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Department:
Environment & Nature Conservation
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA

Private Bag X6102, Kimberley, 8300, Metlife Towers, T-Floor, Tel: 053 807 7300, Fax: 053 807 7328

Project applicant:	**Gamagara Local Municipality**		
Business reg. no. /ID. no.:	**4040120927**		
Contact person:	**Refilwe Apools-Sebogodi**		
Postal address:	**P.O. Box 1001** **Kathu 8446**		
Telephone:	**(053)723-2261**	Cell:	**082-901-8364**
E-mail:	**refilwe@gamagara.co.za**	Fax:	**086-276-8041**

Prepared by:

Environmental Assessment Practitioner/Firm:	**Synergistics Environmental Services (Pty) Ltd (Synergistics is an SLR Group company)**		
Business reg. no. /ID. no.:	**2003/030216/07**		
Contact person:	**Chiara D'Egidio Kotze**		
Postal address:	**P O Box 1596 Cramerview 2060**		
Telephone:	**(011) 476-0945**	Cell:	**073 277 228**
E-mail:	**ckotze@slrconsulting.com**	Fax:	**(011) 476-0978**

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES ✓	NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. ACTIVITY DESCRIPTION

a) Describe the project associated with the listed activities applied for

The Gamagara Local Municipality proposes to develop additional space for graves in the town of Kathu. The existing Kathu Cemetery is located approximately 3.5 km north-east of central Kathu on the remaining extent of the farm Uitkoms 463 (immediately East of the N14 road), and falls within the Gamagara Local Municipality and John Taolo Gaetsewe District Municipality, in the Northern Cape (refer to Appendix A for the locality map).

The cemetery is at capacity and thus additional space is necessary due to the rapid expansion of the town of Kathu which is partly due to the resettlement of the Dingleton residents. In this regard, the Sishen Iron Ore Company (Pty) Ltd (SIOC) is in the process of relocating the town of Dingleton, situated immediately west of the current Sishen Iron Ore Mine (Sishen Mine) pit, to the resettlement host site on the farm Sekgame 461 directly south-east of Kathu. Due to the existing Kathu Cemetery being located in the protected Kathu Forest, extending the cemetery on the farm Uitkoms 463 is not possible. The best viable alternative is to establish a new cemetery on the farm Lyleveld 545, approximately 13 km south of central Kathu, also within the Gamagara Local Municipality and John Taolo Gaetsewe District Municipality. The new Kathu Cemetery will be approximately 5 hectares (ha) in extent on land owned by the SIOC. The land for the new cemetery will be transferred to the Gamagara Local Municipality through a land swap agreement as part of the Dingleton Resettlement project (refer to Appendix A for the locality map).

Activities that will occur on site for the new Kathu Cemetery will include phased vegetation clearance, a new access point including a road upgrade of the Dingleton Road with the addition of an extra lane 3.8 meter wide, a 6 meter wide gravel access road (including fencing along the access road), internal gravel roads within the cemetery site, fencing around the cemetery site, ablution facilities linked to a possible septic tank system with a French drain, a parking area for approximately 100 cars, night time security lighting (2 high lights masts with floodlights with electricity sourced from Eskom), water supply (from an existing borehole on the Lyleveld farm) and waste collection bins. Construction period is expected to be between three and six months. Operational activities will include phased vegetation clearance, digging of graves, use of the cemetery and maintenance.

b) Provide a detailed description of the listed activities associated with the project as applied for

***As of the 8th December 2014, GN R983, GN R 984 and GN R 985 are the applicable regulations for Listed Activities for Environmental Impact Assessments and Basic Assessments. This has been amended in the table below.**

Listed activity as described in ~~GN 734, 735 and 736~~* GN 983, 984, 985	**Description of project activity**
Example: ***GN 734 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.***	***A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river***
GNR 983 List 1 Activity 12: The development of: **(xii) infrastructure or structures with a physical footprint of 100 square meters or more** **Where such development occurs-** **(c) within 32 meters of a watercourse, measured from the edge of a watercourse.** **Excluding:** **(ee) where such development occurs within existing roads or road reserves.**	**A section of the access road and project fence will be constructed within the 1:100 year floodplain of the Ga-Mogara River but approximately 300m from the Ga-Mogara River.** **For the new intersection off the Dingleton Road, this intersection will occur within an existing road and road reserve and therefore based on SLR's interpretation of the listed activity, this activity is not applicable to the road upgrade. This needs confirmation from the Department of Environment and Nature Conservation.**
GNR 983 List 1 Activity 23: The development of cemeteries of 2500 square metres or more in size.	**The cemetery will be approximately 5 ha (50,000 m^2) in extent.**
GNR 983 List 1 Activity 27: **The clearance of any area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.**	**The cemetery will require the clearance of vegetation of an area between 1 and 5 ha. 99% of this vegetation is indigenous.**
GNR 983 List 1 Activity 28: **Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development-** **(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;**	**Land of 5 ha will be developed outside an urban area to accommodate the new Kathu cemetery, which is an institutional development. Current land use is game farming.**

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Cemetery site

Seven alternative properties were considered for the location of the new cemetery. A memo on the advantages and disadvantages of each location is contained in Appendix J1. The key deciding factor in the feasibility of the site is the presence of calcrete. A soil depth of approximately 2m or deeper is needed for the free digging of graves by the community or the use of a small TLB.

Within the preferred property, the preferred location chosen was outside of the 500m regulated zone of watercourses. However, during the initial public consultation process, this location was found to not be feasible as Eskom are planning to construct two 132 kV powerlines which would have crossed through the centre of the proposed cemetery. A second location was therefore chosen on the same property, away from the Eskom powerline servitude and taking cognisance of the existing game farming land use and the 1:100 year floodline of the Ga-Mogara River. This final preferred location is within the 500m regulated zone of a watercourse and is the only option under assessment. The necessary water use license/general authorization will be obtained for the project in consultation with the Department of Water and Sanitation (DWS).

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
New Kathu Cemetery – centre point	**27º48'52.94"S**	**23º02'31.28"E**
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Access Road

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred) **(off the Dingleton Road)**		
• Starting point of the activity	**27º49'04.85"S**	**23º02'07.94"E**
• Middle/Additional point of the activity	**27º49'01.38"S**	**23º02'21.71"E**
• End point of the activity	**27º48'55.54"S**	**23º02'31.84"E**
Alternative S2 (if any) **(off the N14)**		
• Starting point of the activity	**27º48'54.71"S**	**23º02'37.37"E**
• Middle/Additional point of the activity	**27º48'53.92"S**	**23º02'37.16"E**
• End point of the activity	**27º48'53.31"E**	**23º02'36.92"E**
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

Refer to Appendix J2 for the co-ordinates of Alternative 1 (Alternative 2 is shorter than 500m)

Following comparisons between Alternative 1 and Alternative 2 (refer to Section D1), Alternative 1 is the only feasible alternative and thus will be the only option considered in the assessment. Alternative 2 is not viable from a traffic and road safety point of view. Refer to Section D1 for the full comparison of each alternative.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

The layout of the New Kathu Cemetery took into consideration the presence of protected tree species and practicality of use. The ablution facilities and parking area were positioned near the entrance of the cemetery site for practical reasons, roads were established internally to allow for access around the cemetery area and the

remaining space was maximized for the establishment of graves. Where possible, protected trees and plants will be retained on site. No alternative layouts are considered necessary or feasible as the space used needs to be maximized to prolong the life of the cemetery as far as possible.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
New Kathu Cemetery – centre point	**27º48'52.94"S**	**23º02'31.28"E**
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Technology alternatives are not applicable to this type of project as the proposed project is the development of a new cemetery and will not involve the need to assess different technologies.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Other alternatives are not applicable to this type of project as the development is for a new cemetery.

Alternative 1 (preferred alternative)		
Alternative 2		
Alternative 3		

e) No-go alternative

Should the project not proceed there will not be any capacity for new graves near Kathu. This capacity is needed to serve the Kathu residents (which now also includes Dingleton), as well as the residents of Sesheng/Mapoteng and Babatas (and at times also Dibeng and Olifantshoek), as the existing cemetery is near full capacity. If the cemetery is not established residents will need to find another cemetery further away.

The status quo of the socio-economic and environmental aspects will remain.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative (cemetery):	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	**50 000 m²**
Alternative A2 (if any)	m²
Alternative A3 (if any)	m²

or, for linear activities:

Alternative (access road):	**Length of the activity:**
Alternative A1 (preferred activity alternative)	**780 m**
Alternative A2 (if any)	**50 m**
Alternative A3 (if any)	m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

This is not applicable as the alternatives fall within the footprint described in (a).

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	m²
Alternative A2 (if any)	m²
Alternative A3 (if any)	m²

4. SITE ACCESS

Does ready access to the site exist?	YES	NO ✓
If NO, what is the distance over which a new access road will be built	**280m will be new gravel road, approximately 500m is an existing gravel road**	

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

Describe the type of access road planned:

A gravel access road will need to be constructed to access the proposed new Kathu Cemetery. The road will be 6 m wide.
The access road will for the most part follow an existing gravel farm track, routed along the property fence line.
Changes to the Dingleton road will also be required to allow for safe access to the new Kathu Cemetery site. The additional lane to be constructed will be 3.8 m in width.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES ✓	NO	Please explain
The property is currently owned by the Sishen Iron Ore Company (SIOC) who has a land swap agreement with the Gamagara Local Municipality for the purposes of establishing a new cemetery in Kathu. The property is currently used as a game farm and according to the Gamagara SDF, the property has been labelled as an area designated for mining, though the land is zoned as agricultural.			

2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✓	NO	Please explain
The overarching objective stipulated in the Northern Cape Provincial Growth and Development Strategy is to "ensure integration of development processes and, in particular, to facilitate sustainable development throughout the province. Sustainable development is generally referred to as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. NEMA defines sustainable development as the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations." The development of a new cemetery will provide for a social requirement within the province. Sustainable development is achieved through appropriate management which can be achieved through appropriate implementation of the Environmental Management Programme.			
(b) Urban edge / Edge of Built environment for the area	YES ✓	NO	Please explain
This development is outside of the urban area and will not encroach on the urban edge. The property is currently used as a game farm and according to the Gamagara SDF, the property has been labelled as an area designated for mining, though the land is zoned as agricultural.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES ✓	NO	Please explain
Basic Service Delivery forms part of Key Performance Areas of the Gamagara Local Municipality. The development of cemeteries falls under the function and power of the Gamagara Local Municipality (IDP 2016-2017; final approved fourth reviewed IDP). With the increasing need for additional space for graves and the current cemetery at capacity, the development of the new Kathu Cemetery is a necessity for the Gamagara Local Municipality. The development of this project would not compromise the integrity of the Gamagara Local Municipality IDP.			
(d) Approved Structure Plan of the Municipality	YES ✓	NO	Please explain
The Gamagara Local Municipality has requested that an additional area be allocated for the cemetery development in Kathu and have entered into a land swap agreement with SIOC.			

