

**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME
(EMPR)
FOR IZOTSHA MULTICULTURAL CREMATORIUM
WITHIN IZOTSHA MEMORIAL PARK,
UGU DISTRICT**

DC21/0001/2019

**PREPARED FOR APPLICANT:
RAY NKONYENI MUNICIPALITY**



Prepared by:



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Environmental Management Programme for Izotsha Multicultural Crematorium	July 2019

		Date	Signature
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Contents

1	INTRODUCTION.....	4
1.1	Contact Details	6
2	THE ENVIRONMENTAL PROCESS	6
3	LEGISLATION.....	7
4	PARTIES INVOLVED	7
4.1	PROJECT MANAGER / ENGINEER (PM / E)	7
4.2	CONTRACTOR (C)	7
4.3	ENVIRONMENTAL CONTROL OFFICER (ECO).....	8
4.4	LOCAL COMMUNITY	8
4.5	PUBLIC.....	8
5	PROJECT DETAILS.....	8
6	RECORD KEEPING.....	9
7	COMPLIANCE AND PENALTIES.....	9
8	AMENDMENTS TO THE EMPr.....	10
9	SIGNING OF THE EMPr	11
10	RECOMMENDATIONS	Error! Bookmark not defined.
11	PROCEDURE.....	11
11.1	PRE-CONSTRUCTION PHASE	11
11.2	THE CONSTRUCTION PHASE: RESPONSIBILITIES AND GENERAL MATTERS	11
11.3	ACTIVITY.....	11
11.4	MANAGEMENT/MITIGATION MEASURES	11
11.5	RESPONSIBILITY.....	11
11.6	FREQUENCY/TIMING.....	12
A.	PRE-CONSTRUCTION PHASE	13
12	A2.1 Routing.....	13
B.	CONSTRUCTION PHASE.....	21

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

1 INTRODUCTION

Isolendalo Environmental Consulting has been appointed on behalf of the project developer, Ray Nkonyeni Municipality to undertake an Environmental Impact Assessment (EIA) and the compilation of the Environmental Management Programme for the proposed development of Izotsha Multicultural Crematorium within Izotsha Memorial Park in UGU district municipality, KwaZulu Natal.

PROJECT BACKGROUND

Ray Nkonyeni Municipality (RNM) is proposing to construct a new crematorium facility at the existing Izotsha Memorial Park of which the total development footprint is 7154.3 square meters. The Crematorium facility will include the incineration machinery and associated infrastructure as listed below;

- 2 Halls
- 1 Antechamber
- 1 Administrative Block
- 1 Ablution Block
- 1 Remembrance Garden
- 44 Parking Bays

The Multi-Cultural Crematorium will be located within the Izotsha Memorial Park in Ward 19 of the Ray Nkonyeni Local Municipality under the UGU District area in Kwa-Zulu Natal.

TRIGGERED LISTED ACTIVITIES

The proposed development has triggered activity of GNR 983 of the EIA Regulations, 2014 as amended

Listing Notice 1

- **Activity 12**

The development of buildings exceeding 100 square meters where such development occurs;

(a) within a watercourse

- **Activity 19**

The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 100 cubic metres from

(i) a watercourse;

Listing Notice 2

- **Activity 6**

The Cremation of human remains, companion animals (pets) and the incineration of veterinary waste.

1.1 Contact Details

Below are the details of the project team including the developer, EAP, Engineer and Competent Authority.

ORGANISATION/COMPANY	ROLE	CONTACT PERSON	CONTACT DETAILS
Ray Nkonyeni Municipality	Developer	Mr M. Mbili	10 Connor Street Port Shepstone mm@mm.gov.za
Isolendalo Environmental Consulting	EAP	Mr. WB Nogobela	19 Valley Road Margate, 4275 Tel: 039 315 0437 Cell: 083 408 5737 wnogobela@isolendalo.co.za
Department of Economic Development, Tourism and Environmental Affairs	Competent Authority: Compliance and Monitoring section	Ms. G Mhlanga	46 Bisset Street Port Shepstone 4240 Glorious.mhlanga@kznedtea.gov.za

2 THE ENVIRONMENTAL PROCESS

In accordance with the Integrated Environmental Management Guidelines published by the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) in 2014 as amended, the purpose of an Environmental Management Programme (EMPr) is *“to describe how negative environmental impacts will be managed, rehabilitated, monitored and how positive impacts will be maximized”*. It is a detailed plan of action prepared to organise and coordinate environmental mitigation, rehabilitation and monitoring so that positive impacts are enhanced, and negative impacts and damage to the environment are avoided, minimised or rectified where required.

