Environmental Impact Assessment in support of the Atmospheric Emissions Licence Application for the Operation of a Crematorium located in Cato Ridge, Durban, Kwazulu-Natal

Scoping Report

Submitted for commenting by stakeholders in terms of the 2017 Environmental Impact Assessment Regulations promulgated in accordance with the National Environmental Management Act 107 of 1998 (Act No. 107 of 1998), as amended
### General information

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<td><strong>Afzelia Report Number</strong></td>
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### REVIEW OF THE SCOPING REPORT

This Scoping Report is available for commenting for a period of **30 days** (excluding public holidays) from **Monday 17 July 2017** until **Friday 25 August 2017**. A copy of the Scoping Report is available at **Cato-Ridge Public Library and the Hammersdale Library** and upon request from Afzelia Environmental Consultants (Pty) Ltd.

Please send your comments and queries before **Friday 25 August 2017** to:

<table>
<thead>
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### Acronyms

| **Alternatives** | Different mechanisms for achieving the general purpose and need of the proposed activity or development. Alternatives may be in terms of location, activity, timing or “do nothing” (i.e. ‘no-go’ option.) |
| **Assessment** | The evaluation, judgement, organising, rating, interpreting and communicating information which is relevant. |
| **Applicant / Proponent** | The person applying for Environmental Authorisation or carrying out the activity. The person or legal entity that has made application to the competent authority for environmental authorizations and who will have the overall responsibility to adhere to the relevant legislation and comply with the environmental authorization. |
| **Cremator / Furnace** | A cremator or furnace is an oven making use of burners and a fuel source in which people's bodies or remains are burned down to the bones, eliminating all soft tissue. |
| **Emissions** | Air pollutants in the form of gas exiting to the atmosphere via a flue as a result of combustion. |
| **Environment** | The surroundings within which humans exist and that are made up of –  
- land, water and atmosphere;  
- micro-organisms, plant and animal life;  
- any part or combination of the above and the interrelationships among and between them;  
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing. |
<p>| <strong>Environmental Authorisation</strong> | The permission required from the competent authority for an activity as listed according to the NEMA regulations |
| <strong>Environmental Impact</strong> | Any change to the environment, whether desirable or undesirable, that would result directly or indirectly from any construction activity. |
| <strong>Environmental Management</strong> | Ensuring that environmental concerns are included in all stages of development in order to ensure that the proposed activity or development is done in a sustainable manner and does not exceed the carrying capacity of the surrounding local environment. |</p>
<table>
<thead>
<tr>
<th><strong>Greenhouse gas (GHG)</strong></th>
<th>A gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone</th>
</tr>
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<tbody>
<tr>
<td><strong>Hazardous material / substances</strong></td>
<td>Any waste that contains organic or inorganic elements or compounds, that may, owing to its inherent physical, chemical or toxicological characteristics, have a detrimental impact on health and the environment.</td>
</tr>
<tr>
<td><strong>Incineration</strong></td>
<td>A waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration of waste materials converts the waste into ash, flue gas and heat.</td>
</tr>
<tr>
<td><strong>Local Authority</strong></td>
<td>Otherwise referred to as the “Council” – the local municipal authority that operates or is responsible in said area.</td>
</tr>
<tr>
<td><strong>Rehabilitation</strong></td>
<td>Returning an area impacted by activities/works to its original or better condition prior to the impacts from the activities/works having occurred</td>
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<tr>
<td><strong>Significant impact</strong></td>
<td>An impact that may, but its magnitude, duration, intensity, or probability, have a notable effect on one or more aspects of the environment.</td>
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<tr>
<td><strong>Stack</strong></td>
<td>A tall, vertical pipe that takes smoke or steam into the air from a combustion process.</td>
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### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AEL</td>
<td>Air Emissions License</td>
</tr>
<tr>
<td>AIR</td>
<td>Atmospheric Impact Report</td>
</tr>
<tr>
<td>BA</td>
<td>Basic Assessment</td>
</tr>
<tr>
<td>BAR</td>
<td>Basic Assessment Report</td>
</tr>
<tr>
<td>CA</td>
<td>Competent Authority</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Authorisation</td>
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<tr>
<td>EAP</td>
<td>Environmental Assessment Practitioner</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EIR</td>
<td>Environmental Impact Report</td>
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<tr>
<td>EMPPr</td>
<td>Environmental Management Programme</td>
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<tr>
<td>ER</td>
<td>Employers Representative</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse gas</td>
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<tr>
<td>I&amp;AP</td>
<td>Interested and Affected Party</td>
</tr>
<tr>
<td>IEM</td>
<td>Integrated Environmental Management</td>
</tr>
<tr>
<td>KZN EDTEA</td>
<td>KwaZulu-Natal Economic Development, Tourism and Environmental Affairs</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environmental Management Act (Act No. 107 of 1998) as amended</td>
</tr>
<tr>
<td>OEMP</td>
<td>Operational Environmental Management Plan</td>
</tr>
<tr>
<td>SIA</td>
<td>Social Impact Assessment</td>
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<tr>
<td>TIA</td>
<td>Traffic Impact Assessment</td>
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EXECUTIVE SUMMARY

Background

Miroja Projects (Pty) Ltd are proposing to develop a facility for the cremation of human remains in the Cato Ridge area of KwaZulu-Natal.

It is clear from various reports, articles in the press and the eThekwini Municipality’s 2016/2017 IDP that the Municipality is facing a burial crisis which needs to be urgently addressed. The proposed Cato Ridge Crematorium will serve as an alternative to burial and as such will assist towards alleviating this situation.

Environmental Authorisations

The proposed facility will trigger Subcategory 8.2 of GN 893 of 2013 promulgated under the National Environmental Management Air Quality Act (No.39 of 2004) (NEM: AQA)’ the cremation of human remains, companion animals (pets) and the incineration of medical waste”.

Miroja Projects (Pty) Ltd is therefore required to obtain an Atmospheric Emissions Licence (AEL) for the proposed activities in terms of NEM: AQA, after which a full Environmental Impact Assessment (EIA) and scoping process is being conducted. The EIA and Scoping Process will be conducted in terms of the requirements of the EIA regulations (GNR No. 326) published under the National Environmental Management Act (Act 107 of 1998) (Amended in 2017) (NEMA).

Purpose of the Scoping Report and the Allocated Competent Authority

This document provides the scope of work associated with the EIA process and AEL application. The scoping report is made available to all identified Interested and/or Affected Parties (I&APs) in order to provide them with sufficient information regarding the proposed development and allow them to comment or raise concerns regarding the proposed development and the EIA process.

The KZN Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA) is the Provincial Competent Authority (CA) for the NEMA EIA Process. The eThekwini Municipality is the CA for the AEL application.

The CA must be provided with all the relevant documentation to make an informed decision to grant or refuse the application.

Alternatives

The proposed facility is the preferred alternative from an environmental sustainability, financial feasibility and strategic perspective due to the ideal locality of the site. The proposed facility will be situated on a footprint of an already built building which has been modified to meet the required standards for a crematorium with particular emphasis on fire control.
Environmental Impact Assessment and Specialist Studies

A comprehensive impact assessment will be conducted to assess the significance of the potential environmental impacts associated with the proposed cremation process. Identified impacts will be addressed through proposed mitigation measures in the report.

Specialist Studies that have already been conducted for the proposed Cato Ridge Crematorium are:

**AIR Quality Assessment**

An Air Quality Impact Assessment is being conducted by Duncan Martin from COEX Environmental Planners (COEX) to develop and Atmospheric Impact Report (AIR) in support of the AEL application for the Cato Ridge Crematorium. The purpose of the AIR is intended to estimate the magnitude of emissions identified in GNR 893 of 2013. The results of this study will be used as input for a dispersion modelling study to investigate the impact of particulate matter released on the receiving environment.

