/sites older than 100 years, graves older than 60 years, structures older than 60 years, as well as intangible values attached to places. The Act requires that anyone intending to disturb, destroy or damage such sites, objects and/or structures may not do so without a permit from the relevant heritage resources authority. This means that a Heritage Impact Assessment should be performed, resulting in a specialist report as required by the relevant heritage resources authority/ies to assess whether authorisation may be granted for the disturbance or alteration, or destruction of heritage resources.

### **Environmental and heritage context**

The environment in question consists of a valley and hill slope north of the Vaal River north east of Douglas. The landscape is relatively sparsely vegetated, thereby making any surface archaeological traces generally highly visible. The substrate consists of what appears to be Dwyka tillite exposed on a low gradient hill slope, which probably underlies the sandy/clay sediment forming a flat plain at its foot.

The archaeology of the Northern Cape is rich and varied, covering long spans of human history. Stone Age material found in this area spans the Earlier, Middle and Later Stone Ages through Pleistocene and Holocene times. Of particular interest are Pleistocene sites along the Vaal River itself (e.g. Helgren 1979; Beaumont & Morris 1990; Beaumont & McNabb 2000). Late Holocene material with pottery is also known to occur on the river banks, while rock engravings are richly distributed in the region, inter alia at Kgatlane and Blaauwboschdrift near Douglas (Wilman 1933; Morris 1988).

Some areas are richer than others, and not all sites are equally significant. Heritage impact assessments are a means to facilitate development while ensuring that what should be conserved is saved from destruction, or adequately mitigated and/or managed.

### **Methods and limitations**

The site was visited on 10 June 2010 in the company of Mr Hennie Erasmus. The terrain was examined in detail on foot.

With relatively minimal vegetation cover, surface finds were easily located and it was not expected that much archaeological material would occur below the modern surface on the eroding hill slope, while the flatter valley area may contain sediment covering strata of Stone Age material. A low density of artefacts was observed at the surface both on the slope and on the flatter area, as indicated below. There remains a possibility that sub-surface sites occur, which should be borne in mind during the development phase.

### **Anticipated impacts**

The PV power station is expected to cover ~25 ha. Two alternative positions within the investigated area would be considered. Associated infrastructure would include an access road, fencing, guardroom and ablution facilities, security systems, lights on poles, lightning conductor poles, hanger to store spare parts and workshop. Around the premises a furrow would be constructed to prevent vehicles from entering the site at any other place than the main entrance.

The major destructive impact of the proposed PV power station development that is possible in terms of heritage resources would comprise a direct, once-off event during the initial construction period. An access road to the adjacent power station already exists so that secondary impacts from such a source may be ruled out.

With respect to the magnitude and extent of potential impacts, power station construction would involve modification of the landscape surface within an area

indicated and involving total surface disturbance corresponding with the footprint of the proposed power station.

### **Relevant observations**

The area of proposed disturbance was investigated on foot.

Essentially what was found was that the higher ground in the north western part of the site has an eroding surface on which a generally low density scatter of artefacts is fairly uniformly exposed. These seem to be mainly Pleistocene in age, comprising stone tools ascribable to the Middle Stone Age. In the vicinity of  $29^{\circ}00'05.9''$  S  $23^{\circ}48'18.8''$  E a slightly higher density of up to one artefact per  $1 \times 1$  m was found but over most of the rest of the site the density of lithics on the surface drops to generally less than one artefact per  $10 \times 10$  m.

The artefacts observed on the low, flatter part of the site were typologically no different from those on the hill slope, occurring in very low densities.

No traces dating from the colonial era were noted, other than farm tracks.



Google Earth image showing the area examined for the proposed power station development (outlined in red). The location is situated on 1:50 000 sheet 2923BB.



A selection of the MSA stone artefacts typical of those found in low densities throughout the proposed power station site.



View across the flatter low-lying area towards the slope at the north western part of the site.

### **Assessment and Recommendations**

While stone tools were noted over the entire site, they occur in very low densities and their occurrence here is not of high significance.

There are no colonial era built structures in the areas examined and no artefacts of this period (e.g. porcelain, metal) were noted.

The substrate exposed on the hill slope appears to consist of tillite and no shales were noted. It would not appear to be a likely locale for fossils to occur, but the author of this report is not competent to pronounce definitively on this.

It is noted above that subsurface features or Stone Age strata may be masked particularly by sediment in the flatter part of the site. In the event of any further such site/feature (which could also include a grave or an ostrich eggshell cache) being found in the course of development of the proposed power station, SAHRA should be contacted immediately (021-4624502: Mrs Nonofho Ndobochani/ Mrs Colette Scheermeyer), so that the find can be investigated and mitigation measures recommended. The Northern Cape PHRA (Ngwao Bošwa ya Kapa Bokone), to which a copy of this report is also being sent, will assume responsibility for archaeological resources in the province when it is accredited to deal with this aspect of heritage. Bošwa should be contacted in respect of the built environment.