The objectives of the EMPr are to:

1. Highlight mitigation measures for the impacts of the project activities
2. Encourage good environmental management practices
3. Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project.

4. Ensure that the safety recommendations are complied with.
5. Provide feedback for the continuous improvement in environmental performance.
6. Serve as a framework for the acceptable implementation of environmental and social initiatives.
7. Be able to stand as a structure which addresses the relevant concerns of the public regarding the development.

This EMPr informs the developer of his duties with reference to the prevention and mitigation of environmental impacts caused by construction and operational activities associated with the project. Should the Developer be permitted to begin construction of the crematorium, it will be his responsibility to ensure implementation of recommended mitigation measures as approved and directed by the DEDTEA.

3 LEGISLATION

Environmental legislation applicable to the formulation of an EMPr includes but is not restricted to the following:

1. Environment Conservation Act (Act No. 73 of 1989)
2. National Environment Management Act (Act No. 107 of 1998)
3. National Water Act (Act No. 36 of 1998)
4. National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).
5. In terms of the above, all regulations framed there under and amendments there to.
6. The relevant Municipal norms and standards

4 PARTIES INVOLVED

4.1 Project Manager / Engineer (PM / E)

The Project Manager / Engineer are the administrators of the project acting in line with requirements and scope of work from the developer. The engineer is responsible for all direct communication with the contractor.

4.2 Contractor (C)

The main Contractor(s) appointed by the developer for the construction of the road and any other associated works, or portion of the Project. The main Contractor(s) is required to adhere to the EMPr and is responsible to ensure that all sub-contractors, suppliers and staff appointed by them also adhere to the EMPr.

4.3 Environmental Control Officer (ECO)

An independent Environmental Assessment Practitioner appointed by the Developer to act on behalf of the Developer in matters concerning the day-to-day implementation of the EMPr and for liaison with the Engineer and Contractor. The ECO must monitor this development on a regular basis during the construction and rehabilitation phases to ensure compliance with the EMPr. Non-compliances identified must be communicated with the Project Manager (PM), Contractor and Developer with open channels of communication and liaison between these parties. Reports are to be compiled by the ECO which must include photographs taken during inspection and must be submitted to the Project Manager and Developer monthly.

4.4 Local Community

The neighbouring properties consist of business owners and will be informed of the environmental impact assessment process through the use of site notices and will be informed of the construction through the use of site notices prior to commencement.

4.5 Public

Any individual or group concerned with or affected by the Project and its consequences, including the local community, local, regional, and national authorities, investors, workforce, customers, consumers, environmental interest groups, and the general public. An advertisement informing the public of the proposed development will be published in the South Coast Herald.

5 SITE DETAILS

Ray Nkonyeni Municipality (RNM) is proposing to construct a new crematorium facility at the existing Izotsha Memorial Park of which the total development footprint is 7154.3 square meters. Izotsha Memorial Park is situated within the Izotsha area near Shelley Beach in the Ray Nkonyeni Municipality, KwaZulu-Natal. This area is approximately 300 m from the Izotsha Road to the east and 400 m away from the R61. The land uses surrounding the project area consist of natural coastal vegetation as well as an established memorial park. There are 19 gum trees that are within the development area that will require removal. The development falls within the Hb93 and Fa603 land types. The geology of Hb93 land type is mainly quaternary sand of the Berea Formation, with small areas of sandstone of the Natal Group, tillite of the Dwyka Formation and granite. The geology of Fa603 land type is mainly tillite of the Dwyka Formation, with small areas of shale of the Pietermaritzburg Formation, Ecca Group and dolerite. The Hb93 land type is dominated by the midslope landscape position. The soils in the midslope land position are expected to be dominated by Villafontes, Hutton, and Glenrosa soil forms. The valley bottoms should be dominated by the Katspruit soil form.