**Social Impact Assessment**

A Social Impact Assessment (SIA) is being conducted by Dr Neville Bew and Associates. The report will cover the environment that may be affected by the project, identifying and describing the potential social issues that are associated with a crematorium and to assess the potentially significant issues that are to be addressed during the SIA.

**Traffic Impact Assessment**

A Traffic Impact Assessment (TIA) was undertaken by Mohamed Kajee from Arup (Pty) Ltd for the proposed project. The report covered the access arrangements, the existing road network, existing intersection controls, existing public transport, pedestrian and cycling facilities and planned transport upgrades that may be affected by the proposed Cato Ridge Crematorium.

**Public Participation**

The public participation process is on-going and all the comments that are received regarding will be addressed throughout the EIA process. These comments will be reflected in a comprehensive comments and response report that will be included in the scoping report, the draft and final EIRs. All I&APs will be informed as the EIA process continues and will be given sufficient opportunity to comment on the process. The public participation for the AEL and EIA is conducted concurrently.

The Scoping Report is available for public comment for 30 days at the Cato-Ridge Library and the Hammersdale Library in Camperdown.

The Scoping Report will be circulated to the following Departments for comment and review:

- KwaZulu Natal Department of Economic Development, Tourism & Environmental Affairs;
- AMAFA AkwaZulu Natali;
- KZN Department of Transport;
- KZN Department of Health;
- KZN Department of Cooperative Governance and Traditional Affairs (Cogta)
- Provincial Department of Co-operative Governance & Traditional Affairs– Professional Town and Regional Planner;
• eThekweni Municipality Environmental Health Services;
• eThekweni Municipality – Air Quality Department;
• eThekweni Municipality – Development, Planning, Environmental and Management Department;
• eThekweni Municipality – Traffic Department; and
• eThekweni Municipality – Parks and Cemeteries Department.
1. Background

This section will provide background to the proposed project, as well as the details of the Environmental Assessment Practitioner (EAP) who will facilitate the EIA Process. It will also elaborate on the details of the Applicant that intends to undertake the proposed activity.

1.1. Project Background

Timbali Projects, a subsidiary of Miroja Projects (Pty) Ltd are proposing to develop a facility for the cremation of human remains in the Cato Ridge area of Kwa-Zulu Natal.

In terms of the National Environmental Management Act (No. 107 of 1998) as amended in 2017, activities that are listed in regulations published under NEMA may not be undertaken without an Environmental Authorisation (EA). Activities that are listed in GNR 327 require a Basic Impact Assessment (BA) to be conducted prior to commencement and activities listed in GNR 325 require a full Scoping and EIA prior to commencement. The proposed facility and the requirement to obtain an AEL triggers Activities 6 and 28 of GNR 325, therefore a full Scoping and EIA needs to be conducted in order to obtain an EA prior to commencement. KZN EDTEA is the CA for the EIA process and KZN EDTEA will be provided with all relevant documentation to make an informed decision to grant or refuse the application. The eThekwini Municipality is the CA for the AEL application and will be provided with all the relevant documentation to make an informed decision.

1.2. Purpose of the Document

This document provides the scope of work associated with the AEL application and associated EIA process that needs to be followed in order to obtain an EA for the proposed project. The scoping report serves as a medium to provide relevant information regarding the proposed activities to the I&APs in order to comment on the project.

The scoping report has been generated in terms of the Appendix 2 of the NEMA EIA Regulations GNR 326 of April 2017.

In terms of GNR 326, the objective of the scoping process is to, through a consultative process:

- Identify the relevant policies and legislation relevant to the project;
- Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic and cultural aspects of the environment;
- Identify the key issues to be addressed in the assessment phase;
• Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
• Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

1.3. Details of the Applicant

<table>
<thead>
<tr>
<th>Applicant</th>
<th>Miroja Projects (Pty) Ltd</th>
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<td>Portion 8 of Erf 50 Cato Ridge</td>
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1.4. Details of the Environmental Assessment Practitioner

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<td>Overport, Durban</td>
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<td></td>
<td>4067</td>
</tr>
<tr>
<td>Physical Address</td>
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<td></td>
<td>Morningside, Durban,</td>
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<tr>
<td></td>
<td>4001</td>
</tr>
</tbody>
</table>
1.5. Independence of Environmental Assessment Practitioner

Afzelia Environmental Consultants is not in any manner affiliated to the Applicant (Miroja Projects (Pty) Ltd. The EAP meets the requirements for independence as none of the project team members has and nor will have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the National Environmental Management Act (Act 107 of 1998, NEMA) as amended and the Environmental Impact Assessment Regulation, 2017. Nor does Afzelia have a vested interest in the proposed activity proceeding; and also has no, and will not engage in, conflicting interest in the undertaking of the activity.

1.6. Expertise of the Environmental Assessment Practitioner

Refer to Appendix A for the EAP’s curriculum vitae.
2. Location of the Proposed Activity

This section contains details of the property on which the proposed activity will be conducted.

2.1. Property Details

The proposed site for the Cato Ridge Crematorium is located on Portion 8 of Erf 50 Cato Ridge within Ward 1 of the eThekwini Metropolitan Municipality in the KwaZulu-Natal province of South Africa (Refer to Figure 1: Locality Map).

2.1.1. Location of the Proposed Facility Within a 5km Radius

Table 1: Description of surrounding land use

<table>
<thead>
<tr>
<th>Direction</th>
<th>Within a 5km Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>North:</td>
<td>The Safal Steel Site is located across the R103 to the north of the proposed Cato Ridge Crematorium site. The Uthweba residential area is located approximately 3 kilometre from the site.</td>
</tr>
<tr>
<td>East:</td>
<td>Some light industrial / commercial sites such as business selling earth moving equipment and a brick and sand batching plant are located adjacent to the site. The Assman facility is located to the north east of the site. A number of other industrial sites transe the main thoroughfares in the area. A number of residential areas such as Mngweweni, Inchana and Inchanga West are located between 4 and 5 kilometre from the site.</td>
</tr>
<tr>
<td>South:</td>
<td>Vacant land is found immediately adjacent to the site. The Engen Cato Ridge 1 Stop is located at a distance of approximately 500 meters from the site. A few isolated residences are also found with 1km in the area south of the site. The N3 highway is located approximately 500 meters south west of the site. The Rainbow Chickens farm is located approximately 1.5 kilometres south east of the site.</td>
</tr>
<tr>
<td>West:</td>
<td>Some light industrial / commercial sites such as Makhatini Medical Waste are located adjacent to the proposed Cato Ridge Crematorium site. The area within 1 kilometre west of the sites is comprised of a combination of vacant land, industrial sites (mostly light industry) and a few residences. The Cato Ridge Village is located approximately 1.1 kilometre from the site, south of the N3 highway. A small residential area associated with the Thornridge Farm is also located approximately 1.1 kilometre from the site, north of the N3 highway and railway line. Other industrial and farming facilities are located north of the N3. A rural residential area is located approximately 2.5 kilometre north west of the site.</td>
</tr>
</tbody>
</table>

Table 2: Coordinates of the site for the proposed facility

<table>
<thead>
<tr>
<th>Latitude</th>
<th>29°43'50.10&quot; S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitude</td>
<td>30°36'16.47&quot; E</td>
</tr>
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</table>
2.1.2. Zoning of the property

The proposed site is currently zoned *General Industry 2*. A town planning application *to rezone the site to Crematorium* is currently underway by Christine Platt from Christine Platt Consulting Town Planners.
Figure 1: Locality Map for the proposed Cato Ridge Crematorium (topo-cadastral)
Figure 2: Location of the site for the proposed facility
Figure 3: Land use surrounding the crematorium site including urban residential development, rural settlements, industrial development and road networks
3. Legal Framework

The following legislation and policy documents were considered as part of this study.