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES ✓	NO	Please explain
An EMF has not yet been finalized for the John Taolo District Municipality including the Gamagara Local Municipality, though the September 2011 draft version indicates Kathu (as well as neighbouring towns e.g. Kuruman, Hotazel etc.) should be prioritized as a further development and investment area, as opposed to creating new development areas. Development planning is closely tied to the socio-economic state of the region, and hence should similarly focus on achieving spatial and economic development in the area that does not compromise the ability of the area to sustain itself over time. Development planning needs to make provision of adequate protection of sensitive natural features, and areas to avoid/carefully plan around ecological corridors and/or core/representative habitats and agricultural resources. **The area proposed for the new cemetery is in an area that is currently used for game farming. A portion of this property will be allocated by SIOC to the Gamagara Local Municipality for the cemetery development as part of a land swap agreement. The proposed location of the new Kathu Cemetery is not in any protected areas, is not within the Kathu Forest and is not within the Kathu Archaeological Complex. Based on the above, the new Kathu Cemetery is unlikely to compromise environmental management priorities. Further to this, the project is being conducted according to the NEMA principles with the implementation of mitigation measures as outlined in the EMP (Appendix G) minimising environmental impacts.**			
(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain
None			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES ✓	NO	Please explain
While cemetery development has not been listed as a priority is the most recent IDP review (IDP 2016-2017; final approved fourth reviewed IDP), the need for additional cemetery space has been highlighted as a priority by the Gamagara Local Municipality, with the current cemetery at capacity. **The development of cemeteries also falls under the function and power of the Gamagara Local Municipality (IDP 2016-2017; final approved fourth reviewed IDP). With the increasing need for additional space for graves, the development of the new Kathu Cemetery is a necessity for the Gamagara Local Municipality. According to the Gamagara SDF, the property where the new Kathu Cemetery is proposed has been labelled as an area designated for mining, though the area is zoned as agricultural. However, SIOC (the landowner), will provide a portion of this property to the Gamagara Local Municipality for cemetery development specifically.**			

4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES ✓	NO	Please explain
The community requires the proposed activity as the town of Kathu is expanding and the current cemetery will not meet the requirements of the increasing population. The activity is required on a local context.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES ✓	NO	Please explain
SIOC will be providing the water needed on site. The municipality will be responsible for the management of the ablution facilities.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES ✓	NO	Please explain
This project has been commissioned by the Gamagara Local Municipality, and thus fits into their infrastructure plans for the Municipality. As the applicant is the municipality, no specific comments are included in Appendix I.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO ✓	Please explain
This is for the new Kathu Cemetery which does not form part of a national programme.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES ✓	NO	Please explain
The farm where the new Kathu Cemetery will be located is currently used for game farming. The proposed location for the cemetery development is the nearest feasible option to Kathu for the establishment of graves. The location is restricted by the Kathu Pan Complex, the protected Kathu Forest, the presence of calcrete/depth of soil (which restricts where and how deep graves can be dug) and land ownership.			
9. Is the development the best practicable environmental option for this land/site?	YES	NO ✓	Please explain
The best practicable environmental option would be to keep the area as it is, as the area is currently used for game farming and the proposed Kathu Cemetery may fragment the property and the current land use. However, given the presence of calcrete within the areas surrounding Kathu, as well as the extent of the Kathu Pan Complex and the protected Kathu Forest, this option is the nearest feasible option to Kathu for developing the cemetery.			

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES ✓	NO	Please explain
Considering that additional space for graves is required near Kathu and that it has reached critical stage, the benefits of the proposed development will outweigh the negative impacts provided the mitigation measures as provided in the Environmental Management Programme are adhered to. The new Kathu Cemetery is needed to ensure that there is sufficient cemetery space to serve the needs of the residents of Kathu (which now also includes Dingleton), as well as the residents of Sesheng/Mapoteng and Babatas (and at times also Dibeng and Olifantshoek). The development of the new cemetery will generate some jobs (although limited) for the construction phase. The operational phase will see the continuation of employment for cemetery specific municipal employees. **The new Kathu Cemetery will be as close to Kathu as it can be. In this way, residents will not need to be buried at a cemetery that is in a different town and will allow ease of accessibility for relatives to visit graves.**			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO ✓	Please explain
This development is unlikely to set a precedent for similar activities in the area, as the area to be used is currently used for game farming and the proposed project is not in any protected areas and is not within the Kathu Pan Complex.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO ✓	Please explain
SIOC have an agreement with the Gamagara Local Municipality for a land swap in order for the Gamagara Local Municipality to have additional cemetery space near Kathu.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO ✓	Please explain
This development is outside of the urban area and will not encroach on the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO ✓	Please explain
The Cemetery development does not form part of any of the 17 SIPs.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The new Kathu Cemetery is needed to ensure that there is sufficient cemetery space to serve the needs of the residents of Kathu (which now also includes Dingleton), as well as the residents of Sesheng/Mapoteng and Babatas (and at times also Dibeng and Olifantshoek). The development of the new cemetery will generate some jobs (although limited) for the construction phase. **The new Kathu Cemetery will be as close to Kathu as it can be. In this way, residents will not need to be buried at a cemetery that is in a different town and will allow ease of accessibility for relatives to visit graves.**			

16. Any other need and desirability considerations related to the proposed activity?	Please explain
None	
17. How does the project fit into the National Development Plan for 2030?	Please explain
It will contribute on a very marginal scale towards the National Development Plan for 2030 as the project is not an extensive project. There will be the generation of minimal jobs (approximately 30 temporary construction phase jobs), which fits in with the National Development plan to reduce unemployment. The operational phase will see the continuation of employment for cemetery specific municipal employees.	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
• **The impacts on the biophysical environment, socio-economic environment, and cultural heritage have been taken into account for this project (refer to the Impact Tables in Appendix F2).** • **Mitigations for minimising these impacts have also been provided in the Impact tables (Appendix F2) and the EMP (Appendix G).** • **The actions of the project have been taken into consideration in relation to their environmental impact.** • **The public have been provided the opportunity to provide input on the project and will be provided with this report for comment.** • **An EMP has been developed to enforce appropriate environmental management.**	
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.	
Consideration of sustainable development that is economically, socially and environmentally sustainable has been made through assessing project impacts and providing mitigation measures to minimise impacts to be more socially, economically and environmentally acceptable (refer to Appendix F2 and G). **Measures to minimise impacts to the ecosystem, pollution and degradation, disturbance to the landscape and impacts of waste have been considered (refer to Appendix F2 and G).** **The project takes into consideration the public needs, the need for additional burial space, and takes into consideration the protection of the environment through the identification of impacts and mitigation measures.** **Consideration has been made of the sensitivities of the area in terms of heritage sites present and nearby aquatic resources and provides measures to minimise negative impacts on these.**	

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act	**Environmental Authorisation required**	**Department of Environment and**	**19 November**

	for listed activities	**Nature Conservation**	**1998**
National Environmental Management: Biodiversity Act	**Protected plants are located within the project area. If these are disturbed or removed, the necessary permits will be required.**	**Department of Agriculture, Forestry and Fisheries.**	**7 June 2004**
National Forest Act	**Protected trees are located within the project area. If these are disturbed or removed, the necessary permits will be required.**	**Department of Agriculture, Forestry and Fisheries.**	**29 April 2009**
National Heritage Resources Act	**The activity is greater than 0.5 hectares and a decision on the development is required from the heritage authority.**	**The South African Heritage Resources Agency**	**19 April 1999**
National Water Act	**The site alternative is located within the 500 m regulated zone of watercourses/pans**	**Department of Water and Sanitation**	**26 August 1998**

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES ✓	NO
If YES, what estimated quantity will be produced per month?	**25** m^3	

How will the construction solid waste be disposed of (describe)?

Calcrete, rocks and wire to be removed – 4 m^3 estimated.
Soil to be levelled not removed – 0 m^3.
Food parcel materials / minor domestic waste – 0.75 m^3, to be temporarily placed in bins on site prior to removal and disposal.
Building rubble, concrete to be removed – 20 m^3.

This will be removed off site and disposed of at the Dibeng licenced landfill site.

Where will the construction solid waste be disposed of (describe)?

Dibeng licenced landfill site

Will the activity produce solid waste during its operational phase?	YES ✓ **But negligible.**	NO ✓

If YES, what estimated quantity will be produced per month? **negligible** m^3

How will the solid waste be disposed of (describe)?

There could be food parcels, dead flowers from the graves and domestic waste that will be collected in waste bins and removed from site

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Dibeng licenced landfill site

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	YES	NO ✓

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?	YES	NO ✓

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	NO ✓
If YES, what estimated quantity will be produced per month?		m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO ✓

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES	NO ✓

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		**Cell:**	
E-mail:		**Fax:**	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	NO ✓
If YES, is it controlled by any legislation of any sphere of government?	YES	NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If NO, describe the emissions in terms of type and concentration:

During construction: Dust from vehicles travelling along the access and internal roads, exhaust emissions from construction vehicles and other vehicles travelling to the new Kathu Cemetery.
During operation: Dust from vehicles travelling along the access and internal roads, exhaust emissions from vehicles travelling to the new Kathu Cemetery

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	YES	NO ✓

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?	YES ✓	NO
If YES, is it controlled by any legislation of any sphere of government?	YES	NO ✓

Describe the noise in terms of type and level:

Minor noise from construction activities and construction vehicles.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater ✓	River, stream, dam or lake	Other	The activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	**30 000** litres	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	YES	NO ✓

Water will be sourced from an existing SIOC borehole on the Lyleveld Farm

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

There are limited means to implement energy efficiency measures for a project of this nature. The main activities on site will involve the erection of a fence to mark off the boundaries of the cemetery, the digging of graves and burial of coffins, the use of roads, ablution facilities linked to a possible septic tank system with a French drain, night-time security lighting with power sourced from Eskom (solar power is not viable due to very high cost and maintenance), use of water (from the existing borehole on the Lyleveld farm) and domestic waste collection using designated bins. Energy efficiency can only be implemented through only having cold water in the ablution facilities.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Not Applicable. The main energy sources will be electricity for night-time lights.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): **A**

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? YES ✓ | NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	**Northern Cape**
District Municipality	**John Taolo Gaetsewe District Municipality**
Local Municipality	**Gamagara Local Municipality**
Ward Number(s)	**1**
Farm name and number	**Lyleveld 545**
Portion number	**Remaining extent**
SG Code	**C04100000000054500000**

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records: **Agricultural**

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? YES ✓ | NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat ✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain	✓	2.9 Seafront	
2.10 At sea					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
Shallow water table (less than 1.5m deep)	YES	NO ✓	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES ✓ **Site underlain by Campbell Subgroup. This Subgroup is a very thick (1.6-2.5 km) carbonate platform succession of dolomites, dolomitic limestones and cherts with some subordinated ironstone and lenses of siltstone or shale.**	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ✓	YES	NO	YES	NO

Unstable rocky slopes or steep slopes with loose soil	YES	NO ✓	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✓	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✓	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO ✓	YES	NO	YES	NO
An area sensitive to erosion	YES	NO ✓	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition[E] ✓	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO ✓	UNSURE
Non-Perennial River	YES ✓	NO	UNSURE
Permanent Wetland	YES	NO ✓	UNSURE
Seasonal Wetland	YES	NO ✓	UNSURE
Artificial Wetland	YES	NO ✓	UNSURE

Estuarine / Lagoonal wetland	YES	NO ✓	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The Ga-Mogara River is located approximately 900m to the south of the proposed New Kathu Cemetery site and 300m south of the closest point of access road alternative 1. The 1:100 year floodline of the Ga-Mogara River is located adjacent to a section of the New Kathu Cemetery site, with the access road alternative 1 being within the 1:100 floodline. Refer to the surface water verification report for further details (Appendix D).

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area ✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture ✓
Retail commercial & warehousing	Old age home	**River,** stream or wetland ✓
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	**Railway line** [N] ✓	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	**Archaeological site** ✓
Quarry, sand or borrow pit	Golf course	Other land uses (describe) ✓ **The N14 road is located south of the proposed New Kathu Cemetery.**

If any of the boxes marked with an "[N] "are ticked, how this impact will / be impacted upon by the proposed activity? Specify and explain:

The New Kathu Cemetery will be located 250 m from a Trasnet rail line. The rail line is not expected to be impacted as the proposed activity will be restricted within the boundaries of the fence that will be erected as part of the project. Transnet have indicated they have no objections to the proposed project (refer to Appendix E6).

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO ✓
Core area of a protected area?	YES	NO ✓
Buffer area of a protected area?	YES	NO ✓
Planned expansion area of an existing protected area?	YES	NO ✓
Existing offset area associated with a previous Environmental Authorisation?	YES	NO ✓
Buffer area of the SKA?	YES	NO ✓

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES ✓	NO
	Uncertain	

Yes, based on desktop work there is the likelihood of palaeontological sites being present within project area. Site of heritage significance have been identified within and to the west of the New Kathu Cemetery site.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Heritage:

PGS Heritage conducted a Phase I heritage study for the area where the new cemetery is to be developed.