The Fa603 land type is dominated by the crest and mid slope landscape positions. The soils in the crest and mid slope land positions are expected to be dominated by Cartref and Glenrosa soil forms. The valley bottoms should be dominated by the Katspruit soil form. The project area is situated across one vegetation type; KwaZulu Natal Coastal Belt Grassland.

6 RECORD KEEPING

An Environmental Control Officer must be appointed to monitor implementation of the EMPr. All reports by the ECO and copy of the EMPr must be kept on site.

7 COMPLIANCE AND PENALTIES

The duration over which the Contractor's controls shall be in place cover the construction period of the project as well as the limited time after the contract completion in the General Conditions of Contract, and the project specifications, as the defects liability period.

The Developer/Contractor is deemed not to have complied with the EMPr if:

1. There is evidence of contravention of clauses with the boundaries of the site, site extensions, access roads and ecologically sensitive areas;
2. Environmental damage occurs due to negligence;
3. The contractor fails to comply with corrective or other instructions issued by the Project Manager or Engineer or Environmental Control Officer within a specified time frame;
4. The contractor fails to respond adequately to complaints from the public or local community.

The Contractor must act immediately after a notice of non-compliance is received and correct the cause for the issuing of the notice. Application of a penalty clause will apply for incidents of non-compliance. The penalties imposed per incident or violation will be as follows:

Incident / Violation	Penalty
Failure to stockpile material correctly	R 2 500
Pollution of water bodies	R 8 000
Failure to control storm water runoff	R 3 000
Failure to provide adequate sanitation	R 5 000

Unauthorized clearing / removal of vegetation	R 5 000
Failure to provide adequate waste disposal facilities and services	R 15 000
Failure to reinstate disturbed areas within specified time period	R 5 000
Failure to rehabilitate disturbed areas within 3 months of completion	R 7 000
Any other contravention of the environmental specification	R 2 000

The imposition of such a penalty will not preclude the relevant provincial authority from applying an additional penalty in accordance with statutory powers.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as deemed fit. The polluter-pays principle applies.

The “polluter-pays” principle provides that “the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment. NEMA imposes a duty of care on every person who causes, has caused or may cause significant pollution or degradation of the environment is authorised by law or cannot reasonably be avoided, NEMA requires that the pollution be minimised and rectified.

Furthermore, NEMA makes provision for damages to be awarded by the courts where loss or damage has occurred as a result of a contravention of certain environmental statutes. For example, offences under the National Water Act No. 36 of 1998 and the Environmental Conservation Act No. 73 of 1989 may result in penalties being imposed in terms of NEMA. Importantly, NEMA provides for the liability on conviction of employees, managers, agents and directors for any offences resulting from the failure to take all the reasonable steps that were necessary under the circumstances to prevent the commission of an offence.

8 AMENDMENTS TO THE EMPr

Any amendments to the EMPr must be in accordance with regulation 32 of EIA regulations 2014, as amended. Any amendments will require approval from Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) and/or Department of Water and Sanitation (DWS). A confirmation letter from the relevant Competent Authority (CA) approving the amendments to the EMPr must be attached as addenda.

9 SIGNING OF THE EMPr

The acknowledgement form at the back of the EMPr is to be signed by the Developer and Contractor.

10 PROCEDURE

10.1 Pre-construction Phase

A pre-construction meeting will be conducted with the professional team to understand the contents of the EMPr and address any arising issues prior the commencement of construction activities. The requirements of the EMPr must be incorporated into any tender/contract documents by way of specific clauses that convey the impact and mitigation required. These clauses are to be agreed between the responsible professional members of the team and the environmental consultant.

10.2 The Construction Phase: Responsibilities and General Matters

Miscellaneous environmental matters and the relationships between the Contractors, ECO and the other members of the professional team are outlined in this section.

10.3 Activity

This section highlights the various aspects or impacts related with the project i.e. the Applicant / Contractor's activities that will interact with the environment.

10.4 Management/Mitigation Measures

This section in the table indicates the actions required to either prevent and / minimize the potential impacts on the environment that is associated with the project

10.5 Responsibility

The section indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr. Formal responsibilities are necessary to ensure that key procedures are executed.