Section 24 – Environment

“Everyone has the right” -

a) To an environment that is not harmful to their health or wellbeing; and

b) To have the environment protected for the benefit of future generation; through reasonable legislative and other measures that –

i. Prevent Pollution and ecological degradation;

ii. Promote conservation; and

iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The facility must be managed to prevent adverse environmental consequences and to meet the constitutional requirements.

3.2. National Laws and Regulations


The NEMA is a framework legislation in South African that governs environmental government.

Section 2: Environmental Management Principles

“Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects if decisions of all aspects of the environment and all people in the environment by pursue the selection of the best practicable environmental option.”

Section 24: Environmental authorisations

Provides a framework for the processes for environmental authorisations, including the publishing of activities that may not commence without an Environmental Authorisation (EA). The allocation of a CA for specific authorisation is also covered by this section and prescribes the process that must be undertaken to rectify the unlawful commencement of listed activities.
Section 28: Duty of care and remediation of environmental damage

‘Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise an rectify such pollution or degradation of the environment.’

Section 30: Control of incident

Deals with the identification, reporting and remediation of environmental incidents.

3.2.2. Listed Activities Triggered

- National Environmental Management Air Quality Act (No.39 of 2004)

Activities published in GN 893 promulgated in terms of Section 21 of NEM: AQA may not commence without an AEL. The proposed activity will trigger Subcategory 8.2. of GN 893. ‘the cremation of human remains, companion animals (pets) and the incineration of medical waste’. Therefore, an AEL needs to be obtained prior to the commencement of the proposed activity after a full Scoping and EIA Process has been undertaken.

- Listed Activities in Terms of NEMA

Activities that are listed in regulations published under NEMA may not be undertaken without an EA. Activities listed in GNR 327 require a Basic Impact Assessment to be conducted prior commencement and activities listed in GNR 325 require a Full Scoping and EIA prior to commencement. The proposed activities will require an AEL in terms of the NEM: AQA and will therefore trigger the following activities in GNR 325 as amended in April 2017.
Table 3: Listed activities in GNR 325 as amended in April 2017

<table>
<thead>
<tr>
<th>Government Notice Number</th>
<th>Activity Number</th>
<th>Describe the relevant activities in writing as per Listing Notice 2 (GN No. R.325)</th>
<th>Description of each listed activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. R 325 as amended in April 2017 (Listing Notice 2)</td>
<td>6</td>
<td>The development of facilities or infrastructure for any process or activity which requires a permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent.</td>
<td>The proposed activity will trigger Subcategory 8.2 of GNR 893 promulgated under NEM: AQA “The Cremation of human remains, companion animals (pets) and the incineration of veterinary waste’. Therefore, an AEL needs to be obtained prior to the commencement of the proposed activity</td>
</tr>
<tr>
<td>No. R 325 as amended in April 2017 (Listing Notice 2)</td>
<td>28</td>
<td>Commencing of an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004</td>
<td>The proposed activity will trigger Subcategory 8.2 of GNR 893 promulgated under NEM: AQA “The Cremation of human remains, companion animals (pets) and the incineration of veterinary waste’. Therefore, an AEL needs to be obtained prior to the commencement of the proposed activity</td>
</tr>
</tbody>
</table>

Therefore, a full scoping and EIA Process has to be followed in order to obtain EA for the proposed crematorium activities.

3.2.2. National Environmental Management Air Quality Act (No. 39 of 2004)

The objectives of this Act are to:

a) To protect the environment by providing reasonable measures for –
   i. The protection and enhancement of the quality of air in the Republic of South Africa; and
   ii. The prevention of air pollution and ecological degradation.

The act contains general measures for the control of facilities that may cause air pollution. The act places a duty to prevent air pollution and mandates the licencing of facilities such as the proposed crematorium.
• Chapter 5: Licencing of listed activities

Chapter 5 stipulates specific requirements for the licencing activities which may cause a detrimental impact on air quality. An AEL must be obtained for the proposed activities and an application must be submitted to the eThekwini Municipality.

The proposed activity will trigger Subcategory 8.2 of GN 893 promulgated under NEM: AQA ‘the cremation of human remains, companion animals (pets) and the incineration of veterinary waste.” Therefore, an AEL needs to be obtained prior to the commencement of the proposed activity.

• Ambient Air Quality Standards GN 1210

Set out the limits for ambient air quality. Specific references to –

- Particulate Matter with Aerodynamic Diameter less than 2.5 Micrometre’s (PM$_{2.5}$);
- National dust Control Regulations.

3.2.4. eThekwini Municipality: Cemeteries and Crematoria By-Law, (2015)

These regulations apply to the regulation, establishment and use of cemeteries and crematoria within the jurisdiction of the eThekwini Metropolitan Municipality and as such will apply to the project.

3.2.5. eThekwini Municipality Integrated Development Plan – 2016/2017

The eThekwini Municipality Integrated Development Plan indicates that the municipality is facing a need to address the increasing demand for grave sites with the current mortality rate within the municipality estimated to be between 80 000 and 90 000 people per annum.
4. Need and Desirability

The below need and desirability of the proposed Cato Ridge Crematorium has been developed according to the DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa.

4.1. Need and desirability in terms of market demand

It is estimated that, on an annual basis, the eThekwini municipal region currently faces the need to dispose of some 80 000 to 90 000 human corpses (eThekwini Metropolitan Municipality 2016, 356). It is clear from various reports (Ngccongo 2005, Leuta and Green 2011), articles in the press (eThekwini Municipality 2012, Mbonambi 2013, Abraham 2016, Khanyile 2016, Health Systems Trust n.d.) and the eThekwini Municipality’s IDP (eThekwini Metropolitan Municipality 2016) that the eThekwini Metropolitan Municipality is facing a burial crisis and urgently needs to address this situation. With KwaZulu – Natal Province having the highest HIV prevalence rate and eThekwini having the fourth highest rate at a municipal level at 41.1% (National Department of Health 2015), the situation is can only be exacerbated.

The proposed establishment of a crematorium in Cato Ridge is an alternative to burial and as such will assist towards alleviating the situation.

4.2. Need and desirability in terms of socio-economic benefits

The establishment of the Cato Ridge Crematorium will generate approximately 9 permanent employees during the operational phase.

4.3. Need and desirability in terms of land use potential

The property on which the facility will be located does not pose any land use potential other than development associated with the current General industry 2 zonation. However, a rezoning application is in the process of being submitted for the rezoning of the property to Crematorium. The development of the proposed crematorium will provide a suitable land use for the property and increase the land use value of the site.

4.4. Need and desirability in terms of the proposed location and accessibility

The proposed facility is located on Portion 3 (of) 8 located along the R 103, approximately 60km from Durban. Safal Steel in located adjacent to the site while Assmang Manganese Cato Ridge Works is situated across the Regional Road 103 (R103) to the north of the site. There is formal access to the site via existing municipal roads.
4.5. Need and desirability in terms of spatial development within the eThekwini Metropolitan Municipality Spatial Development Framework

The Proposed Crematorium is situated within Ward 1 of the eThekwini Metropolitan Municipality in KwaZulu-Natal. More specifically within the Sub Place Harrison which falls within the Main Place Cato Ridge (Bews and Associates, 2017).