One site was found within the project area and four sites were found within 50m from the border of the project area.

Three of the sites were Low-density Stone Age scatter, one site was a flake find spot and one site was a single artefact occurrence. All sites are possible middle stone age. All sites have a low significance, though the specialist recommends that an archaeologist is present when earth diggings occur in this area.

The heritage study suggested that, if possible, the cemetery site be moved 30m to the west. This is not possible as a large number of additional protected trees will be impacted, this could also decrease the number of graves that can be established (decreasing the life of the cemetery), and the New Kathu Cemetery site would be closer to the 1:100 year floodline.

Palaeontology:

Banzai Environmental (Pty) Ltd conducted a desktop palaeontological study for PGS Heritage.

The proposed development site is completely underlain by sediments of the Early Precambrian, Transvaal Supergroup, Ghaap Group and Campbell Rand Subgroup. The PalaeoMap (South African Heritage Resource Agency (SAHRA) website) indicates that the palaeontological significance of the Transvaal Group, Campbell Rand Subgroup is moderate and thus the overall impact of the proposed Cemetery development is rated as having a negative moderate significance. The proposed development was indicated to unlikely pose a substantial threat to local fossil heritage.

Refer to Appendix D for further details on the two studies conducted. The studies also provide mitigation measures to limit the impacts to heritage and palaeontological resources.

Will any building or structure older than 60 years be affected in any way?	YES	NO ✓
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES ✓	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

The required permit applications will be submitted to SAHRA following receipt of a decision on the New Kathu Cemetery by DENC. This Basic Assessment Report and the Heritage and Palaeontological reports are being provided to SAHRA for review and comment as part of the public participation process. Should the permits be granted, these permits will be forwarded to DENC.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

The information below is based on the 2011 census for the Gamagara Local Municipality:

Total employed: 16058
Total unemployed: 3453 = 17.69%

Economic profile of local municipality:

The information below is based on the 2011 census for the Gamagara Local Municipality:

Employment	Black African	Coloured	Indian or Asian	White	Other	Total
Employed	9187	3355	146	3099	270	16058
Unemployed	2169	996	10	229	49	3453
Grand total						19511

The Gamagara Local Municipality has become a significant player in The Northern Cape Province and an important contributor to South Africa's mining section and internal mining value chain. Thus, making it a centre of concentration on the development for providing relevant and up to date infrastructure to accommodate such development. The current short term and long term prospects for economic growth and development will focus on manufacturing, heritage & tourism, wholesale & retail trade and solar energy. Two of the job creation initiatives that the municipality has embarked on with one of the mines is a brickmaking project and a coffin making project. One of the largest local economic development projects is the upgrading and renovation of the Khai-appel Resort (Gamagara Local Municipality IDP, 2016-2017).

Level of education:

The information below is based on the 2011 census for the Gamagara Local Municipality:

	Black African	Coloured	Indian or Asian	White	Other	Total	Total Percentage
No schooling	1763	909	13	28	43	2756	10.57 %
Some primary	1933	878	11	71	65	2959	11.35 %
Completed primary	871	519	14	20	14	1437	5.51 %
Some secondary	5173	2295	56	990	171	8685	33.30 %
Grade 12/Std 10	3668	1554	66	1541	118	6946	26.63 %
Higher	1173	551	22	1521	30	3298	12.65 %
Other	-	-	-	-	-	-	0 %
Grand total						26081	100 %

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	**R398 635**	
What is the expected yearly income that will be generated by or as a result of the activity?	**R 253 164**	
Will the activity contribute to service infrastructure?	✓ YES	NO
Is the activity a public amenity?	✓ YES	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	**30 estimated**	
What is the expected value of the employment opportunities during the development and construction phase?	**R100 000 estimated**	
What percentage of this will accrue to previously disadvantaged individuals?	**100%**	
How many permanent new employment opportunities will be created during the operational phase of the activity?	**0 There will be the continuation of some employment roles (5-10 ongoing and 50 for general maintenance)**	
What is the expected current value of the employment opportunities during the first 10 years?	**R 7 718 400**	
What percentage of this will accrue to previously disadvantaged individuals?	**100%**	

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan

Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA) ✓	No Natural Area Remaining (NNR)	**N/A the proposed project does not fall within a CBA or ESA. The proposed project area falls in an area that is not protected, least threatened and is within the Griqualand West Centre (GWC) of Endemism.**

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	**99%**	**The study area is 99% indigenous vegetation, and 1% alien plant species (only one species was observed, and it was not being prolific in the study area).**
Near Natural (includes areas with low to moderate level of alien invasive plants)	**1%**	**The study area is 99% indigenous vegetation, and 1% alien plant species (only one species was observed, and it was not prolific in the study area).**
Degraded (includes areas heavily invaded by alien plants)	**0%**	**N/A**
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	**0%**	**N/A**

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened ✓	YES	NO ✓ *	UNSURE	YES	NO ✓	YES	NO ✓

*** A section of the access road, fence and road upgrade fall within the 1:100 year floodline but outside the riparian habitat or banks of the river**

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

The information below was sourced from the floral and faunal ecological assessment (SAS, 2017a)

Vegetation Type

The study area is situated within the Kuruman Thornveld, although the western section of Access Road Alternative 1 falls within the Kuruman Mountain Bushveld Vegetation type.

This habitat unit is characteristic of the Kuruman Thornveld vegetation type as described by Mucina & Rutherford (2006).

Conservation Status

The study area falls within an area that is currently not protected and least threatened.

Floral Diversity

Floral diversity was found to be intermediate and dominated by herbaceous species that are commonly associated with areas that have been disturbed or overgrazed. Grass species observed included *Aristida congesta*, *Aristida meridionalis*, *Cenchrus ciliaris,* Enneapogon *cenchroides*, *Eragrostis lehmanniana* and *Hyparrhenia hirta*. Woody species observed within the study area include *Vachallia erioloba*, *Vachellia haematoxylon*, *Grewia flava* and *Senegalia mellifera subsp. detinens*.

Faunal diversity

Faunal diversity of the study area is considered to be moderately high, with a large number of invertebrates, reptiles and small mammals being either directly observed, or evidence of their presence being located (dung, spoor, active burrows). The study area was dominated by insects and avifaunal species, and to a lesser degree by those of the reptiles and arachnid species. Mammal diversity of the study area was lowest; however, mammal species tend to utilise much larger areas or habitats, and as such the small size of the study area would only form a part of the normal range utilisation of mammal species. As such, mammal diversity is considered to be low when focusing on the study area in isolation, however, taking the surrounding areas into consideration, the potential mammal diversity will likely increase, although these mammals may only periodically utilise the study area. Smaller less wide ranging species such as the various insects, arachnids and small reptiles (lizards etc.) that are known to occur in the region were well represented within the study area, as were avifaunal species, contributing to the species diversity being considered as moderately high.

Habitat Integrity

The habitat within the study area is deemed to be of an intermediate integrity. Habitat connectivity has been compromised as a result of roads (tar and dirt) and rail infrastructure, as well as fence systems. Windblown dust from surrounding mining activities has further degraded the state of habitat and natural functioning of vegetation within the study area. Only one alien invasive species was identified at the time of assessment, namely *Chenopodium album*, with indigenous plant species still dominant in the study area.

Species of conservation concern

Three floral Species of Conservation Concern were observed within the study area, namely *Harpagophytum procumbens* [Specially Protected, (Northern Cape Nature Conservation (NCNA; Act No 9 of 2009, Threatened or protected species, Notice 389 of 2013)], *Vachellia erioloba* and *Vachellia haematoxylon* of which both are listed as protected in the National Forest Act (1998, as amended in September 2011).

During the assessment of the study area, a burrow that is likely to be that of the Genus *Pterinochilus* (Golden-brown baboon spiders) was observed 50 m outside of the north-eastern border of the study area. Species in this Genus are listed as Specially Protected under the NCNCA. Species of this Genus are known to occur in the region, and particularly prevail themselves to the soft sandy substrate as found in the study area for the construction of their vertical burrows.

Floodplain

The floodplain of the Ga-Mogara River 1:100 year flood events falls adjacent to a section of the proposed New Kathu Cemetery site, with Access road alternative 1 falling within the floodplain area.

The flood plain and freshwater resource (Ga-Mogara River) in general have historically undergone modifications as a result of anthropogenic activities. These include heavy grazing, edge effects from mining activities and direct impacts as a result of the construction of roads and railways through the freshwater resource and flood plain, thus the ecological integrity and service provision capacity of the flood plain and fresh water resource has already been significantly lowered.

High levels of disturbance have altered the faunal habitat within the riparian zones, as well as within the areas outside of the riparian zone.

The Ga-Mogara River is only likely to experience sustained water flow during periods of high rainfall. As such the river system is not considered important in terms of supplying water to biota or communities in the area.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	**Kathu Gazette, Volksblad and the Government Gazette**	
Date published	**Initial Notification:** **18 November 2016 for the Volksblad and Kathu Gazette (Kathu Gazette dated 19 November),** **28 November 2016 for the Government Gazette** **Basic Assessment Report:** **17 March 2017 for the Volksblad and Kathu Gazette (Kathu Gazette dated 18 March 2017)** **Government Gazette 17 March 2017**	
Site notice position	**Latitude**	**Longitude**
• **On-site**	**27 48 50.53S**	**23 02 47.05E**
	27 49 04.80S	**23 02 15.28E**
	27 49 05.24S	**23 02 08.15E**
• **Approximate locations of additional site notices placed:**		
○ **Existing cemetery**	**27 40 24.36S**	**23 04 27.64E**
○ **Kathu Shell Garage**	**27 41 26.03S**	**23 04 19.53E**
○ **Kathu Pick 'n Pay**	**27 41 32.90S**	**23 04 06.32E**
○ **Gamagara Local Municipality Office**	**27 41 59.09S**	**23 03 00.87E**
○ **Kathu Library**	**27 41 47.20S**	**23 02 50.83E**
○ **Kathu Village Mall Spar**	**27 42 02.13S**	**23 02 00.07E**
○ **Dingleton SAPS**	**27 47 03.34S**	**22 58 58.14E**
○ **Dingleton Taizal Store**	**27 47 03.06S**	**22 58 56.05E**
○ **Olifantshoek Friendly Supermarket**	**27 56 39.28S**	**22 44 11.17E**
○ **Host Site Library**	**27 42 54.34S**	**23 04 01.42E**
○ **General Store in Sesheng**	**27 41 54.89S**	**23 00 40.57E**
○ **Sesheng Mafizolos Tavern**	**27 41 47.76S**	**23 00 37.20E**
○ **Sesheng Bottle Store**	**27 41 59.58S**	**23 00 30.39E**
○ **Dibeng A&J Handelaars**	**27 35 52.64S**	**22 52 42.37E**
○ **Dibeng Local Municipality Office**	**27 35 44.63S**	**22 52 27.53E**
○ **Dibeng Madiba Supermarket**	**27 35 53.41S**	**22 52 49.11E**
○ **Babatas Community water point**	**27 32 21.93S**	**23 14 17.79E**
Date Placed	**18 November 2016 and 22 November (Babatas) 2016**	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) 41 (2) (b)(c)(d) and 41(6) of GN 733 GN 982.