10.6 Frequency/Timing

This section indicates when and/how often the actions for that specific aspect must be implemented and /or monitored.
Environmental Audits shall be undertaken at least once a month until the construction is complete.

A. PRE-CONSTRUCTION PHASE



Activity	Management / Mitigation	Responsibility	Frequency / Timing
A1 - Legislation, permits, agreements and EA requirements	All members of the project team must adhere to all environmental legislation relevant to the project as highlighted in Section 3.	All	Pre-, during and post construction.
	<ol style="list-style-type: none"> 1. The EMPr and Environmental Authorisation must be kept on site at all times. 2. All members of the project team must be provided with adequate environmental training. 3. Any and all mitigation measures that must be set up prior construction must be implemented. 4. Monitoring and control programmes must be put in place to manage alien invasive plants. 5. The working area is to be clearly demarcated and all construction work is to be kept within the demarcated area. 	All	Ongoing
A2 - Access to site <i>Sound environmental principles must be followed</i>	11 A2.1 Routing		
	1. Existing access road through Izotsha Memorial Park will be utilised. Movement of vehicles within the site must be limited to access route and disturbed areas to avoid creating new disturbances.	ECO, C & PM	Prior to moving onto site and during construction
A3 - Setting up the construction camp <i>Careful planning of the construction camp can ensure that time and costs associated with environmental management</i>	A3.1 Layout & Location	E / C / PM / ECO	During surveys and preliminary investigations and prior to moving onto site
	a. Area that is selected as the site camp must not be not less than 500m away from a floodplain or watercourse and at least 100m away from any wet areas on the site.		
	b. The area used for site camp including laydown areas must be kept neat at all times.	E / C / PM / ECO	During site establishment
	A3.2 Ablutions		
	a. Temporary chemical toilets must be provided by a company approved by the Engineer.	PM / C / ECO	During set-up
	b. The construction of a "long-drop" is forbidden.	E / PM / ECO	On-going

<p><i>and rehabilitation are reduced.</i></p>	<p>c. A service plan for the maintenance of the toilets must be provided by the Contractor and is to be approved by the Engineer and ECO to ensure toilets are properly serviced and hygienic.</p>		
	<p>A3.3 Provision for Camp Waste Disposal</p>		
	<p>a. Bins and / or skips must be provided at convenient intervals for the disposal of waste within the camp. The bins must be covered. Bins must have liner bags for efficient and safe disposal of waste.</p>	<p>PM / C / ECO</p>	<p>During site set-up and on-going</p>
	<p>b. Recycling and the provision of separate waste receptacles for different types of waste must be done. Where possible, plastics, paper, glass and cans must be separated from other domestic waste for recycling. If waste is to be recycled, appropriately labelled waste receptacles must be made available.</p>		
	<p>c. Any potentially hazardous containers must be punctured or disabled prior to disposal.</p>		
<p>A4 – Establishing Equipment Lay-Down & Storage Areas <i>Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully.</i></p>	<p>A4.1 – General Substances and Materials</p>		
	<p>a. Location for equipment lay-down and storage areas must be located within previously disturbed areas for this project.</p>	<p>PM / E / C / ECO</p>	<p>During site set-up</p>
	<p>b. Fire extinguishers must be present at all storage facilities.</p>		
	<p>c. Storage areas must be secure so as to minimise the risk of crime. They must be safe from access by children and animals etc.</p>		
	<p>A4.2 – Hazardous Substances and Materials</p>		
<p>a. Storage areas for hazardous substances or materials must be fenced and access controlled.</p>			