It is indicated in the eThekwini Municipality’s development plan that with a high mortality rate of between 80 000 and 90 000 deaths occurring within the municipal area on an annual basis, together with the high demand for burial sites and a shortage of suitable land for burials, the need for an alternative solution such as cremations is an important priority for the eThekwini Municipality.

In this regard, it is stated that:

“Whilst experience is indicating that land is difficult to find for cemetery development, it is critical that crematorium development is also considered as this will provide a feasible alternative with the crisis of not being able to bury in suitable ground and the use of alternative burial method such as mausoleums and ossuaries (niches to store remains). Hence, land must be set aside for crematorium development and unsuitable burial land in existing cemeteries and elsewhere must be considered for mausoleums.” (eThekwini Metropolitan Municipality 2016, 365).

4.6. Need and desirability in terms of eThekwini Municipality Integrated Development Plan (IDP) 2016/2017

The municipality is currently facing a delivery challenge to meet an ever-increasing demand for grave sites. The current mortality figures within the municipal boundary are estimated at between 80 000 to 90 000 people per annum; the population at 3.4 million is growing which will mean more deaths to be addressed in the future. Suitable land for the development of cemeteries is becoming increasingly difficult to obtain, therefore the establishment of crematoriums that can alleviate the need for large tracks of land for burial, is not only a viable alternative, it is critical.

4.7. Conclusion regarding the need and desirability of the proposed facility

The need and desirability for the Proposed Cato Ridge Crematorium will provide an alternative to burial and as such will assist towards alleviating the situation or challenge to meet an ever-increasing demand for grave sites. The proposed Cato Ridge Crematorium will also provide a service to the state mortuaries for the cremation process of unclaimed bodies.
5. **Description of the Proposed Crematorium Process**

This section will provide an overview of the proposed facility, including a description of the infrastructure needed for the development and an overview of the process that will be implemented for the cremation process at the proposed facility. Refer to Figure 4 for the process flow for the cremation process.

5.1. **Details of the Cremation Process that will be followed at the proposed facility**

Bodies will be received into the crematorium facility for cremation in caskets. Two cremators (or cremation furnaces) will be installed at the proposed facility. Each crematory is comprised of two chambers – a primary and secondary combustion chamber – each chamber is fitted with burners.

Caskets will be placed one at a time into the primary chamber, burners in this chamber are played on the coffin and air lances to break up the remains and promote combustion. The combustion gases from the primary chamber are then fed into the secondary chamber, which is heated with afterburners and supplied with secondary air to complete combustion and reduce the emissions. The secondary chamber has a residence time for the gases of two seconds. The average combustion time has been estimated to be approximately 75 minutes.

![Figure 4: Process Flow Diagram for the Proposed Cato Ridge Crematorium](image)
5.2. Facility Details

The proposed facility will comprise of the following: (Refer to Figure 5: Lay out of Proposed Crematorium)

- A chapel that can accommodate 90 people;
- Furnace room that will be equipped with two (2) cremators;
- A 9000 litre gas tank that is surrounded by 9-inch fire proof walls;
- A sprinkler system that is directly over the gas tank;
- A cut-off valve outside of the walls for the furnace and a cut off valve that is located outside of the furnace room; and
- Firehoses and fire extinguishers that are placed inside the building.

The expected operation of the facility is as follow:

- Each of the 2 furnaces expect capacity of 5 – 6 cremations per days i.e. 10-12 in total;
- At least 6 cremations per days will be ‘non-attended’;
- Average attendance is between 15 – 30 people per service.
Figure 5: Layout of the Proposed Cato Ridge Crematorium
6. **Description of Reasonable and Feasible Alternatives**

This section evaluates the alternatives that have been identified and will be included in the environmental assessment of the alternatives, compared to the proposed (referred) technology. The pros and cons of the different alternatives will be highlighted to ensure that a transparent decision can be reached on the best alternative.

### 6.1. Technology alternatives

- **Gas burners vs Electricity**

Miroja Projects proposes to utilise gas instead of electricity for the furnaces for cremating of bodies. The bulk gas storage tank will be located in a secure walled yard on the property.

<table>
<thead>
<tr>
<th>Gas fired furnaces</th>
<th>Electric fired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid start up time due to instant heating emanating from gas burners.</td>
<td>Slower start up – electricity consumption during start up.</td>
</tr>
<tr>
<td>Limited atmospheric emissions will be released from the burning of gas. The emissions released will not cause deterioration of the ambient air quality, but may contribute to greenhouse gas emissions.</td>
<td>No direct emissions will result from electricity consumption to power the furnaces. However, the burning of coal to generate electricity results in the indirect release of emissions. Coal power stations contribute significantly to poor air quality in South Africa. The South African power grid is primarily fed by the burning coal.</td>
</tr>
<tr>
<td>Lower cost per unit energy output.</td>
<td>Higher cost per unit energy output.</td>
</tr>
<tr>
<td>The implementation of gas fired furnaces will significantly reduce the facility’s dependency on the national electricity grid which is already under tremendous pressure. The grid is not a reliable source of energy due to regular power shortages.</td>
<td>The facility will be dependent on the national electricity grid for power supply. The grid is not a reliable source of energy due to regular power shortages.</td>
</tr>
</tbody>
</table>

From the above assessment, it is clear that a gas-powered furnace is preferred compared to an electrical powered furnace. The utilisation of a gas-powered furnace is the most cost-effective option and will reduce the facility’s dependency on the national power grid. The emissions from the gas-powered kiln will not deteriorate the ambient air quality and will not entail the utilisation of electricity which originates from the burning of coal.
6.2. No-go Alternative

This alternative is the 'no-development alternative’. The no-development option will result in the status quo being maintained. At present the eThekwini municipal region is currently facing a crisis as land availability for graveyards is limited and the existing crematorium infrastructure such as Mobeni Crematorium and Stellawood Crematorium are either not functioning to their capacity or cannot cope with the increase in the number of corpses to be cremated and as a result there is a natural increase in the demand for cremations with the eThekwini municipal region.

Therefore, the proposed Cato Ridge Crematorium will assist the eThekwini region in conducting private cremations and conducting cremation of unclaimed bodies as the state mortuaries cannot cope with the increase in unclaimed bodies. The Air Quality Specialists has estimated that the PM 10, CO and NOx annual average and daily maximum concentrations are calculated to be well within the current ambient air quality level and none of the concentrations will exceed the official ambient air quality standards as published in GN1210. The proposed Cato Ridge Crematorium will not compromise the environmental integrity and sustainability of the eThekwini Municipality. Therefore, in order to accommodate the community needs of cremations the no-go alternative is not preferred.

6.3. Site selection process

The preferred site was selected as it is situated in an industrial area and that the existing building on the site will be able to house the proposed infrastructure that will be required for the Cato Ridge Crematorium.

6.4. Consideration of mitigation measures to be implemented

Some of the mitigation measures that have been taken into account during the EIA include the following:

- New and improved technology will be installed at the proposed Cato Ridge Crematorium;
- Measures to prevent air pollution will be proposed in terms of the outcome of the Air Quality Impact Assessment;
- Air quality monitoring will be undertaken in terms of the AEL requirements.
7. Description of the Baseline Environmental Conditions

The following provides a description of the environmental features of the site and the general area.

7.1. Climate

The eThekwini area is characterised by a summer rainfall pattern with sporadic rainfall events in the winter months. The mean annual precipitation is approximately 973mm. Frost is infrequent and often occurring in valleys where cold air is trapped. The wettest time of the year is February with an average of 127mm and the driest is July with 26mm (Table 4). The seasonality if perception is a driving factor behind the hydrological cycles of rivers and drainage lines within the area. Typically, rivers and drainage lines have a higher flow rate during the summer months.