- **An IAP database was initiated for the project. The database was compiled through a deed search of adjacent landowners, a review of applicable regulatory and local authorities for the project and a social scan of the project area (undertaken on 17 November 2016).**
- **A notification letter of the proposed project was emailed/posted to I&APs on the database between the 17 and 25 November 2016. A copy of the letter is included in Appendix E2 and E4.**
- **Notification SMSes were also sent by Newstar Business Solutions to all the people on the Gamagara Local Municipality rates and taxes database. A copy of the notification message is included in Appendix E2. All people that requested to be registered were then included in the IAP database for the basic assessment process.**
- **The site landowner is the Sishen Iron Ore Company, who is entering into a land swap agreement with the Gamagara Local Municipality.**
- **Advertisements and site notices were placed as outlined in Section 1 above. See Appendix E1 for proof of places were site notices were displayed and proof of newspaper advertisements.**
- **Notifications for the review of the draft Basic Assessment Report were done on 22 March 2017 via email/post to I&APs registered on the project database as well as placement of newspaper advertisements in the Government Gazette, the Kathu Gazette and the Volksblad on 17 March 2017 (Kathu gazette dated 18 March 2017).**

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of ~~GN 733~~ GN 982.

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Livhuwani Ndou	Transnet – directly adjacent landowner	In terms of the Protection of Personal Information Act, No 4 of 2013, this information will not be included in the public review document. Only the final document to be submitted to DENC for review and decision will contain this information.
Marina Lourens	Transnet – directly adjacent landowner	
Gilbert Nortier	Transnet – directly adjacent landowner	
Norman Papenfus	Transnet – directly adjacent landowner	
Wentzel Radcliffe	Transnet – directly adjacent landowner	
Annelize Harmse	Transnet – directly adjacent landowner	
Werner Voigt	Sishen Iron Ore Company - Land Owner representative	
Frederick Ludeke	Eskom – directly adjacent landowner	
Tshegofatso Nnene	Eskom – directly adjacent landowner	
Annelize Grobler	Environmental Assessment Practitioner for Eskom	
Susanna Nel	Environmental Assessment Practitioner for Eskom	
Tsheliso Mofokeng	Eskom – directly adjacent landowner	

Elizna Badenhorst	**Assmang Ltd Khumani Mine – directly adjacent landowner**	**In terms of the Protection of Personal Information Act, No 4 of 2013, this information will not be included in the public review document. Only the final document to be submitted to DENC for review and decision will contain this information.**
Dirk Coetzee	**Assmang Ltd Khumani Mine – directly adjacent landowner**	
Carel Reitz Familie trust	**Directly adjacent landowner**	
Henque 3516 CC	**Directly adjacent landowner**	
Kornelius Nouse	**Interested Party**	
Precious Taolo	**Interested Party**	
L T Assegai	**Interested Party**	
Dkay	**Interested Party**	
Masego Kgotlaekae	**Interested Party**	
Jamtjie Gabasiiwe	**Interested Party**	
Letodi Tumelo	**Interested Party**	

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

The full comments and the comments and response report are included in Appendix E6 and E3 respectively.

The table below provides a summary of the comments.

Summary of main issues raised by I&APs	Summary of response from EAP
The Gamagara Local Municipality is concerned about the blasting and vibration impact on the cemetery from the nearby mines.	**A blasting and vibration study was conducted to determine if blasting and vibrations from nearby mines will have an impact on the New Kathu Cemetery (refer to Appendix J3). The study indicated that the operating mines are located far away from the proposed New Kathu Cemetery site. The impact of the ongoing mining will be minimal. Ground vibration, airblast, flyrock, fumes and dust will have an insignificant impact at the proposed new cemetery location. Thus, there is no reason why the**

Summary of main issues raised by I&APs	Summary of response from EAP
	cemetery should not be located at the proposed location (Kohler, 2017).
The proposed location of the New Kathu Cemetery will conflict with the new proposed Eskom powerlines.	The location of the New Kathu Cemetery was revised to not intersect with the proposed Eskom Powerline. The revised location has been assessed in this Basic Assessment Report.
Transnet has no objection to the proposed development.	This comment is noted.
The South African Heritage Resources Agency indicated that a heritage impact assessment and a paleontological impact assessment will need to be conducted. The Basic Assessment report and all appendices must be submitted to the SAHRIS case file for review during the Public Participation phase of the project.	The report and appendices were uploaded onto the SAHRIS case file for review during the public review phase and the case officer was notified.
Approval is required from SANRAL if the proposed project is situated within a 500m radius of an intersection or within 60m from the N14.	Application will be made to SANRAL as required.
The Department of Agriculture Forestry and Fisheries (DAFF) has no objection to the proposed location of the New Kathu Cemetery. Should protected trees need to be removed, application will need to be made.	Application for the removal of protected tree species will be made to DAFF as required.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No (office numbers)	Fax No	e-mail (office email)	Postal address (office)
Department of Environment and Nature	Mr Thulani Mthombeni	0538077430	053831 3530	tmthombeni@ncpg.gov.za	Private Bag X 6102 Kimberley 8300

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No (office numbers)	Fax No	e-mail (office email)	Postal address (office)
Conservation					
Department of Environment and Nature Conservation	Ms Naomi Mokonopi	0537731240		nmokonopi@ncpg.gov.za	Private Bag X 6102 Kimberley 8300
Department of Environment and Nature Conservation	Ms Samantha De la Fontaine	0543384806		sdelafontaine@gmail.com	Evelina De Bruin (former Provincial) Building Corner of Rivier & Nelson Mandela Road Upington 8800
Department of Agriculture Forestry and Fisheries	Ms Jacoline Mans	0543385909		JacolineMa@daff.gov.za	26 Olien Street, Louisvale, Upington
Department of Agriculture, Land Reform and Rural Development	Mr Wonders Viljoen Dimakatso Mothibi	0538389102		fortunec@ncpg.gov.za	Private Bag X5018, Kimberley, 8300
Department of Roads and Public Works	Mr Jaco Roelofse (Ms Kelly Dennis Secretary)	0538392249		khannie@ncpg.gov.za	PO Box 3132, Kimberley, 8300
South African Heritage Resources Agency	Ms Natasha Higgitt	0214624502	0214624509	nhiggitt@sahra.org.za	POBox 4637 Cape Town, 8001
Department Mineral Resources	Ms Raisibe Sekepane	0538071778		raisibe.sekepane@dmr.gov.za	1st Floor Phakamile Mabija Street Kimberley 8301
Department of Water and Sanitation	Ms Esther Makungo	053 836 7661		makungoe@dws.gov.za	28 Central Road, Beaconsfield, Kimberley, Northern Cape, 8300
South African National Roads Agency Limited	Mr Friedl van der Merwe	0219574631		vdmerweF@nra.co.za	
South African National Roads Agency Limited	Ms Nicole Abrahams	0219574602		abrahamsn@nra.co.za	1 Havenga Street, Oakdale, Bellville 7530
South African National Roads	Ms René de Kock			Dekockr@nra.co.za	

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No (office numbers)	Fax No	e-mail (office email)	Postal address (office)
Agency Limited					
Gamagara Local Municipality Ward 1 -5	Ms Virginia Modise	0537236000		virginiam@gamagara.co.za	Civic Centre, cnr Hendrik van Eck and Frikkie Meyer Road, Kathu 8446
Gamagara Local Municipality	Ms Refilwe Sebogodi	0537236000		refilwe@gamagara.co.za	Civic Centre, cnr Hendrik van Eck and Frikkie Meyer Road, Kathu 8446
Gamagara Local Municipality	Mr Pierre Burger	0537236000		pierreb@gamagara.co.za	Civic Centre, cnr Hendrik van Eck and Frikkie Meyer Road, Kathu 8446
John Taolo Gaetsewe District Municipality	Mr Moses Eilerd	0537128700		eilerdm@taologaetsewe.gov.za	P.O. Box 1480, Kuruman, 8460
Department of Agriculture, Land Reform and Rural Development	Ms Nadia Goltz	0538389160		ngoltz@ncpg.gov.za	Private Bag X5018, Kimberley, 8300
Department of Agriculture, Land Reform and Rural Development	Mr Eben Louw			e.louw3@gmail.com	
Department of Agriculture, Land Reform and Rural Development	Mr Koos Jordaan			jj089@lantic.net	

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Comparison of alternatives for the access road

Aspect	Access road alternative 1	Access road alternative 2
Soil and Land capability	No significant difference	No significant difference
Biodiversity: Faunal and floral	Longer road length and thus more vegetation clearance. However there is an existing road along this option, with only a small portion being proposed.	Shorter road length and thus less vegetation clearance, will likely to have the least biodiversity impact on the receiving environment due to the direct access off the N14.
	It is deemed that neither will have significantly greater or lesser impacts than the other, therefore access options should be determined in terms of best access practices concerning vehicle and occupant safety concerns when accessing any main roads (STS, 2017a).	
Biodiversity/surface water: Floodplain	Within the floodplain. Site preparation, clearing, construction and use of the access road during operation can have potential impacts on the floodplain if not appropriately managed.	Not within the floodplain. Site preparation, clearing, construction and use of the access road during operation will not take place within the floodplain.
Noise	No significant difference	No significant difference
Air Quality	No significant difference	No significant difference
Visual	No significant difference	No significant difference
Palaeontological resources	No significant difference	No significant difference
Heritage resources	No significant difference	No significant difference
Road Safety	• Longer access road to be constructed. • Low speeds at access intersection resulting in a lower risk. • Lower volume of non-development traffic on Dingleton Road. • Lower cost to construct access intersection. • Safer environment for pedestrians should public transport load and off-load passengers at the intersection.	• Shorter access road to be constructed. • High cost to construct access intersection. • High vehicle speeds along Road N14 which affects intersection safety and increase risk. • Higher safety risk for pedestrians should public transport load and off-load passengers at the intersection.
	In terms of road safety and potential costs for intersection and access road construction, it is recommended that alternative 1 be implemented (Siyazi, 2017).	
Socio-economic	No significant difference	No significant difference
Recommended Alternative Based on the above the recommended alternative is Alternative Option 1. While it is located within the floodplain and may require slightly more vegetation removal the impacts can be managed to acceptable levels. In terms of safety to people, alternative option 1 is best as it has lower risks. The Dingleton road has lower traffic volumes, a lower maximum speed and provides a safer environment for pedestrians should public transport load and off-load passengers at the intersection.		

Based on the information above, the only feasible option for the access road is off the Dingleton road. Initial correspondence with South African National Roads Agency Limited (SANRAL) also indicated that access off the Dingleton road would be preferred. Therefore the impact assessment will consider the access road off the Dingleton road and the preferred site only. SANRAL are also being provided with the Basic Assessment report for review.

Abbreviations

Sig= Significance

UM= Unmitigated

M= Mitigated

Significance Ratings:

M= Medium

L= Low

H = High

+ denotes positive impact

ALTERNATIVE 1 - SITE AND DINGLETON ACCESS ROAD (ONLY FEASIBLE OPTION)						
CONSTRUCTION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Proposed Mitigation**
No.	**Impact Summary**	**Activity**	**Sig**	**Sig**		
1.1	**Soil and land capability**					
1.1.1.	Loss of soil resources and related land capability as a result of soil contamination through spills/leaks from vehicles, machinery, construction waste, litter and use of portable ablution facilities.	• Building/establishing facilities (parking area, ablution facilities, waste collection area, night time lighting) • Waste collection and removal • Establishing/upgrading the gravel access road, access point and use of roads.	M	L	Cemetery site and access road	• Losses of fuel and lubricants from parked vehicles and equipment should be contained using a drip tray. • Pollution prevention through education and training of workers (temporary and permanent). • Waste is to be disposed of into bins at designated areas. • There must be immediate cleaning up of spillages of potentially contaminating liquids and solids after any spill occurs. • No storage of fuel or lubricants on site. Should these need to be stored on site, they will need to be kept on an appropriately surfaced and bunded area. • No maintenance of vehicles is to take place on site. Should it be necessary to do maintenance must take place on an appropriately surfaced and bunded area. • Regular maintenance of vehicles and equipment is to take place and records are to be kept. • Mixing of concrete is only to take place in designated areas. All concrete mixing areas need to be removed once construction is complete. • Construction materials are to be stored only in designated areas. • Temporary ablution facilities are to be regularly maintained and records are to be kept.
1.1.2	Loss of soil resources and related land capability as a result of soil compaction from movement of vehicles/ machinery and soil erosion.	• Site preparation including fencing and access control (clearing of land). • Establishing/upgrading the gravel access road, access point and use of roads.	L	L	Cemetery site and access road	• The activities of construction contractors or employees are to be restricted to the planned areas. • Instructions must be included in contracts that will restrict construction work and construction workers to the clearly defined limits of the construction site. • Areas that do not need to be used at the end of construction are to be ripped and revegetated with an indigenous grass mixture.