<p><i>Hazardous substances are those that are potentially poisonous, flammable, carcinogenic, or toxic. Some examples are: diesel, petrol, oil, bitumen, cement, solvent based paints, lubricants, explosives, drilling fluids, pesticides, herbicides, LPG.</i></p>	<p>b. These storage facilities must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas to ensure that accidental spillage does not pollute local soil or water resources.</p>	<p>PM / E / C / ECO</p>	
	<p>c. Material Safety Data Sheets (MSDSs) must be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information regarding impacts and measures to minimize negative environmental impacts during accidental releases or escapes.</p>		<p>Ongoing</p>
	<p>d. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures. The Contractor must ensure that its staff is made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing / equipment in case of spillages or accidents and have received the necessary training.</p>		<p>During construction</p>
	<p>e. All concrete mixing must take place on a designated, impermeable surface.</p>		
<p>A5 – Education of site staff on general and environmental conduct <i>These points need to be made clear to all staff on site before the project begins</i></p>	<p>A5. 1 – Education</p>		
	<p>a. The Contractor must ensure that all site personnel have a basic level of environmental awareness training and toolbox talks. Environmental awareness posters must be used on site.</p>	<p>PM / C / ECO</p>	<p>During staff induction and on-going</p>
	<p>b. Staff operating equipment shall be adequately trained and sensitized to any potential hazards associated with their tasks</p>	<p>PM / E / C / ECO</p>	<p>During staff induction, followed by on-going monitoring</p>
	<p>c. The Engineer / ECO must be on hand to explain more difficult / technical issues and to answer questions which may be raised.</p>		

	d. No operator shall be permitted to operate critical items of mechanical equipment without having been trained by the Contractor and certified competent by the Project Management.		
	e. All employees must undergo the necessary safety training.		
	A5.2 – Worker conduct on site	PM / C	

	<p>a. A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following rules:</p> <ul style="list-style-type: none"> a. No alcohol / drugs to be present on site, no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs. b. Prevent excessive noise to minimize disturbances to local residents. c. No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel). d. Bringing pets onto site is forbidden. e. Construction staff are to make use of facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden). No fires to be permitted on site. The use of gas-operated cookers for preparation of food on site must be encouraged. f. Trespassing on private / commercial properties adjoining the site is forbidden. g. Only pre-approved security staff and workers shall be permitted to live on the construction site. h. No worker may be forced to do work that is potentially dangerous or for what he / she is not trained to do. i. The staff conduct rules are described in a separate table of Rules (Section F of the EMP). This is aimed at providing staff with the basic information regarding worker conduct on site) 		<p>During staff induction, followed by on-going monitoring</p>
<p>A6 – Social Impacts</p>	<p>A6.1 Public Participation</p>		

<p><i>It is important to take notice of the needs and wishes of those living or working adjacent to the site. Failure to do so can cause disruption to work and increase cost in the form of delays.</i></p>	<p>a. All Interested and Affected Parties (IAPs) must be notified of the starting date of construction and the proposed duration. Neighbouring businesses will be informed of the construction phase at least 2 months prior to construction commencement.</p>	E / PM / C	Prior to moving onto the site and on-going
	<p>b. Open liaison channels must be established between the developer, the contractors and Interested and Affected Parties (IAPs) such that any queries, complaints or suggestions can be dealt with quickly and by the appropriate person(s). The IAPs can be identified as those that live close by the site, work close to the site, will have their services / infrastructure affected by the project, have a general interest in the project, and / or the ward Councillor in which the construction is taking place.</p>	E / PM	Prior to moving onto site and on-going
	<p>c. Adequate designated parking must be provided for site staff and visitors.</p>	C / PM	Prior to moving on site
	<p>d. A complaints register must be kept on site. IAPs need to be made aware of the existence of the complaints book and the method of communication available to them. Details of complaints must be incorporated into the audits as part of the monitoring process. This must be in carbon copy format, with numbered pages.</p>	C / PM / ECO	On-going
	<p>A6.2 Noise Impacts</p>		
	<p>a. Construction vehicles / machines are to be fitted with standard silencers prior to the beginning of construction. Operating and service standards must be followed as per operating instructions of the vehicles and machines.</p>	E / PM / C	During surveys and Prelim Investigations and site set up.
A8 Soil Erosion	<p>A.8.1 Conservation of Valuable Soil Resources</p>		