Temperatures are also relatively high with maximum temperatures ranging from 22.9°C in July to 28.4°C in February. The region is coldest in July with minimum temperatures if 9.8°C on average (Table 5). The altitude if the study site ≥ 767m ASL (Mucina and Rutherford, 2006: Climatological data; BRU Ya13, Durban).

Table 4: Mean Annual Rainfall for the dominant BRU (Durban – Ya13)

<table>
<thead>
<tr>
<th></th>
<th>Annual</th>
<th>Jan</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Annual Rainfall</td>
<td>973</td>
<td>126</td>
<td>127</td>
<td>114</td>
<td>70</td>
<td>55</td>
<td>33</td>
<td>26</td>
<td>42</td>
<td>68</td>
<td>91</td>
<td>111</td>
<td>110</td>
</tr>
</tbody>
</table>

Table 5: Temperatures and Evaporation for the area

<table>
<thead>
<tr>
<th></th>
<th>Annual</th>
<th>Jan</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Temp (°C)</td>
<td>20.5</td>
<td>23.9</td>
<td>24.2</td>
<td>23.3</td>
<td>21.2</td>
<td>18.8</td>
<td>16.5</td>
<td>16.3</td>
<td>17.4</td>
<td>19.1</td>
<td>20.1</td>
<td>21.6</td>
<td>23.0</td>
</tr>
<tr>
<td>Max Temp (°C)</td>
<td>25.5</td>
<td>28.0</td>
<td>28.4</td>
<td>27.7</td>
<td>26.2</td>
<td>24.7</td>
<td>23.1</td>
<td>22.9</td>
<td>23.4</td>
<td>24.2</td>
<td>24.7</td>
<td>25.9</td>
<td>27.3</td>
</tr>
<tr>
<td>Min Temp' (°C)</td>
<td>15.4</td>
<td>19.8</td>
<td>20.0</td>
<td>18.9</td>
<td>16.2</td>
<td>12.9</td>
<td>9.9</td>
<td>9.8</td>
<td>11.4</td>
<td>14.1</td>
<td>15.6</td>
<td>17.3</td>
<td>18.8</td>
</tr>
<tr>
<td>Evap. (A Pan mm)</td>
<td>1690</td>
<td>183</td>
<td>160</td>
<td>160</td>
<td>126</td>
<td>108</td>
<td>90</td>
<td>100</td>
<td>120</td>
<td>132</td>
<td>161</td>
<td>165</td>
<td>185</td>
</tr>
</tbody>
</table>
7.2. Vegetation Structure and composition

The proposed study area is located within the Sub-Escarpment Grassland Bioregion. According to the National Vegetation Map of Southern Africa, the surrounding vegetation associated with the study area is comprised of the Dry Coast Hinterland Grassland vegetation unit.

**General vegetation associated with the development footprint:**

The development footprint is located within an area that has been previously cleared and surfaces hardened. As a result, the crematorium site is devoid of vegetation and has been transformed completely. It was noted that areas surrounding the fringe of the crematorium site were dominated by weedy species including *Sonchus asper* subsp. *asper* (Spiny Sowthistle), *Hypochaeris spp.*, *Crisum vulgare* (Spear Thistle) and the encroachment of alien invasive species *Rubus cuneifolis* (American Bramble), *Lantana camara* (Tickberry) and *Tagetes minuta* (Tall Khaki Weed).

7.3. Geology and Topography

The geology of the study area is associated with the Karoo Supergroup (including significant Dwyka tillites and intrusive Karoo dolerites). Dominant rock types of these formations include sandy shales, siltstone and sandstone. Shallow sandy soils are derived from Natal Group Sandstone (Scott-Shaw and Escott, 2011).
8. Specialist Studies

This section contains a description of the specialist studies that have formed part of the EIA and AEL Application. The final reports generated by the specialists will be incorporated into the EIR which will be subject to public participation prior to submission to KZN EDTEA for decision making.

8.1. Air Quality Impact Assessment

Specialist: COEX Environmental Planners

Purpose of the study: To develop an Atmospheric Impact Report (AIR) in support of the AEL application for the Cato Ridge Crematorium. The purpose of the AIR is to predict the potential impact that the proposed crematorium activities and associated emissions may have on the surrounding environment.

Scope of work:
The following was included in the scope of work:

- A review of the project and technical process information;
- A review of legal requirements (emission limits, ambient air quality standards);
- The use of MM5 modelled meteorological data to simulate or predict mesoscale and regional atmospheric circulation;
- The establishment of an emissions inventory. Gaseous and particulate emissions of pollutants regulated for this specific listed activity and emitted during the operational phase will be quantified and assessed;
- Atmospheric dispersion simulations in accordance with regulations regarding for dispersion modelling;
- A human health risk and nuisance impact screening assessment based on dispersion simulation results; and
- Compilation of an Atmospheric Impact Report (AIR) and Atmospheric Emissions Licence (AEL) application form.

8.1.1. Air Emission Inventory Report

8.1.1.1. Sources

The air emissions inventory aims to estimate the magnitude of emissions released during the cremation of human remains. Fugitive emissions have not been included but are assumed to be insignificant. Sources included in this study are:

- Stack from Crematory 1;
- Stack from Crematory 2.
8.1.1.2. Pollutants Considered

This emission inventory is intended to estimate the magnitude of emissions identified in GNR 893 of 2013. As such the following pollutants were considered:

- Particulate matter (total particulate matter);
- Carbon monoxide (CO);
- Oxides of nitrogen (NOx expressed as NO2);
- Mercury (Hg); Polychlorinated dioxins and furans (PCDFs)\(^1\).

The results of this study will be used as an input for the dispersion modelling study. In order to investigate the impacts of particulate matter released on the receiving environment, two additional pollutants have been included in this emission inventory. This distinction was introduced because ambient air quality standards have been promulgated for these pollutants, but not for total particulate matter. The following pollutants included in this study are:

- PM\(_{10}\) (i.e. particulate matter with an aerodynamic diameter equal to or less than 10 μm);
- PM\(_{2.5}\) (i.e. particulate matter with an aerodynamic diameter equal to or less than 2.5 μm).

8.1.1.3. Spatial Allocation of Emissions

Two-point sources which represent the stacks will be considered.

8.1.1.4. Methodology

The annual emissions resulting from the cremation of human remains at the proposed Cato Ridge Crematorium site will be estimated by initially comparing the emission factors presented by:

- The European Monitoring and Evaluation Programme (EMEP) and the European Environment Agency (EEA) and presented in the EMEP/EEA air pollution emission inventory guideline book (2016) in the chapter titled "Cremation".
- The Australian Government (Department if Sustainability, Environment, Water, Population and Communities) and is presented in a National Pollutant Inventory (NPI) manual titled 'Crematoria'.

This will be done in order to select the most appropriate emission factor, in line with best international practice.

Both of the publications described above proposed the use of emission factors which estimate pollutant emissions per body cremated. Emission factors presented are given as a weight of pollutant per body cremated. In order to calculate pollutant levels resulting from the cremation of bodies, each emission factor should be multiplied by the number of bodies cremated.
8.1.2. Air Emission Inventory Report

The Level 2 dispersion modelling study will be undertaken in order to investigate the impact of air emissions released from the proposed Cato Ridge Crematorium facility. In order to assess the potential impact of the emissions calculated in the emission inventory, available local and international ambient air quality guidelines will be reviewed in order to identify appropriate ambient air quality guidelines against which modelled concentrations could be compared. Dispersion modelling has been undertaken using AERMOD.