## **Records**

The archive of field notes and images resulting from this study is preserved at the McGregor Museum in Kimberley.

## **Acknowledgements**

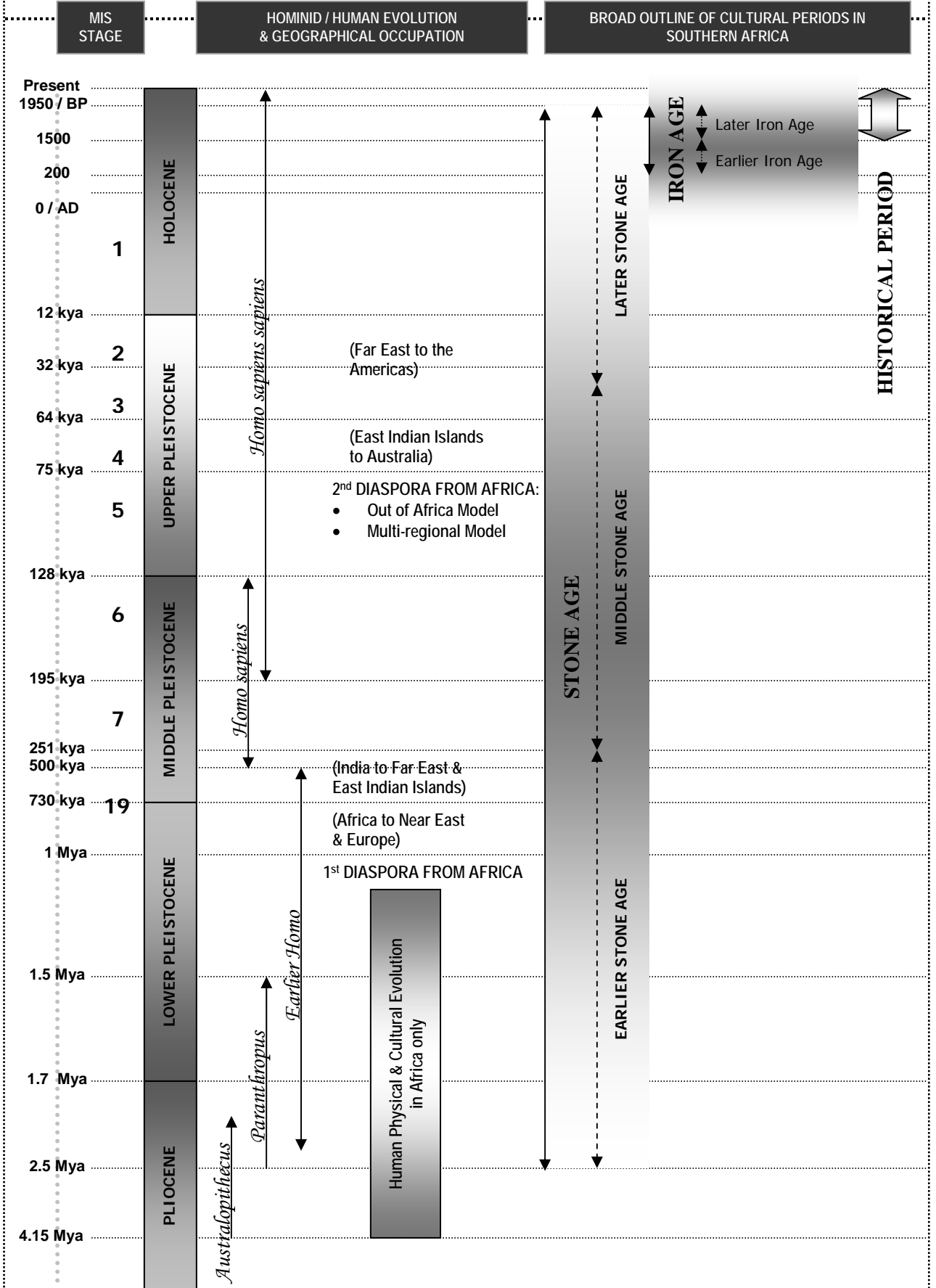
I thank Mrs Irme van Zyl for information provided and Mr Hennie Erasmus, in whose company I visited the site, for providing transport.