<p><i>The stripping of vegetation during preliminary activities on site greatly increases the risk of soil erosion.</i></p>	<p>a. Procedures that are in place to conserve topsoil during the construction phase of the project are to be applied to the set up phase.</p>	<p>E / PM / C / ECO</p>	<p>Throughout the duration of the project</p>
<p>A9 Stormwater</p>	<p>A.9.1 Storm water Damage Prevention</p>		
<p>A.10 Water Quality <i>Incorrect disposal of substances and materials and polluted run-off can have serious negative effects on groundwater quality.</i></p>	<p>A.10.1 Maintenance of Water Quality</p>		
	<p>a. Storage areas that contain hazardous substances must be bunded with an approved impermeable liner.</p>	<p>E / PM / ECO</p>	<p>During site set up.</p>
	<p>b. Vehicle washing and maintenance must be undertaken off-site. In the instance of an emergency mechanical breakdown, the contractor may attempt onsite repairs however it must be done on an impermeable surface and any contaminated soil or material must be disposed of at a registered landfill site.</p>		
	<p>A.12.1 Waste Management</p>		

A.12 Set up of Waste Management	a. The contractor is responsible for the internal collection of refuse and for transporting it to Oatlands landfill site once every week; unless a service agreement is entered into between the contractor and the municipality.	C	During site set up
	b. The excavation and use of rubbish pits is forbidden.		
	c. Burning of waste is forbidden ¹	PM / ECO / C	During site set up
	d. Individual skips/bins for different types of waste (e.g. 'household' type refuse, building rubble, etc.) must be provided.	C / PM / ECO	During site set up and on going
A.13 Safety and Security	A.13.1 Fencing / Demarcation		
	a. All necessary signage must be obtained prior to the commencement of construction activities.	PM / C / ECO	On-going.
	A.13.2 Lighting		
	a. Lighting on the construction campsite is to be set out to provide maximum security and to enable policing of the site, without creating a visual nuisance to local residents or businesses.	PM / C / ECO	On-going
	A.13.3 Risks Associated with Materials on Site		
a. All IAPs must be notified in advance of any known potential risks associated with the construction site and the activities on it. Examples of these are blasting, earthworks / earthmoving machinery on steep slopes above houses / infrastructure, risk to residences along haulage roads / access routes.			

¹ A possible exception to this may be that the alien invasive vegetation, which is removed from the site, must be burned to prevent the spread of the plants.

B. CONSTRUCTION PHASE

This pertains to all environmental impacts associated with construction and is not limited to the land on which the Project is located.

It includes the site footprint, construction campsites, access roads and tracks, as well as any other area affected or disturbed by construction activities. The EMPr (particularly the specifications for rehabilitation) is relevant for all areas disturbed during construction. Furthermore, the EMPr considers all secondary impacts on the local community and the public.



As far as possible, the proposed developments must be placed in areas that have already been disturbed, and no further loss of secondary vegetation is permitted. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon (including fencing off the defined Project area);

- Areas of indigenous vegetation, even secondary communities should under no circumstances be fragmented or disturbed further or used as an area for dumping of waste;
- The areas rated as highly sensitive in the Project area as defined in this report must be declared a 'no-go' area during the construction and operational phases and all efforts must be made to prevent access to this area from construction workers, machinery and the general public;

The following areas should be clearly demarcated and all access to the adjoining areas must be restricted;

A 15m wetland buffer zone as determined for the hillslope seep watercourse within the project area for the construction phase.

- The buffer zone must be avoided at all costs; (this cannot be avoided as work will have to be conducted within the watercourse)
- Where possible, existing access routes and walking paths must be made use of, and new routes limited;
- All laydown, storage areas etc must be restricted to within the Project area;
- A qualified environmental control officer must be on site when construction begins to identify species that will be directly disturbed and to relocate fauna/flora that is found during construction (including all reptiles and amphibians);
- Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species.
- The accompanying stormwater management plan must be implemented during the construction. (A stormwater plan has been included in this Final BAR)