Dispersion modelling and reporting will be conducted as far as practicable in conformance with South African Regulations Regarding Air Dispersion Modelling; which have been promulgated in Government Notice No. R. 533, (GNR 533 of 2014) under the National Environmental Management: Air Quality Act of (Act No. 39 of 2004).

8.2. Social Impact Assessment

Specialist appointed: Dr Neville Bews and Associates

Purpose of the study: A basic social impact assessment was undertaken for the project. The purpose of the assessment was to identify and describe the potential social issues associated with the proposed project and to provide an indication of the suggested approach for assessing the potentially significant issues to be addressed during the Social Impact Assessment (SIA).

Terms of Reference:

- Describe the environment that may be affected by the project and the way the environment may be affected;
- Identify and describe the potential social issues associated with the proposed project.

8.2.1. Key Social Issues Identified

The social issues that are likely to be associated with the establishment of a crematorium are identified and discussed below. The social impact variables considered are in accordance with Vanclay’s list of social impact variables which are clustered under the following seven main categories (Vanclay 2002, Wong 2013).

1. Health and social well-being impacts;
2. Quality of the living environment (Liveability) impacts;
3. Economic and material well-being impacts;
4. Cultural Impacts
5. Family and community impacts;
6. Institutional, legal, political and equity impacts; and
7. Gender relations impacts.
These categories are not exclusive and at times tend to overlap as certain processes may have an impact within more than one category. For instance, an increased demand on existing infrastructure, facilities and social service, addressed under the category institutional, legal, political and equity, will have some bearing on the quality of the living environment as may impacts addressed under health and social well-being.

8.2.2. Planning Phase

The planning phase of the project is important in ensuring that the project fits and is supported at the national and local planning levels. In this sense, it is clear that there is a critical need for the eThekwini Municipality to identify land to be reserved for cemeteries as well as to promote alternative methods to burials such as cremation. Therefore, the project will find support from National and local authorities.

Other issues that may need to be considered during the EIA phase are likely to be related to the institutional, legal, political and equity impacts and may include:

- Attitude formation towards the Proposed Cat Ridge Crematorium Project; and
- Compliance with the municipal by-laws.

8.2.2.1. Attitude formation towards the project

It is possible but unlikely, that due to the location of the project site being within an industrial area, that a public attitude may form in opposition to the project due to concerns regarding the emissions of toxic gasses during the cremation process. It would therefore be pertinent to be vigilant in respect of the formation of public attitudes towards the project throughout the assessment phase of the environmental process and to consider undertaking an air quality assessment in respect of the project. As part of the EIA process an Air Quality Impact Assessment is being conducted by Duncan Martin from COEX.

8.2.2.2. Compliance with municipal by-laws

The project proponents will need to ensure that a process is put in place, from the planning stage, to ensure that the project complies with all relevant municipal by-laws. Of particular importance is the eThekwini Municipality: Cemeteries and Crematoria By-Law, and by-laws relating to planning and the environment.

8.2.2.3. Quality of the living environment (Liveability) impacts

Although important to consider during the assessment phase of the EIA it is unlikely that the project will significantly disrupt the quality of the living environment being situated in an industrial zone as it is.

8.2.3. Operational Phase

The social impacts that will be associated with the operational phase of the proposed project are likely to be limited to the following impacts.
8.2.3.1. Health and social well-being impacts

- Air Quality

The effect on air quality, due to toxic emissions from the crematorium, may possibly be raised as an issue by the public (Green, Crouch and Zembe, 2014). On a scientific basis, it has been indicated by Mari and Domingo that, based on a limited number of studies, polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran (PCDD/F) emissions from crematories are significantly lower than those from other sources but that mercury levels should not be underestimated. Mari and Domingo, 2010, highlight that ‘since incinerators and crematories are sources of harmful substances, it is worth to keep investigating their potential effects on public health. They then conclude by stating that crematories must also be among the facilities whose emissions should be specifically regulated and monitored.’

Therefore, the air quality assessment that forms part of the EIA process will ensure the public that the issue of air quality will be addressed throughout the operational phase of the project.

- Traffic Disruption

The entrance to the proposed crematorium site is located in a road running parallel to the R103 which is a busy regional road in the area carrying heavy vehicle traffic. Visitors to the crematorium will be required to slow down along the R103 and turn off this road to approach the crematorium. Those travelling in an easterly direction will need to cross the stream of traffic travelling in a westerly direction. On leaving the crematorium visitors will be required to turn on to the R103 with those electing to travel in an easterly direction along the R103 needing to cross the westerly bound traffic stream.

A Traffic Impacts Assessment for the increase in traffic associated with the crematorium has been undertaken as part of the EIA process.

8.2.4. Cumulative Impacts

With the crematorium being located within an industrial zone it is unlikely that it will have a significant cumulative effect on the area. On a cultural base, burial is most likely to remain the preferred means of dealing with the remains of the deceased throughout the area.

However, the availability of an alternative means of disposing of human corpses in the eThekwini municipal area, which is in line with the requirements stated in the 2016-2017 IDP of the eThekwini Municipality, would be beneficial given the crisis that is currently being faced with regards to suitable land for cemeteries.

8.2.5. Conclusion and Recommendations

Over the operational phase, however, the crematorium will emit toxic pollutants and although these may be at relatively low levels it is possible that there may be a public response towards the proposed crematorium on the basis of these emissions. To address this issue an Air Quality Assessment is being conducted by COEX.
A further concern relates to the need for traffic to exit and enter the R103 which is a relatively busy regional road linking Cato Ridge with Durban and which will require some visitors to the crematorium to cross the oncoming stream of traffic depending on their direction of travel. This is likely to pose a risk to all traffic using the R103 within the vicinity of the turnoff towards the crematorium. As part of the EIA Process a Traffic Impact Assessment is being conducted and the findings will be stated in the EIR.

8.3. Traffic Impact Assessment

Specialist appointed: ARUP (Pty) Ltd

Purpose of the study: To undertake a Traffic Impact Assessment (TIA) for the proposed crematorium.

Scope of Work: To investigate the following impacts –

- Review of Available Planning Documents;
- Site Investigation – onsite observation to determine possible operational issues in the vicinity of the site;
- Traffic Demand Estimation;
- Background Traffic Demand Estimation;
- Total Traffic Demands; and
- Total Impact Assessment Scenarios.

The specialist has indicated that should the traffic impact assessment show that the analysed intersections continue to operate at acceptable levels of service, with the addition of the development traffic then the proposed Cato Ridge Crematorium will be supported from a traffic and transportation perspective.
9. Public Participation Process and Government Consultation

A comprehensive public consultation process will be undertaken in terms of NEMA and GN No. 326 (7 April 2107) to inform I&APs of the proposed activity and to allow them to raise any concerns or give comments regarding the proposed facility. This section will elaborate on the methods that are being used to inform potential I&APS of the project and will elaborate on the comments / concerns received. All correspondence with Competent Authorities will be captured and responded to in a timeous manner. The relevant documentation such as the Scoping report, EIR and EMPr will be provided to the Competent Authorities as the EIA process continues.

Refer to Appendix C for proof of the public participation process.

9.1. Public Participation

The following processes will be followed to inform the public of the proposed project:

9.1.1. Placement of an advertisement in one local and one district newspaper

An advertisement will be placed in the Cato KZN Community Newspaper and in the Highway Izindaba Newspaper to notify the identified I&APs of the proposed project and to inform them of the availability of the scoping report for comment.