ALTERNATIVE 1 - SITE AND DINGLETON ACCESS ROAD (ONLY FEASIBLE OPTION)						
CONSTRUCTION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Proposed Mitigation**
No.	**Impact Summary**	**Activity**	**Sig**	**Sig**		
1.2	**Biodiversity**					
1.2.1	Loss of habitat and related floral (including species of conservation concern) and faunal species (including species of conservation concern) through physical clearing, poaching and firewood collection.	• Site preparation (clearing of land) including fencing and access control. • Use of contractors/construction workforce	M	M	Cemetery site and access road	• The necessary permits need to be acquired pertaining to the removal of floral species of conservation concern (SCC) that are located within the study area prior to the construction phase, and the following should be ensured: o Effective relocation of individuals to suitable similar habitat in the vicinity of the study area o All rescue and relocation plans should be overseen by a suitably qualified specialist; • a 5m buffer is to be applied around all known protected floral species that will be retained along the access road and within the cemetery site. • A walkdown of the construction footprint is to be undertaken prior to vegetation clearing activities in order to assess the site for any possible burrows of Pterinochilus (Golden-brown baboon spider). Faunal SCC encountered within the study area are to be relocated by a suitably qualified specialist to suitable habitat in the vicinity of the study area. • It is recommended that site clearing takes place in a phased manner, in a uniform direction from one side to the other of the study area, so as to ensure that as far as possible faunal species can naturally disperse out of the area ahead of clearing activities. • Where possible, utilise the current indigenous vegetation as part of the landscape plans, with special emphasis on the larger Vachallia erioloba and Vachellia haematoxylon species. • Landscape planning should take cognisance of habitat connectivity, ensuring that areas of natural vegetation remain within the development to create areas of refuge and corridors of movement. • The construction and operational footprint must be kept as small as possible in order to minimise impact on the surrounding environment. • Edge effects of construction and operational activities need to be actively managed to minimise further impacts to the receiving environment, with specific consideration to erosion control and alien floral species management. • Restrict vehicles to travelling only on designated roadways to limit the ecological footprint of the proposed development activities. • No uncontrolled fires whatsoever should be allowed. • Appropriate sanitary facilities must be provided during the construction phase and all waste must be removed to an appropriate waste facility. • All soils compacted as a result of construction activities should be ripped and profiled. Special attention should be paid to alien and invasive plant control within these areas. • No dumping of waste should take place. If any spills occur, they should be immediately cleaned up. • In the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced to prevent the ingress of hydrocarbons into the topsoil. • No trapping or hunting of any faunal species is to take place. • Upon completion of construction activities, it must be ensured that no bare areas remain and that indigenous grassland species are reintroduced, where required. • Establishment of any revegetated areas must be monitored during the operational phase on a bi-monthly basis for a period of one year. <u>Rehabilitation Plan:</u> • Disturbed and cleared areas need to be revegetated with indigenous grass species to help stabilise the soil surface. • Soils that have been compacted because of the construction activities must be ripped and profiled in line with the surrounding area.

ALTERNATIVE 1 - SITE AND DINGLETON ACCESS ROAD (ONLY FEASIBLE OPTION)						
CONSTRUCTION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Proposed Mitigation**
No.	**Impact Summary**	**Activity**	**Sig**	**Sig**		
1.2.2	Disturbance of floral and faunal species through dust fallout and noise.	• Site preparation (clearing of land) including fencing and access control.	M	L	Cemetery site and access road	• Natural vegetation cover needs to be maintained as far as possible and vegetation clearing is to be phased to prevent long-term exposure of soils. • The contractors and workers are to ensure that they do not create unnecessary noise such as hooting or shouting. • Vehicles are to be maintained in good condition to prevent unnecessary noise outputs.
1.2.3	Loss or changes to biodiversity in the 1:100 year floodplain from altered vegetation composition as a result of increased sedimentation in the floodplain from exposed, compacted and disturbed soils.	• Site preparation for access road and access control (clearing of land). • Establishing/upgrading the gravel access road, access point and use of roads.	M	L	Access road only	• Vegetation is to be cleared systematically and only when necessary to avoid exposed soil surfaces for prolonged periods of time. • Temporary soil stockpiles to be protected with hessian sheeting or a similar product to prevent windblown sedimentation / erosion. • Construction waste must not be stored within the floodplain, and must be removed and disposed of at a registered waste disposal site. • Berms to be constructed to slow down stormwater movement and ensure excess sediment is not deposited into the floodplain or fresh water resource. • Sanitation services shall be provided for construction personnel, whereby at least one portable toilet will be provided per ten personnel and must be emptied regularly. • Strict supervision of all construction activities to ensure no construction related activities are conducted outside of the marked footprint. • Construction waste must not be stored within the regulated zone, and must be removed and disposed of in accordance with existing approved waste management policies. • Although the watercourse has been significantly modified, the ecoservice provision and hydrological function thereof is still deemed important. Therefore, as much protection of the watercourse and floodline must be afforded during construction activities. • Construction is to take place in the dry season. • The Dingleton road access falls within the 1:100-year floodline, and as such if any activities are to take place within this regulated zone, authorisation will be required in terms of the National Water Act (NWA). • It is recommended that proceeding forward, the proponent should obtain guidance from the relevant regulating authorities with regards to the development process within the associated regulated zone (NWA), and that the relevant environmental authorisations and water use authorisation processes are followed. Authorisation will be required prior to construction. • Should detailed information pertaining to the Present Ecological State and Ecological Importance and Sensitivity of the watercourse be required, further studies will need to be undertaken.
1.3	**Surface water**					
	Disturbance to the 1:100 year floodplain from road upgrade, construction of the access gate and access road.	• Establishing/upgrading the gravel access road, access point and use of roads.	L	L	Access road only	• None required

ALTERNATIVE 1 - SITE AND DINGLETON ACCESS ROAD (ONLY FEASIBLE OPTION)						
CONSTRUCTION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Proposed Mitigation**
No.	**Impact Summary**	**Activity**	**Sig**	**Sig**		
	• Loss of surface water resource as a result of contamination through spills/leaks from vehicles and machinery travelling on the access roads within the 1:100 year floodplain. • Changes to surface water quality from increased sedimentation and runoff.	• Site preparation for access road and access control (clearing of land). • Establishing/upgrading the gravel access road, access point and use of roads.	L	L	Access road only	• Losses of fuel and lubricants from parked vehicles and equipment should be contained using a drip tray. • Pollution prevention through education and training of workers (temporary and permanent).• Bins are to be provided on site in designated areas for temporary waste disposal, prior to waste being taken to a licenced landfill site. • There must be immediate cleaning up of spillages of potentially contaminating liquids and solids after any spill occurs.• No storage of fuel or lubricants on site. Should these need to be stored on site, they will need to be kept on an appropriately surfaced and bunded area. • No maintenance of vehicles is to take place on site. Should it be necessary to do maintenance must take place on an appropriately surfaced and bunded area. • Regular maintenance of vehicles and equipment is to take place and records are to be kept.• Mixing of concrete is only to take place in designated areas. All concrete mixing areas need to be removed once construction is complete.• Construction materials are to be stored only in designated areas.• Temporary ablution facilities are to be regularly maintained and records are to be kept.
1.4	**Noise**					
	Increase in ambient noise levels as a result of construction activities and vehicles on site.	• Building/establishing facilities (parking area, ablution facilities, waste collection area, night time lighting) • Establishing/upgrading the gravel access road, access point and use of roads • Use of contractors/construction workforce	L	L	Cemetery site and access road	• None
1.5	**Air Quality**					
	Increase in dust fallout from cleared land, soil handling, and vehicle/machinery movement.	• Site preparation including fencing and access control (clearing of land). • Establishing/upgrading the gravel access road and use of roads.	M	L	Cemetery site and access road	• Natural vegetation cover needs to be maintained as far as possible and vegetation clearing is to be phased to prevent long-term exposure of soils. • Dust is to be controlled using appropriate dust suppression measures. • Construction activities are only to occur in designated areas. • The development footprint it to be kept as small as possible.
1.6	**Visual**					
	Changes in visual character of the area and related sense of place through removal of vegetation and building of facilities.	• Building/establishing facilities (parking area, ablution facilities, waste collection area, night time lighting) • Establishing/upgrading the gravel access road, access point and use of roads.	L	L	Cemetery site and access road	• None

ALTERNATIVE 1 - SITE AND DINGLETON ACCESS ROAD (ONLY FEASIBLE OPTION)						
CONSTRUCTION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Proposed Mitigation**
No.	**Impact Summary**	**Activity**	**Sig**	**Sig**		
1.7	**Heritage**					
	Loss and/or disturbance of archaeological sites through vehicle/people movement on site, the access road and building of support facilities.	• Site preparation including fencing and access control (clearing of land).	H	M+	Cemetery site and access road	• It is recommended that KC1 be sampled and a geological trench be put in to test for any stratigraphic layering of artefacts. The intention here will be to assess whether artefacts do occur under the current land surface, and if so, at what density. This is the only site within the proposed area and it is not felt the sites in the perimeter zone require mitigation unless they are to be impacted by development. • It is recommended that a set of test excavations be done to determine presence and extent of an archaeological deposit in and around the main site (KC1). This can be performed as part of the mitigation and would provide a finer-resolution understanding of what items of heritage significance can be found within the site. • If a deposit is identified a controlled sampling of the material found should be done. • This work must be done in such a way as to augment the current research questions and field work such as the excavations at the Kathu Townlands Site and Kathu Pan. • These test excavations and sampling must be done after a permit has been granted under Section 35 of the NHRA (Act 25 of 1999) to a qualified and experienced Stone Age archaeologist. • In the event that substantive material is uncovered, it is recommended that a display at the cemetery of the material found at KC1 is considered. • An archaeologist suitably qualified in Stone Age fieldwork and research must be appointed to undertake an Archaeological Watching Brief during the Construction Phase of the project. The appointed archaeologist will be responsible for the following: o Provide training to the project Environmental Control Office (ECO) in Stone Age archaeology and the identification of Stone Age artefacts and sites. The ECO will be responsible for daily on-site monitoring during the Construction Phase with the appointed archaeologist visiting the site every two weeks. o Conduct an archaeological monitoring program whereby the construction site is visited once every two weeks for at least the first three months of the project. o On-site assessment of any Stone Age material exposed during construction and the provision of recommendations for the way in which the exposed material must be mitigated. o Compile and submit an archaeological monitoring report at the end of the monitoring process. • During the monitoring undertaken everyday on-site by the ECO and once every two weeks by the appointed archaeologist, all construction work must be closely monitored. Should any Stone Age material or any archaeological material be identified, all construction work in that area must immediately stop and the ECO or archaeologist (if already present on site) must demarcate a construction free area around the discovery. If the ECO made the discovery, the archaeologist must be contacted immediately to visit the construction site to assess the exposed material. After assessing the exposed material, the archaeologist would provide recommendations for the exposed material which may range from destruction without mitigation (if the exposed material is found to be of little significance) to archaeological mitigation (if the exposed material is found to be significant).
1.8	**Palaeontology**					
	Loss and/or disturbance of palaeontological resources from excavation activities.	• Site preparation including fencing and access control (clearing of land).	L	L	Cemetery site and access road	• It is recommended that people digging the graves must be alert of the possibility of finding fossils. They must be trained in the skill of identifying a fossil, if present. Should fossil remains be discovered during any phase of construction, either on the surface or exposed by fresh excavations, the ECO (during construction) or the site supervisor/manager (during operation) responsible for these developments, should be alerted immediately. Such discoveries ought to be protected (preferably in situ) and the responsible ECO/person should alert the South African Heritage Research Agency (SAHRA) so that appropriate mitigation (e.g. recording, sampling or collection) can be taken by a professional palaeontologist. • The specialist involved would require a collection permit from SAHRA. Fossil material must be curated in an approved collection (e.g. museum or university collection) and all fieldwork and reports should meet the minimum standards for palaeontological impact studies developed by SAHRA.