Activity	Management / Mitigation	Responsibility	Frequency / Timing
B1 – Access to the site	B1.1 Maintenance of the access		
	a. Access to the site must be controlled and vehicles and staff must only use the demarcated access route through Izotsha memorial park and not create any additional routes.	PM / E	Initial set up and on-going
	b. Contractors must ensure that access road is maintained in good condition by attending to any damage as it occurs.	E / C / ECO	Establish at setup
	c. Construction vehicles must be restricted to demarcated access, haulage routes and turning areas.	PM / C / EC	On-going, and specifically after heavy rain
	d. The construction signs must be placed at the beginning of the project indicating all necessary information such as Contractor and Municipality.	PM / E / C / ECO	
B.2 Maintenance of Construction Camp	B.2.1 Surfaces		
	a. The Contractor must monitor and manage drainage of the campsite.	PM / C / ECO	Weekly inspection

	b. Run-off from the campsite must not discharge into neighbours' properties.		
B.2.2 Ablutions			
	a. Temporary chemical toilets must be provided by a company approved by the Engineer. The toilets must be made available to all staff and must be no closer than 100m from any watercourse. These facilities must comply with local authority regulations, be maintained in a clean and hygienic condition. Their use must be strictly enforced.	C/ECO	On-going
	b. The construction of a "long-drop" is forbidden and Contractor is to ensure that open areas or the surrounding bush are not being used as a toilet facility.	C / ECO	On-going
	c. There shall be a minimum of 1 toilet for every 17 workers and these must be situated no further than 100m from the work front. A toilet must also be provided at campsite.	PM / ECO	On-going
	d. A registered chemical waste company is to be used to remove waste from chemical toilets on site on a regular basis. Proof of toilet service and safe disposal of effluent must be kept on site for each service.	PM / ECO	On-going
B.2.3 Camp Waste Disposal			
	a. The Contractor must ensure that all litter is collected from the work and camp areas daily. The construction area must be cleared of litter, debris (e.g. Cement packets, bitumen residues etc.) and other domestic waste on completion of the day's work.	PM / C / ECO	On-going

	b. Bins and / or skips must be emptied regularly, and waste must be disposed of at a registered landfill site. Waybills for all such disposal are to be kept by the Contractor for review by the ECO/Competent authority.	PM / C / ECO	Daily
B.2.4 Eating Areas			
	a. Eating areas must be regularly serviced and cleaned to ensure the highest possible standards of hygiene and cleanliness.	E / PM / C	Weekly monitoring
	b. All litter throughout the site must be picked up on a daily basis and placed in the bins provided with waste to be separated according to type of waste.	E / PM / C	On-going monitoring
B.2.5 Housekeeping			
	a. The Contractor must ensure that his camp and working areas are kept clean and tidy at all times.	PM / C	On-going
B.3 Staff Conduct	B.3.1 Environmental Education and Awareness		
	a. The Contractor must monitor the performance of the construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, the ECO must be called to the site to further explain aspects of environmental or social behaviour that are unclear.	PM / C / ECO	On-going
B.3.2 Worker Conduct on Site			

	a. The rules that are explained in the worker conduct section must be followed at all times. Non-compliance of these rules could result in the removal of workers by the contractor.	PM / C / ECO	On-going
B4 – Dust / Air Pollution	B.4.1. Dust & Air Pollution		
<i>Main causes of air pollution are dust particles from vehicle movements and stockpiles, vehicle emissions and fires</i>	a. Vehicles travelling to and from the construction site must adhere to the speed limit to prevent excessive dust. A speed limit of 30 km/h must be adhered to on the construction site.	E / C / PM	As directed by Engineer
	b. Construction operational hours must be limited to between 07h00 and 17h00 will reduce congestion and disturbance in surrounding areas and minimize road deterioration and consequent dust creation.	E / C / PM	As directed by Engineer
	c. Access points and other cleared surfaces must be dampened whenever necessary and especially in dry and windy conditions to prevent excessive dust.	PM / C	On-going
	d. Should excessive emissions be observed from vehicles and machines; the Contractor is to have them repaired immediately.	PM / C / ECO	On-going
B5 – Soil Erosion	B.5.1 Topsoil Stripping and Stockpiling		
	a. Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.	PM / C / ECO	As each activity is completed.