9.1.2. Written notices

Written notices along with a Background Information Document (BID) have been circulated to potential I&APs by means of the following methods:

- Emails; and
- Hand delivered.

Refer to Annexure C1 for an example of the BID and written notice, and Annexure C2 for proof of distribution to the respective I&APs.

9.1.3. Public Meeting

A public meeting will only be conducted if sufficient concern is shown in the proposed project.
9.2. Circulation of the Scoping Report for comments

The Scoping Report is available from **Monday 17 July 2017 until Friday 25 August 2017** for public comments for 30 days at the following locations:

**Hard Copy:**
Cato Ridge Public Library (Old Georgedale Road, Cato Ridge) and Hammarsdale Public Library (52 Eaton Road in Hammarsdale).

**Electronic Copy:**
www.afzelia.co.za
info@afzelia.co.za (on request)

Any comments received regarding the Scoping Report will be incorporated into the draft Environmental Impact Assessment Report.

9.3. Comments and response report

All the comments received during the EIA process and the responses given will be consolidated in a report to indicate how the comments and issues have been addressed during the EIA Process.

9.4. Register of I&APs

A register will be maintained of all identified I&APs. Refer to **Annexure C3** for the I&AP register.

9.5. Circulation of the draft EIR

The draft EIR will be circulated to the relevant I&APs and the comments will be incorporated in the final EIR.

9.6. Notification regarding the decision from KZN EDTEA

All registered I&APs will be notified via email, fax or post after having received written notice of the decision made by KZN EDTEA on the final decision of the application. Advertisements will also be placed in newspapers that are listed in **Section 10.1.1**. These notifications will include the appeal procedure to the decision.

9.7. Engagement with government departments

The Scoping report will be made available to the relevant identified state departments for comment and their comments will be incorporated in the draft Environmental Impact Report.

9.8. Comments received from I&APs

No comments have been received to date.
10. **EIA Report**

The EIA Report will contain the information that is necessary for EDTEA to consider and come to a decision on the application. As a minimum, the EIA Report will contain the information stipulated in Appendix 3 of GN No. 326 (7 April 2017).

**The following critical components of the EIA Report are highlighted:**

- A description of the policy and legislative context;
- A detailed description of the proposed development;
- A detailed description of the proposed development site, which will include a plan that locates the proposed activities applied for as well as the associated structures and infrastructure;
- A description of the environment that may be affected by the activity and the manner in which physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed development;
- The methodology of the stakeholder engagement process;
- The Comments and Responses Report and I&APs Database will be provided as an appendix to the EIA Report;
- A description of the need and desirability of the proposed development and the identified potential alternatives to the proposed activity;
- A summary of the findings of the specialist studies;
- A detailed assessment of all identified potential impacts;
- A list of the assumptions, uncertainties and gaps in knowledge;
- An environmental impact statement;
- Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;
- A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that should be authorised, any conditions that should be made in respect of that authorisation;
- An opinion by the consultant as to whether the development is suitable for approval within the proposed site;
- An EMPr that complies with Appendix 4 of GN No. 326 (7 April 2017);
- Copies of all specialist reports appended to the EIA report; and
- Any further information that will assist in decision making by authorities.
11. **Authority Consultation**

The EIA will only commence if DEA accepts the Scoping Report and the Plan of Study for the EIA. If relevant, the necessary revisions will be made to the aforementioned documents if requested by this Department.

An authorities meeting will be scheduled during the EIA public participation process to present salient findings. In addition, copies of the Draft EIA Report will be provided to the key regulatory and commenting authorities:

- KwaZulu Natal Department of Economic Development, Tourism & Environmental Affairs;
- AMAFA AkwaZulu Natali;
- KZN Department of Transport;
- KZN Department of Health;
- KZN Department of Cooperative Governance and Traditional Affairs (Cogta);
- Provincial Department of Co-operative Governance & Traditional Affairs– Professional Town and Regional Planner;
- eThekwini Municipality Environmental Health Services;
- eThekwini Municipality – Air Quality Department;
- eThekwini Municipality – Development, Planning, Environmental and Management Department;
- eThekwini Municipality – Traffic Department; and
- eThekwini Municipality – Parks and Cemeteries Department.

The final EIA Report will be submitted to DEA. Any requested amendments will be discussed with the department to ensure that their queries are adequately and timeously attended to.

For the remainder of the Scoping process and EIA the interaction with the DEA will be as follows:

- Submission of the Scoping Report;
- Meet with designated EDTEA Environmental Officer to explain the project and arrange a site visit (if required by EDTEA);
- Address comments on Scoping Report;
- Arrange authorities meeting during the EIA stage;
- Submit EIA Report;
- Address comments on EIA Report; and
- Obtain a decision.
12. Conclusion

Mioroja Projects (Pty)Ltd propose to develop Cato Ridge Crematorium in the Cato Ridge area for the cremation of human remains to alleviate crisis that the eThekwini Metropolitan Municipality is currently facing of limited burial areas/space. The proposed Cato Ridge Crematorium will be located on Portion 8 of Erf 50 Cato Ridge within Ward 1 of the eThekwini Metropolitan Municipality in Kwa-Zulu Natal. The property in which the proposed crematorium activities will be undertaken is zoned for General Industry 2, an application for rezoning of this property to Crematorium will be submitted for approval by the town planner. The proposed facility will be designed to comprise of a chapel, a waiting area, a furnace room with 2 cremators, a gas tank and a cold room. Each of the two furnaces will cremate between 5 – 6 bodies a day.

Miroja Projects is required to obtain an Atmospheric Emissions Licence (AEL) for the proposed activities in terms of NEM: AQA, which therefore requires a full Scoping and EIA process to be conducted. The EIA and scoping process will be conducted in terms of the requirements of the EIA regulations (GNR No. 326) published under the National Environmental Management Act (Act 107 of 1998) (Amended in 2017) (NEMA).

The proposed facility is the preferred alternative from an environmental sustainability, financial feasibility and strategic perspective due to the ideal locality of the site and the use of measures to reduce the facilities dependence on resources.

The crematorium will be housed in an existing building. This site is fully serviced with supporting infrastructure.

Miroja Projects proposes to utilise gas fired furnaces which is favourable in terms of reliability and cost effective.

A comprehensive impact assessment will be conducted to assess the significance of the potential environmental impacts associated with the proposed cremation process. An Air Quality Impact Assessment is being conducted for the proposed Cato Ridge Crematorium so that potential impact that the proposed cremation activities and associated emissions may have on identified receptors can be identified and if needs be mitigated. The findings of the AIR will be included in the EIR which will also be subjected to public participation.
13. Plan of Study for the Environmental Impact Assessment

A comprehensive impact assessment is being conducted to assess the significance of the potential environmental impacts associated with the proposed cremation process. Identified impacts will be addressed through proposed mitigation measures in the report.

The following Specialist Studies are being undertaken for the proposed Cato Ridge Crematorium:

**AIR Quality Assessment**

An Air Quality Impact Assessment is being conducted by Duncan Martin from COEX Environmental Planners (COEX) to develop and Atmospheric Impact Report (AIR) in support of the AEL application for the Cato Ridge Crematorium. The purpose of the AIR is intended to estimate the magnitude of emissions identified in GNR 893 of 2013. The results of this study will be used as input for a dispersion modelling study to investigate the impact of particulate matter released on the receiving environment.

**Social Impact Assessment**

A Social Impact Assessment (SIA) is being conducted by Dr Neville Bew and Associates. The report will cover the environment that may be affected by the project, identifying and describing the potential social issues that are associated with a crematorium and to assess the potentially significant issues that are to be addressed during the SIA.