ALTERNATIVE 1 - SITE AND DINGLETON ACCESS ROAD (ONLY FEASIBLE OPTION)						
CONSTRUCTION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Proposed Mitigation**
No.	**Impact Summary**	**Activity**	**Sig**	**Sig**		
1.9	**Land Use**					
	Change in land use from a game farm to a cemetery.	• Building/establishing facilities (parking area, ablution facilities, waste collection area, night time lighting). • Establishing/upgrading the gravel access road, access point and use of roads.	M	M	Cemetery site and access road	• Effective implementation of all mitigation measures as outlined in the EMP report to reduce the New Kathu Cemetery's overall impact on the environment.
1.10	**Socio-economic**					
	Provision of job opportunities (minimal) resulting in an increase in employment and related social and economic impacts.	• Use of contractors/construction workforce	L+	M+	Cemetery site and access road	• Preference should be given to people in the local area. • The recruitment strategy to be communicated to the key stakeholders.• Local goods and services to be procured wherever reasonably possible.• Quotas for local procurement to be set in the specification for contractors.• Local sub-contractors to be used wherever reasonably possible.
1.11	**Traffic**					
1.11.1	Increased vehicle movement affecting road capacity.	• Site preparation for access road and access control (clearing of land). • Establishing/upgrading the gravel access road, access point and use of roads. • Use of contractors/construction workforce • Waste collection and removal.	L	L	Access road only	• None required
1.11.2	Increased risk to road safety from establishment of a new access point off the Dingleton road.	• Establishing/upgrading the gravel access road, access point and use of roads.	H	H+	Access road only	• Intersection design is to be implemented as per the traffic specialist report; Siyazi, 2017. • Obtain approvals from the relevant roads department for the intersection development and construct in line with approval requirements. • Speed limit signs should be erected along the relevant section of the Dingleton Road. The speed limit should be limited to 60 km/h at the access point and enforced by the relevant road authority for the relevant section. • Provide a dedicated right-turn lane on the Dingleton Road (southern approach). • Road markings (highway paint), reflective road studs (LED) and road traffic signs should be provided and maintained (and replaced as required) at strategic points of the access intersection to the proposed development to ensure visibility during night time, proper visibility of intersection lane geometry, sufficient information to road users and pedestrian safety. • Monitoring of the state of road markings, traffic signs and reflective road studs to be conducted bi-annually. Any maintenance issues noted are to be raised with the relevant traffic department for their maintaining and replacing as required. • Laydown areas for the road upgrade are to be fenced off to prevent entry by unauthorised people. • Materials are to be stored in designated areas on appropriately surfaced and bunded areas. • Warning signs are to be placed at the laydown areas to warn against trespassing. • Stormwater controls are to be implemented around stockpile areas.

Alternative 1 - Site and Dingleton Access Road (only feasible option)						
CONSTRUCTION PHASE						
INDIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	
No.	**Impact Description**	**Activity**	**Sig**	**Sig**		**Mitigation measure**
1	**Biodiversity**					
1.1	Disturbance on animal movements and distribution as a result of establishing the cemetery.	• Site preparation (clearing of land) including fencing and access control. • Use of contractors/construction workforce. • Establishing/upgrading the gravel access road, access point and use of roads.	M	L	Cemetery site and access road	• Any workers are to ensure that they do not create unnecessary noise such as hooting or shouting. • Vehicles are to be maintained in good condition to prevent unnecessary noise outputs. • The activities of any workers are to be restricted to the planned areas. • The construction footprint to be clearly demarcated by fencing in order to contain all activities within designated areas. • Poaching and harvesting of wood or plants is prohibited. • Necessary signs are to be placed around the site to inform employees and visitors of noise control measures and rules regarding harvesting, poaching and speed limits.
1.2	Alien invasive encroachment through removal and/or disturbance of vegetation.	• Site preparation (clearing of land) including fencing and access control. • Establishing/upgrading the gravel access road, access point and use of roads. • Use of contractors/construction workforce.	H	M	Cemetery site and access road	• Alien vegetation must be removed from the study area during both the construction and operational phases, in line with the National Environmental Management Biodiversity Act, Alien and Invasive Species Regulations (2016). • All alien plants within the study area should be cleared, with follow up activities running concurrently for one year. • Natural vegetation cover needs to be maintained as far as possible and vegetation clearing is to be phased to prevent long-term exposure of soils.
2	**Land use**					
	Increase in dust fallout on vegetation affecting the grazing capacity of the neighbouring game farm.	• Site preparation (clearing of land) including fencing and access control. • Establishing/upgrading the gravel access road, access point and use of roads. • Use of contractors/construction workforce.	M	L	Cemetery site and access road	• Natural vegetation cover needs to be maintained as far as possible and vegetation clearing is to be phased to prevent long-term exposure of soils. • Effective implementation of all mitigation measures as outlined in this EMP report to reduce the New Kathu Cemetery's overall impact on the environment and surrounding land-uses. • Necessary signs are to be placed around the site to inform visitors of noise control measures and rules regarding harvesting, poaching and speed limits.

Impact Assessment for the project site					
Alternative 1 - Site and Dingleton Access Road (only feasible option)					
CONSTRUCTION PHASE					
CUMULATIVE IMPACTS					
No.	**Impact Summary**	**Activity**	**Applicability to site and/ or access road**	**Significance of contribution to cumulative impact**	**Mitigation measure**
1	**Soil and land capability**				
	Increase in loss of soil resources and related land capability as a result of soil contamination through spills/leaks from vehicles, machinery, construction waste, litter and use of portable ablution facilities.	• Building/establishing facilities (parking area, ablution facilities, waste collection area, night time lighting) • Waste collection and removal • Establishing/upgrading the gravel access road, access point and use of roads.	Cemetery site and access road	L	Mitigation as per the direct construction phase.
2	**Biodiversity**				
	Disturbance on animal movements and distribution as a result of establishing the cemetery.	• Site preparation (clearing of land) including fencing and access control. • Use of contractors/construction workforce • Establishing/upgrading the gravel access road, access point and use of roads.	Cemetery site and access road	L	Mitigation as per the direct construction phase.
3	**Surface water**				
3.1	Increase in loss of surface water resource in the floodplain as a result of soil contamination through spills/leaks from vehicles and machinery travelling on the access roads, establishment of the intersection, access point and erection of the fence along the access road.	• Establishing/upgrading the gravel access road, access point and use of roads. • Waste collection and removal.	Access road only	Insignificant	Mitigation as per the direct construction phase.
3.2	Increase in disturbance to the floodplain from road upgrade, construction of the access gate and access road.	• Establishing/upgrading the gravel access road, access point and use of roads.	Access road only	Insignificant	Mitigation as per the direct construction phase.
4	**Noise**				
	Increase in ambient noise levels as a result of construction activities and vehicles on site.	• Building/establishing facilities (parking area, ablution facilities, waste collection area, night time lighting) • Use of contractors/construction workforce• Establishing/upgrading the gravel access road, access point and use of roads.	Cemetery site and access road	Insignificant	Mitigation as per the direct construction phase.
5	**Air Quality**				
	Increase in dust fallout from cleared land, soil handling, and vehicle/machinery movement on site.	• Site preparation (clearing of land) including fencing and access control. • Establishing/upgrading the gravel access road, access point and use of roads.	Cemetery site and access road	Insignificant	Mitigation as per the direct construction phase.
6	**Socio-economic**				
	Provision of job opportunities (minimal) resulting in an increase in employment and related social and economic impacts.	• Use of contractors/construction workforce	Cemetery site and access road	L	Mitigation as per the direct construction phase.
7	**Traffic**				
	Increased traffic to and from site impacting road capacity.	• Site preparation for access road and access control (clearing of land). • Establishing/upgrading the gravel access road, access point and use of roads. • Use of contractors/construction workforce. • Waste collection and removal.	Access road only	Insignificant	Mitigation as per the direct construction phase.
	Increased risk to road safety from establishment of a new access point off the N14 or the Dingleton road.	• Site preparation for access road and access control (clearing of land). • Establishing/upgrading the gravel access road, access point and use of roads. • Use of contractors/construction workforce. • Waste collection and removal.	Access road only	H+	Mitigation as per the direct construction phase.

Alternative 1 - Site and Dingleton Access Road (only feasible option)						
OPERATION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Mitigation measure**
No.	**Impact Description**	**Activity**	**Sig**	**Sig**		
1	**Soil and Land Capability**					
1.1	Loss of soil resources and related revegetation capability as a result of inappropriate removal and refilling of topsoil at graves.	• Grave establishment	M	L	Cemetery site only	• Soil horizons should be replaced in the correct order to allow re-establishment of vegetation where possible. • Topsoil is to be stockpiled and replaced at each grave site. • All exposed grave sites are to be revegetated with an indigenous grass seed mix.
1.2	Loss of soil resources and related land capability as a result of soil compaction from movement of vehicles and machinery.	• Use and maintenance of the parking area and fencing. • Use and maintenance of gravel roads (access and internal).	L	L	Cemetery site and access road	• The activities of contractors or employees are to be restricted to the project areas. • Instructions must be included in contracts that will restrict work and workers to the clearly defined limits of the cemetery site. • Areas that have been impacted from operation activities that do not need to be used again are to be ripped and revegetated with an indigenous grass seed mix.
1.3	Loss of soil resources and related land capability as a result of soil contamination through the inappropriate management and handling of fuel, oil and ablution facilities.	• Use and maintenance of the parking area and fencing. • Use and maintenance of gravel roads (access and internal). • Use and maintenance of ablution facilities. • Waste collection and removal	M	L	Cemetery site and access road	• Losses of fuel and lubricants from parked vehicles and equipment should be contained using a drip tray. • Pollution prevention through education and training of workers (temporary and permanent). • Bins are to be provided on site in designated areas for temporary waste disposal, prior to waste being taken to a licenced landfill site. • There must be immediate cleaning up of spillages of potentially contaminating liquids and solids immediately after any spill occurs. • No storage of fuel or lubricants on site. Should these need to be stored on site, they will need to be kept on impervious surfaces and bunded. • No maintenance of vehicles is to take place on site. Should it be necessary to do maintenance must take place on impervious surfaces and bunded. • Regular maintenance of vehicles and equipment is to take place and records are to be kept. • Ablution facilities are to be regularly maintained and records are to be kept.