## **References**

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# Schematic Human Physical and Cultural Evolution in Africa





## Extracts from the

### National Heritage Resources Act (No 25 of 1999)

#### DEFINITIONS

##### Section 2

In this Act, unless the context requires otherwise:

- ii. “*Archaeological*” means –
  - a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
  - b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10 m of such representation;
  - c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic,... and any cargo, debris, or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation.
- viii. “*Development*” means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –
  - a) construction, alteration, demolition, removal or change of use of a place or structure at a place;
  - b) carrying out any works on or over or under a place;
  - c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
  - d) constructing or putting up for display signs or hoardings;
  - e) any change to the natural or existing condition or topography of land; and
  - f) any removal or destruction of trees, or removal of vegetation or topsoil;
- xiii. “*Grave*” means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;
- xxi. “*Living heritage*” means the intangible aspects of inherited culture, and may include –

- a) cultural tradition;
  - b) oral history;
  - c) performance;
  - d) ritual;
  - e) popular memory;
  - f) skills and techniques;
  - g) indigenous knowledge systems; and
  - h) the holistic approach to nature, society and social relationships.
- xxx. *“Palaeontological”* means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trances;
- xli. *“Site”* means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. *“Structure”* means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith;

## **NATIONAL ESTATE**

### **Section 3**

- 1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- 2) Without limiting the generality of subsection 1), the national estate may include –
  - a) places, buildings, structures and equipment of cultural significance;
  - b) places to which oral traditions are attached or which are associated with living heritage;
  - c) historical settlements and townscapes;
  - d) landscapes and natural features of cultural significance;
  - e) geological sites of scientific or cultural importance
  - f) archaeological and palaeontological sites;
  - g) graves and burial grounds, including –
    - i. ancestral graves;
    - ii. royal graves and graves of traditional leaders;
    - iii. graves of victims of conflict
    - iv. graves of individuals designated by the Minister by notice in the Gazette;
    - v. historical graves and cemeteries; and
    - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
  - h) sites of significance relating to the history of slavery in South Africa;
  - i) movable objects, including –

- i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
- ii. objects to which oral traditions are attached or which are associated with living heritage;
- iii. ethnographic art and objects;
- iv. military objects;
- v. objects of decorative or fine art;
- vi. objects of scientific or technological interest; and
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

## **STRUCTURES**

### **Section 34**

- 1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

## **ARCHAEOLOGY, PALAEOLOGY AND METEORITES**

### **Section 35**

- 3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- 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;
  - c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
  - d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
  - a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
  - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
  - c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
  - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

## **BURIAL GROUNDS AND GRAVES**

### **Section 36**

- 3) 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.
- 4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction of any burial ground or grave referred to in subsection 3a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such

- graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
- 5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection 3b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –
    - a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
    - b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.
  - 6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority –
    - a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
    - b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-internment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

## **HERITAGE RESOURCES MANAGEMENT**

### **Section 38**

- 1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –
  - a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
  - b) the construction of a bridge or similar structure exceeding 50 m in length;
  - c) any development or other activity which will change the character of a site –
    - i. exceeding 5 000 m<sup>2</sup> in extent; or
    - ii. involving three or more existing erven or subdivisions thereof; or
    - iii. involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or

- iv. the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
  - d) the rezoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
  - e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
- must at 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.
- 2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
    - a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
    - b) notify the person concerned that this section does not apply.
  - 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
  - 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
    - a) whether or not the development may proceed;
    - b) any limitations or conditions to be applied to the development;
    - c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
    - d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
    - e) whether the appointment of specialists is required as a condition of approval of the proposal.

## **APPOINTMENT AND POWERS OF HERITAGE INSPECTORS**

### **Section 50**

- 7) Subject to the provision of any other law, a heritage inspector or any other person authorised by a heritage resources authority in writing, may at all reasonable times enter upon any land or premises for the purpose of inspecting any heritage resource protected in terms of the provisions of this Act, or any other property in respect of which the heritage resources authority is exercising its functions and powers in terms of this Act, and may take photographs, make measurements and sketches and use any

other means of recording information necessary for the purposes of this Act.

- 8) A heritage inspector may at any time inspect work being done under a permit issued in terms of this Act and may for that purpose at all reasonable times enter any place protected in terms of this Act.
- 9) Where a heritage inspector has reasonable grounds to suspect that an offence in terms of this Act has been, is being, or is about to be committed, the heritage inspector may with such assistance as he or she thinks necessary –
  - a) enter and search any place, premises, vehicle, vessel or craft, and for that purpose stop and detain any vehicle, vessel or craft, in or on which the heritage inspector believes, on reasonable grounds, there is evidence related to that offence;
  - b) confiscate and detain any heritage resource or evidence concerned with the commission of the offence pending any further order from the responsible heritage resources authority; and
  - c) take such action as is reasonably necessary to prevent the commission of an offence in terms of this Act.

A heritage inspector may, if there is reason to believe that any work is being done or any action is being taken in contravention of this Act or the conditions of a permit issued in terms of this Act, order the immediate cessation of such work or action pending any further order from the responsible heritage resources authority.