**Traffic Impact Assessment**

A Traffic Impact Assessment (TIA) was undertaken by Mohamed Kajee from Arup (Pty) Ltd for the proposed project. The report covered the access arrangements, the existing road network, existing intersection controls, existing public transport, pedestrian and cycling facilities and planned transport upgrades that may be affected by the proposed Cato Ridge Crematorium.

13.1. Impact Assessment

Significance scoring assesses and predicts the significance of environmental impacts through the evaluation of the following factors, probability of the impact, duration of the impacts, extent of the impact and the magnitude of the impact. The significance of the environmental impacts is then assessed considering any proposed mitigations. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Each of the above impact factors have been used to assess each potential; impact using ranking scales.

Unknown parameters are given the highest score (5) as significance scoring follows the Precautionary Principle. The Precautionary Principle is based on the following statement. When the information available to an evaluator is uncertain as to whether or not the impact of a proposed development on the environment will be adverse, the evaluator must accept as a matter of precaution, that the impact will be detrimental. It is a test to determine the acceptability of a proposed development. It enables the evaluator to determine whether enough information is available to ensure that a reliable decision can be made.

This section provides an indication of potential positive and negative environmental impacts associated with the proposed development.
31.2. Methodology Used for the Risk Assessment

Table 6: Risk Assessment

<table>
<thead>
<tr>
<th>Duration</th>
<th>Magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent</td>
<td>5</td>
</tr>
<tr>
<td>Long Term (Ceases with op. life)</td>
<td>4</td>
</tr>
<tr>
<td>Medium Term (5-15 years)</td>
<td>3</td>
</tr>
<tr>
<td>Short Term (0-5 years)</td>
<td>2</td>
</tr>
<tr>
<td>Immediate</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale / Extent</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>International</td>
<td>5</td>
</tr>
<tr>
<td>National</td>
<td>4</td>
</tr>
<tr>
<td>Regional</td>
<td>3</td>
</tr>
<tr>
<td>Local Area</td>
<td>2</td>
</tr>
<tr>
<td>Site Only</td>
<td>1</td>
</tr>
</tbody>
</table>

Formula for Significance Scoring

$$SS = (Magnitude + Duration + Scale) \times Probability$$

Table 7: Significance Scoring (Negative Impact Results)

<table>
<thead>
<tr>
<th>Low significance (&lt;30 significance points)</th>
<th>Low environmental significance</th>
<th>Impacts with real little effect and which should not have an influence on or require modification of the project design.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium significance (31-59 significance points)</td>
<td>Moderate environmental significance</td>
<td>An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless mitigated.</td>
</tr>
<tr>
<td>High significance (&gt;60 significance points)</td>
<td>High environmental significance</td>
<td>An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.</td>
</tr>
</tbody>
</table>

Table 8: Significance Scoring (Positive Impact Results)

<table>
<thead>
<tr>
<th>Low significance (&lt;30 significance points)</th>
<th>Low environmental significance</th>
<th>Impacts with real little positive effect and which should not have an influence on or require modification of the project design.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium significance (31-59 significance points)</td>
<td>Moderate environmental significance</td>
<td>A positive impact or benefit which is sufficiently important to which could have an influence on the decision taking into consideration set mitigation measures.</td>
</tr>
<tr>
<td>High significance (&gt;60 significance points)</td>
<td>High environmental significance</td>
<td>A positive impact which could influence the decision in a positive way about whether to proceed with the project regardless taking into consideration set mitigation measures.</td>
</tr>
</tbody>
</table>
13.3. Potential environmental aspects and impacts associated with the facility

The following environmental aspects and impacts associated with the proposed facility have been identified and will further be assessed during the impact assessment phase and mitigation measures will be developed to manage the impacts.

13.3.1. Potential Impacts Foreseen During the Operational Phase

13.3.1.1. Potential Traffic Impacts

As the proposed crematorium will host memorial services there will be a possibility for a slight increase in traffic to and from the crematorium site. Additionally, an increase can be expected as a result of more clients. An increase in traffic could cause short term disruptions in current road users. These impacts are foreseen to be insubstantial.

13.3.2. Impact on Air Quality

13.3.2.1. Air Quality Odours

During the cremation process, it can be expected that odours will be emitted from the crematorium. The impact is expected to be low. The impact odours will have on the community and businesses with a 5km radius is expected to be low due to the fact that the proposed crematorium will be established in an industrial area. A complaints register will be kept at the crematorium to be lodged.

The risk of the proposed activities is expected to be negligible after the proposed mitigation measures are implemented.

13.3.3. Potential Noise Impact

Increased noise levels may be a nuisance factor to the adjacent businesses. Maintenance activities, traffic and operation of the crematorium may lead to increased noise levels. It must however be noted that the crematorium is situated within an industrial area. Thus, the risk of noise impacts is expected to be low. However, management is directed to conduct any activities that may result in excessive noise levels during day time. The risk of the proposed activities is expected to be insubstantial if the proposed mitigation measures are implemented.

13.3.4. Visual Impacts

During the incineration process smoke will be emitted from the stacks from time to time. This is as a result of incomplete combustion at the start of the cremation. Smoke emitted from the stacks will lead to visual impacts. However, the proposed crematorium is located within an industrial area. There will be a complaint register to lodge complaints. The proposed crematorium management will have emergency procedures in place should one of the burners fails. Maintenance will be done on a regular basis to ensure burners are functioning optimally.
13.3.5. Fire Risk

Potential fires can arise should one of the cremators malfunction. The proposed crematorium will have appropriate fire management procedures in place to deal with fire risks. The risk of a fire is expected to be low significance after the proposed mitigation measures are implemented.

13.4. Proposed mitigation measures to be applied

The following mitigation measures are proposed to manage the proposed cremation activities at the site in order to prevent and mitigate potential environmental impacts:

- Install appropriate stack emission equipment in order to adhere to the national standards;
- Develop and implement a maintenance plan to ensure that emissions abatement equipment remains in good working condition;
- Air quality monitoring must be undertaken in terms of the AEL requirements.

Please note that the above-mentioned mitigation measures are preliminary and that a comprehensive EMPr will be generated. The EMPr will contain details of the aspects, impacts and proposed mitigation measures to manage the proposed activities.
14. References


APPENDIX A

Appendix A 1 – EAP’s Declaration

Appendix A 2 – EAP’s Curriculum Vitae
Appendix A 1

EAP’s Declaration
Appendix A 2

EAP’s Curriculum Vitae
APPENDIX B

Appendix B 1 – Background Information Document

Appendix B 2 – Proof of Distribution to Respective I&Ps

Appendix B 3 – I&AP Database

Appendix B 4 – Proof of Site Notices
Appendix B 1

Background Information Document (BID)
Appendix B 2

Proof of Distribution of BIDs to respective I&APs
Appendix B 3

Interested and Affected Parties (I&APs) Data Base
Appendix B 4

Proof of Site Notices
APPENDIX C

Appendix C 1 – Presentation of Proposed Cato Ridge Crematorium with Stakeholders

Appendix C 2 – Minutes of Presentation held on the Proposed Cato Ridge Crematorium

Appendix C 3 – Register of Attendees that attended Presentation of the Proposed Cato Ridge Crematorium
Appendix C 1

Presentation of Proposed Cato Ridge Crematorium with Stakeholders
Appendix C 2

Minutes of Presentation held on the Proposed Cato Ridge Crematorium
Appendix C 3

Register of Attendees that attended Presentation of the Proposed Cato Ridge Crematorium