Alternative 1 - Site and Dingleton Access Road (only feasible option)						
OPERATION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Mitigation measure**
No.	**Impact Description**	**Activity**	**Sig**	**Sig**		
2	**Biodiversity**					
2.1	Loss of habitat and related floral (including species of conservation concern) and faunal species (including species of conservation concern) through removal of trees, poaching and firewood collection.	• Grave establishment • Use and maintenance of gravel roads (access and internal).	M	M-L	Cemetery site and access road	• The necessary permits need to be acquired pertaining to the removal of floral species of conservation concern (SCC) that are located within the study area prior to the construction phase, and the following should be ensured: o Effective relocation of individuals to suitable similar habitat in the vicinity of the study area o All rescue and relocation plans should be overseen by a suitably qualified specialist; • a 5m buffer is to be applied around all known protected floral species that will be retained along the access road and within the cemetery site. • A walkdown of the construction footprint is to be undertaken prior to vegetation clearing activities in order to assess the site for any possible burrows of Pterinochilus (Golden-brown baboon spider). Faunal SCC encountered within the study area are to be relocated by a suitably qualified specialist to suitable habitat in the vicinity of the study area. • It is recommended that site clearing takes place in a phased manner, in a uniform direction from one side to the other of the study area, so as to ensure that as far as possible faunal species can naturally disperse out of the area ahead of clearing activities. • Where possible, utilise the current indigenous vegetation as part of the landscape plans, with special emphasis on the larger Vachallia erioloba and Vachellia haematoxylon species. • Landscape planning should take cognisance of habitat connectivity, ensuring that areas of natural vegetation remain within the development to create areas of refuge and corridors of movement. • The construction and operational footprint must be kept as small as possible in order to minimise impact on the surrounding environment. • Edge effects of construction and operational activities need to be actively managed to minimise further impacts to the receiving environment, with specific consideration to erosion control and alien floral species management. • Restrict vehicles to travelling only on designated roadways to limit the ecological footprint of the proposed development activities. • No uncontrolled fires whatsoever should be allowed. • Appropriate sanitary facilities must be provided during the construction phase and all waste must be removed to an appropriate waste facility. • All soils compacted as a result of construction activities should be ripped and profiled. Special attention should be paid to alien and invasive plant control within these areas. • No dumping of waste should take place. If any spills occur, they should be immediately cleaned up. • In the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced to prevent the ingress of hydrocarbons into the topsoil. • No trapping or hunting of any faunal species is to take place. • Upon completion of construction activities, it must be ensured that no bare areas remain and that indigenous grassland species are reintroduced. • Establishment of any revegetated areas must be monitored during the operational phase on a bi-monthly basis for a period of one year. <u>Rehabilitation Plan:</u> • Disturbed and cleared areas need to be revegetated with indigenous grass species to help stabilise the soil surface. • Soils that have been compacted because of the construction and operational activities must be ripped and profiled in line with the surrounding area.

Alternative 1 - Site and Dingleton Access Road (only feasible option)						
OPERATION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Mitigation measure**
No.	**Impact Description**	**Activity**	**Sig**	**Sig**		
2.2	Disturbance of floral and faunal species through dust fallout and noise.	• Site preparation (clearing of land) including fencing and access control.	M	L	Cemetery site and access road	• Natural vegetation cover needs to be maintained as far as possible and vegetation clearing is to be phased to prevent long-term exposure of soils. • The contractors and workers are to ensure that they do not create unnecessary noise such as hooting or shouting. • Vehicles are to be maintained in good condition to prevent unnecessary noise outputs.
2.3	Loss or changes to biodiversity in the floodplain from altered vegetation composition as a result of increased sedimentation in the floodplain from exposed, compacted and disturbed soils.	• Use and maintenance of gravel roads (access and internal).	M	L	Access road only	• Monitoring of erosion must take place on a yearly basis, in order to prevent the formation of erosion gullies as a result of altered flow paths, and the possible sedimentation of the floodplain • Berms are to be used to slow down the flow of stormwater.
3	**Surface water**					
	Loss of surface water resource as a result of contamination through the inappropriate management and handling of fuel and oil within the floodplain.	• Use and maintenance of gravel roads (access and internal). • Waste collection and removal.	L	L	Access road only	• Losses of fuel and lubricants from parked vehicles and equipment should be contained using a drip tray. • Pollution prevention through education and training of workers (temporary and permanent). • Waste is to be disposed of into bins at designated areas. • There must be immediate cleaning up areas of spillages of potentially contaminating liquids and solids after any spill occurs.
4	**Groundwater**					
	Contamination of groundwater through the inappropriate management of ablution facilities. Contamination from coffins.	• Use and maintenance of ablution facilities, parking area. • Grave establishment	L	L	Cemetery site only	• None required
5	**Noise**					
	Increase in ambient noise levels as a result of grave digging equipment and vehicles on site	• Grave establishment • Use and maintenance of the parking area and fencing. • Use and maintenance of gravel roads (access and internal).	L	L	Cemetery site and access road	• The contractors and workers are to ensure that they do not create unnecessary noise such as hooting or shouting. • Vehicles are to be maintained in good condition to prevent unnecessary noise outputs.
6	**Air Quality**					
	Increase in dust fallout from soil handling and vehicle movement along unsurfaced roads	• Use and maintenance of the parking area and fencing. • Use and maintenance of gravel roads (access and internal).	M	L	Cemetery site and access road	• Natural vegetation cover needs to be restored at impacted areas, as far as possible. • Dust is to be controlled using appropriate dust suppression measures.

Alternative 1 - Site and Dingleton Access Road (only feasible option)						
OPERATION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Mitigation measure**
No.	**Impact Description**	**Activity**	**Sig**	**Sig**		
7	**Visual**					
	Changes in visual character of the area and sense of place from erection of grave stones	• Grave establishment	L	L	Cemetery site and access road	• Natural vegetation cover needs to be restored at impacted areas, as far as possible.
8	**Heritage resources**					
	Loss and/or disturbance of archaeological sites through vehicle/people movement on site and excavation activities.	• Grave establishment	H	M+	Cemetery site and access road	• It is recommended that KC1 be sampled and a geological trench be put in to test for any stratigraphic layering of artefacts. The intention here will be to assess whether artefacts do occur under the current land surface, and if so, at what density. This is the only site within the proposed area and it is not felt the sites in the perimeter zone require mitigation unless they are to be impacted by development. • It is recommended that a set of test excavations be done to determine presence and extent of an archaeological deposit in and around the main site (KC1). This can be performed as part of the mitigation and would provide a finer-resolution understanding of what items of heritage significance can be found within the site. • If a deposit is identified a controlled sampling of the material found should be done. • This work must be done in such a way as to augment the current research questions and field work such as the excavations at the Kathu Townlands Site and Kathu Pan. • These test excavations and sampling must be done after a permit has been granted under Section 35 of the NHRA (Act 25 of 1999) to a qualified and experienced Stone Age archaeologist. • In the event that substantive material is uncovered, it is recommended that a display at the cemetery of the material found at KC1 is considered. • An archaeologist suitably qualified in Stone Age fieldwork and research must be appointed to undertake an Archaeological Watching Brief during the Construction Phase of the project. The appointed archaeologist will be responsible for the following: o Provide training to the project Environmental Control Office (ECO) in Stone Age archaeology and the identification of Stone Age artefacts and sites. The ECO will be responsible for daily on-site monitoring during the Construction Phase with the appointed archaeologist visiting the site every two weeks. o Conduct an archaeological monitoring program whereby the construction site is visited once every two weeks for at least the first three months of the project. o On-site assessment of any Stone Age material exposed during construction and the provision of recommendations for the way in which the exposed material must be mitigated. o Compile and submit an archaeological monitoring report at the end of the monitoring process. • During the monitoring undertaken everyday on-site by the ECO and once every two weeks by the appointed archaeologist, all construction work must be closely monitored. Should any Stone Age material or any archaeological material be identified, all construction work in that area must immediately stop and the ECO or archaeologist (if already present on site) must demarcate a construction free area around the discovery. If the ECO made the discovery, the archaeologist must be contacted immediately to visit the construction site to assess the exposed material. After assessing the exposed material, the archaeologist would provide recommendations for the exposed material which may range from destruction without mitigation (if the exposed material is found to be of little significance) to archaeological mitigation (if the exposed material is found to be significant).

Alternative 1 - Site and Dingleton Access Road (only feasible option)						
OPERATION PHASE						
DIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Mitigation measure**
No.	**Impact Description**	**Activity**	**Sig**	**Sig**		
9	**Palaeontological resources**					
	Loss and/or disturbance of palaeontological resources from excavation activities.	• Grave establishment	L	L	Cemetery site and access road	• It is recommended that people digging the graves must be alert of the possibility of finding fossils. They must be trained in the skill of identifying a fossil, if present. Should fossil remains be discovered during any phase of construction, either on the surface or exposed by fresh excavations, the Environmental Control Officer (ECO) responsible for these developments (or somebody in management) should be alerted immediately. Such discoveries ought to be protected (preferably in situ) and the responsible ECO/person should alert the South African Heritage Research Agency (SAHRA) so that appropriate mitigation (e.g. recording, sampling or collection) can be taken by a professional palaeontologist. • The specialist involved would require a collection permit from SAHRA. Fossil material must be curated in an approved collection (e.g. museum or university collection) and all fieldwork and reports should meet the minimum standards for palaeontological impact studies developed by SAHRA.
10	**Socio-economic**					
10.1	Provision of job opportunities (minimal) resulting in an increase in employment and related social and economic impacts.	• Limited employment of municipal employees	L+	M+	Cemetery site and access road	• Preference should be given to people in the local area. • The recruitment strategy to be communicated to the key stakeholders. • Local goods and services to be procured wherever reasonably possible. • Quotas for local procurement to be set in the specification for contractors. • Local sub-contractors to be used wherever reasonably possible.
10.2	Provision of additional burial space for residents of Kathu and surrounding areas.	• Grave establishment	M+	H+	Cemetery site and access road	• Maximise the number of graves within the project footprint, while retaining as many protected trees as possible, to maximise the life of the cemetery.
11	**Traffic**					
11.1	Increased vehicle movement affecting road capacity.	• Use and maintenance of gravel roads (access and internal).	L	L	Access road only	• None required
11.2	Increased risk to road safety from establishment of a new access point off the Dingleton road.	• Use and maintenance of gravel roads (access and internal).	H	H+	Access road only	• Intersection design is to be implemented as per the traffic specialist report; Siyazi, 2017. • Obtain approvals from the relevant roads department for the intersection development and construct in line with approval requirements. • Speed limit signs should be erected along the relevant section of the Dingleton Road. The speed limit should be limited to 60 km/h at the access point and enforced by the relevant road authority for the relevant section. • Provide a dedicated right-turn lane on the Dingleton Road (southern approach). • Road markings (highway paint), reflective road studs (LED) and road traffic signs should be provided and maintained (and replaced as required) at strategic points of the access intersection to the proposed development to ensure visibility during night time, proper visibility of intersection lane geometry, sufficient information to road users and pedestrian safety. • Laydown areas for the road upgrade are to be fenced off to prevent entry by unauthorised people. • Materials are to be stored in designated areas on impervious surfaces and bunded. • Warning signs are to be placed at the laydown areas to warn against trespassing. • Stormwater controls are to be implemented around stockpile areas.

Alternative 1 - Site and Dingleton Access Road (only feasible option)						
OPERATION PHASE						
INDIRECT IMPACTS			**UM**	**M**	**Applicability to site and/ or access road**	**Mitigation measure**
No.	**Impact Description**	**Activity**	**Sig**	**Sig**		
1	**Biodiversity**					
1.1	Disturbance on animal movements and distribution as a result of establishing the cemetery.	• Limited employment of municipal employees • Use and maintenance of the parking area and fencing. • Grave establishment • Use and maintenance of gravel roads (access and internal).	M	L	Cemetery site and access road	• Any workers are to ensure that they do not create unnecessary noise such as hooting or shouting. • Vehicles are to be maintained in good condition to prevent unnecessary noise outputs. • Poaching and harvesting of wood or plants is prohibited. • Necessary signs are to be placed around the site to inform visitors of noise control measures and rules regarding harvesting, poaching and speed limits.
1.2	Alien invasive encroachment through removal and/or disturbance of vegetation.	• Grave establishment	H	M	Cemetery site only	• Alien vegetation must be removed from the study area during both the construction and operational phases, in line with the National Environmental Management Biodiversity Act, Alien and Invasive Species Regulations (2016). • All alien plants within the study area should be cleared, with follow up activities running concurrently for one year. • Natural vegetation cover needs to be maintained as far as possible and vegetation clearing is to be phased to prevent long-term exposure of soils.
2	**Land use**					
	Increase in dust fallout on vegetation affecting the grazing capacity of the neighbouring game farm.	• Use and maintenance of the parking area and fencing. • Waste collection and removal. • Use and maintenance of ablution facilities. • Use and maintenance of gravel roads (access and internal).	M	L	Cemetery site and access road	• Natural vegetation cover needs to be maintained as far as possible and vegetation clearing is to be phased to prevent long-term exposure of soils. • Effective implementation of all mitigation measures as outlined in the EMP report to reduce the New Kathu Cemetery's overall impact on the environment and surrounding land-uses. • Poaching and harvesting of wood or plants is prohibited. • Necessary signs are to be placed around the site to inform visitors of noise control measures and rules regarding harvesting, poaching and speed limits.

Alternative 1 - Site and Dingleton Access Road (only feasible option)					
OPERATION PHASE					
CUMULATIVE IMPACTS					
No.	**Impact Description**	**Activity**	**Applicability to site and/ or access road**	**Significance of contribution to cumulative impact**	**Mitigation measure**
1	**Soil and land capability**				
	Increase in loss of soil resources and related land capability as a result of the inappropriate management and handling of fuel, oil and ablution facilities.	• Use and maintenance of parking area and fencing. • Waste collection and removal • Use and maintenance of ablution facilities. • Use and maintenance of gravel roads (access and internal).	Cemetery site and access road	L	Mitigation as per the direct operation phase.
2	**Biodiversity**				
	Disturbance on animal movements and distribution as a result of establishing the cemetery.	• Use and maintenance of parking area and fencing. • Use and maintenance of ablution facilities. • Use and maintenance of gravel roads (access and internal).	Cemetery site and access road	L	Mitigation as per the direct and indirect operation phase.
3	**Surface water**				
3.1	Increase in loss of surface water resource in the floodplain as a result of soil contamination through the inappropriate management and handling of fuel and oil.	• Use and maintenance of gravel roads (access and internal). • Waste collection and removal.	Access road only	L	Mitigation as per the direct operation phase.
3.2	Increase in disturbance to the floodplain from vehicles travelling on the access road.	• Use and maintenance of gravel roads (access and internal).	Access road only	L	Mitigation as per the direct operation phase.
4	**Groundwater**				
	Increase in groundwater contamination through the inappropriate management of ablution facilities.	• Use and maintenance of parking area and fencing. • Use and maintenance of ablution facilities. • Grave establishment	Cemetery site only	Not Applicable	Mitigation as per the direct operation phase.
5	**Noise**				
	Increase in ambient noise levels as a result of operational activities.	• Use and maintenance of parking area and fencing. • Use and maintenance of ablution facilities.	Cemetery site and access road	Insignificant	Mitigation as per the direct operation phase.
6	**Air Quality**				
	Increase in dust fallout from soil handling and vehicle movement along unsurfaced roads.	• Use and maintenance of parking area and fencing. • Use and maintenance of gravel roads (access and internal).• Grave establishment	Cemetery site and access road	L	Mitigation as per the direct operation phase.
7	**Socio-economic**				
	Provision of job opportunities (minimal) resulting in an increase in employment and related social and economic impacts.	• Limited employment of municipal employees	Cemetery site and access road	L	Mitigation as per the direct operation phase.
8	**Traffic**				
8.1	Increased vehicle movement affecting road capacity.	• Use of road by visitors. • Use of contractors/construction workforce. • Waste collection and removal.	Access road only	Insignificant	Mitigation as per the direct operation phase.
8.2	Increased risk to road safety from establishment of a new access point off the N14 or the Dingleton road.	• Use of road by visitors. • Use of contractors/construction workforce. • Waste collection and removal.	Access road only	H+	Mitigation as per the direct operation phase.

Alternative 1 - Site and Dingleton Access Road (only feasible option)		
DECOMMISSIONING AND CLOSURE		
DIRECT IMPACTS		**Mitigation measure**
Impact Description	**Significance**	
The new Kathu cemetery is expected to remain on site indefinitely. Should this change in future, then the direct impacts of decommissioning and closing the site will need to be assessed at the appropriate time	Not applicable	Not applicable

Alternative 1 - Site and Dingleton Access Road (only feasible option)		
DECOMMISSIONING AND CLOSURE		
INDIRECT IMPACTS		**Mitigation measure**
Impact Description	**Significance**	
The new Kathu cemetery is expected to remain on site indefinitely. Should this change in future, then the indirect impacts of decommissioning and closing the site will need to be assessed at the appropriate time	Not applicable	Not applicable

Alternative 1 - Site and Dingleton Access Road (only feasible option)		
DECOMMISSIONING AND CLOSURE		
CUMULATIVE IMPACTS		**MITIGATION MEASURE**
Impact Description	**Significance**	
The new Kathu cemetery is expected to remain on site indefinitely. Should this change in future, then the cumulative impacts of decommissioning and closing the site will need to be assessed at the appropriate time	Not applicable	Not applicable

Alternative 1 - Site and Dingleton Access Road (only feasible option)		
NO-GO OPTION		**Mitigation measure**
DIRECT IMPACTS		
Discussion on no-go impact	**Significance of no-go**	
If the project does not proceed, there will not be any changes to the environment and the status quo would remain. None of the positive or negative impacts identified in this impact assessment will be realised. If the project does not go ahead, the Gamagara Local Municipality's need for the additional cemetery space will not be realised and there will not be an increase in availability of cemetery space. The residents that would have used the new cemetery would need to use a cemetery further away. When considering the benefits versus the negative impacts of the proposed project, the significance of the "no go" option is negative high. The negative impacts identified can be managed to acceptable levels, but with the lack of available and viable areas in Kathu that can be used for cemetery space, not providing the required basic service delivery cannot be easily mitigated/addressed.	H	Not applicable as the project would not proceed.

Alternative 1 - Site and Dingleton Access Road (only feasible option)		
NO-GO OPTION		**Mitigation measure**
INDIRECT IMPACTS		
Discussion on no-go impact	**Significance of no-go**	
If the project does not proceed, there will not be any changes to the environment and the status quo would remain. None of the positive or negative impacts identified in this impact assessment will be realised. If the project does not go ahead, the Gamagara Local Municipality's need for the additional cemetery space will not be realised and there will not be an increase in availability of cemetery space. The residents that would have used the new cemetery would need to use a cemetery further away. When considering the benefits versus the negative impacts of the proposed project, the significance of the "no go" option is negative high. The negative impacts identified can be managed to acceptable levels, but with the lack of available and viable areas in Kathu that can be used for cemetery space, not providing the required basic service delivery cannot be easily mitigated/addressed.	H	Not applicable as the project would not proceed.

Alternative 1 - Site and Dingleton Access Road (only feasible option)		
NO-GO OPTION		**Mitigation measure**
CUMULATIVE IMPACTS		
Discussion on no-go impact	**Significance of no-go**	
If the project does not proceed, there will not be any changes to the environment and the status quo would remain. None of the positive or negative impacts identified in this impact assessment will be realised. If the project does not go ahead, the Gamagara Local Municipality's need for the additional cemetery space will not be realised and there will not be an increase in availability of cemetery space. The residents that would have used the new cemetery would need to use a cemetery further away. When considering the benefits versus the negative impacts of the proposed project, the significance of the "no go" option is negative high. The negative impacts identified can be managed to acceptable levels, but with the lack of available and viable areas in Kathu that can be used for cemetery space, not providing the required basic service delivery cannot be easily mitigated/addressed.	H	Not applicable as the project would not proceed.

A complete impact assessment in terms of Regulation 19(3) of ~~GN 733~~ GN 982 must be included as Appendix F.

Note: Regulation GN R733 was a regulation out for comment on 29 August 2014. Following comment on this regulation, new EIA regulations were promulgated. The current applicable regulation for Basic Assessments and Environmental Impact Assessments is GN R982 (4 December 2014). GN R982 was promulgated on the 8th December 2014 and the 2010 EIA regulations were repealed. The impact assessment has therefore been done in accordance with GN R982.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative) (Site and Access Road Option 1)

Following the implementation of mitigation measures, it is believed that the impacts can be managed to acceptable levels. There are no impacts that are considered detrimental to the environment requiring the prohibition of the project from continuing. None of the impacts after the implementation of mitigation measures are considered 'high negative'; the rating of negative impacts ranges between medium to low. With mitigation, the duration of most impacts are considered medium to low should they occur. The long-term impacts relate to heritage/palaeontological resources, soil resources, and changes in land use, which can be managed through the mitigation measures provided in the EMP. The possibility of impacts occurring ranges from unlikely to definite, however, the overall impact significance for all impacts ranges from medium to low, with none being high negative. Three impacts have positive significance after mitigation, these include heritage (as mitigation measures will enable the identification of additional archaeological resources and the collection of data that could add to the current research in the area), socio-economic (as there will be job provision and additional space for graves) and traffic (as the road upgrade will provide for safer access to the New Kathu Cemetery).

Assuming effective implementation of the mitigation and monitoring as outlined in the EMP report (Appendix G), the significance of impacts can be reduced to acceptable levels. Following specialist investigations, no reasons for not proceeding with the project were identified.

Alternative B (Access Road Option 2)

Assuming effective implementation of the mitigation and monitoring as outlined in the EMP report (Appendix G), the significance of impacts can be reduced to acceptable levels. Following specialist investigations, no reasons for not proceeding with the project were identified.

Alternative C

None

No-go alternative (compulsory)

If the project does not proceed, there will not be any changes to the environment and the status quo would remain. None of the positive or negative impacts identified in this impact assessment will be realised.

If the project does not go ahead, the Gamagara Local Municipality's need for the additional cemetery space will not be realised and there will not be an increase in availability of cemetery space. The residents that would have used the new cemetery would need to use a cemetery further away.

When considering the benefits versus the negative impacts of the proposed project, the significance of the "no go" option is negative high. The negative impacts identified can be managed to acceptable levels, but with the lack of available and viable areas in Kathu that can be used for cemetery space, not providing the required basic service delivery cannot be easily mitigated/addressed.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES ✓	NO

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Inclusion of EMP conditions in the Environmental Authorisation.

Is an EMPr attached?	YES ✓	NO

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Chiara D'Egidio Kotze

NAME OF EAP

20/03/2017

SIGNATURE OF EAP DATE

SECTION F: APPENDICES

The following appendices must be attached:

Appendix A: Maps
- Locality map
- Layout and sensitivity map

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)
- Appendix D1. Surface Water Verification Report
- Appendix D2. Traffic Impact Assessment
- Appendix D3. Heritage and Palaeontological Impact Assessment
- Appendix D4. Biodiversity Impact Assessment

Appendix E: Public Participation
- Appendix E1. Site Notices and Advertisements
- Appendix E2. Proof of Notification of Proposed Activity to IAPs
- Appendix E3. Comments and Responses Report
- Appendix E4. Proof of Notification of Proposed Activity to Organs of State
- Appendix E5. List of Registered IAPs
- Appendix E6. Copies of Correspondence

Appendix F: Impact Assessment
- Appendix F1. Methodology for determining impact
- Appendix F2. Impact Assessment Tables

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information
- Appendix J1. Memorandum on advantages and Disadvantages of the seven options for the new Kathu Cemetery
- Appendix J2. Co-ordinates of every 250m along the Access Option 1 route
- Appendix J3. Blasting and Vibration Study

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

- **Appendix D1. Surface Water Verification Report**
- **Appendix D2. Traffic Impact Assessment**
- **Appendix D3. Heritage Impact Assessment**
- **Appendix D4. Palaeontological Impact Assessment**
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- **Appendix E1: Site Notices and Advertisements**
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Appendix I: Specialist's declaration of interest

Refer to specialist studies in Appendix D and Appendix J3.

Appendix J: Additional Information

- **Appendix J1. Memorandum on advantages and Disadvantages of the seven options for the new Kathu Cemetery**
- **Appendix J2. Co-ordinates of every 250m along the Alternative 1 route**
- **Appendix J3. Blasting and Vibration Study**