	<p>b. Erosion prevention measures must be implemented: Berms and sand bags may be used to contain all sediment whilst energy dissipaters must be constructed at all outflow points. The site must be monitored weekly for any sign of off-site siltation. All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.</p>	E / PM / C / ECO	On-going
B.5.2 Exposed Surfaces			
	<p>a. Side tipping of soil and excavated materials is not be permitted.</p>	E / C / PM	As directed by the Engineer
	<p>b. Storm water control as per the stormwater plan and wind screening through the use of covering stockpiles with plastic sheeting must be undertaken to prevent soil erosion on site.</p>	E / ECO / PM	As directed by the Engineer
	<p>c. There must be no offsite impacts of storm water. A general rule is that the storm water velocity eddies on the site must be the same as the predevelopment area.</p>	E / ECO / PM / C	As directed by the Engineer
	<p>d. In areas where steep slopes are excavated, erosion control measures need to be initiated. Erosion control must include the planting of indigenous vegetation at short intervals to prevent the formation of gullies, the placement of topsoil and hydroseed to encourage grass cover over excavated areas.</p>	E / ECO / PM / C	As directed by the Engineer

	f. A Storm Water Management Plan has been developed by the engineer. Drainage must be controlled to ensure that runoff from the access road will not lead to erosion and offsite pollution of any water resources along the road. The storm water drainage system must not be contaminated by other waste sources generated during construction phase of the development.	PM / E / C / ECO	On-going and as directed by the Engineer
	g. Battering of all banks shall be such that cut, and fill embankments are no steeper than previous natural slopes unless otherwise permitted by the Engineer. Cut and fill embankments steeper than previous ground levels shall be re-vegetated immediately on completion of trimming or shall be protected against erosion using measures approved by ECO and Engineer.	PM / E / C / ECO	Ongoing and as directed by the Engineer
	h. If cut and fill earthworks are required, these must be limited to the minimum necessary for the proposed development. Cut and fill banks must not be sloped steeper than 1: 1.5. All fill must be well compacted in layers on placement and must not be loose end-tipped. No cut or fill slope must exceed 2.5 m vertical height. All earthworks must be vegetated as soon after completion of construction as is practically possible with indigenous vegetation where possible.	E / PM	Directed by the Engineer
	i. All embankments, unless otherwise directed by the Engineer, shall be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.	E / C / ECO	Directed by the Engineer
B6 – Storm Water	B6.1 General Principles		

<p><i>Construction activities frequently result in diversion of natural water flow resulting in concentration of flow and an increase in the erosive potential of the water</i></p>	<p>a. Earth, stone and rubble is to be properly disposed offsite so as not to obstruct natural pathways over the site. i.e. these materials must not be placed in storm water channels, drainage lines or rivers.</p>	<p>E / PM / ECO / C</p>	<p>On-going</p>
	<p>b. The provisions of the National Water Act 36 of 1998 must be complied with at all times.</p>	<p>PM / C / E / ECO</p>	<p>On-going</p>
	<p>c. There must be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.</p>		
	<p>B.6.2 Un-channelled Flow</p>		
	<p>a. Where surface runoff is concentrated (e.g. along exposed tracks), flow must be slowed by contouring.</p>	<p>E / ECO / PM</p>	<p>On-going</p>
<p>B7 – Water</p>	<p>B 7.1 Water Quality</p>		
<p><i>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.</i></p>	<p>a. The Department of Water & Sanitation and the ECO as well as other emergency contact numbers provided by the Municipality must be contacted in order to deal with spillages and contamination. The Contractor is to compile a list of emergency contact numbers to refer to in order to deal with fire, spillages and contamination of land and aquatic environments.</p>	<p>PM / E</p>	<p>On-going monitoring</p>
	<p>b. Chemicals or hazardous substances must not contaminate the soil or ground water on site. A spill kit must be on site at any given time during the construction phase which will be used to mitigate should any contamination occur on site.</p>	<p>PM / E / ECO</p>	<p>On-going monitoring / as the work progresses</p>

	c. Runoff from vehicle or plant washing must not enter surface or ground water. Vehicles and machinery may only be cleaned at a designated place at the construction camp.		
	d. Mixing / decanting of all chemicals and hazardous substances must take place either on a tray or on an impermeable surface.	PM / E / C	
	e. Contaminated wastewater must be managed by the site manager to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp must be collected and removed from the site for appropriate disposal at a licensed commercial facility.	PM / C / ECO	
	f. Site staff shall not be permitted to use any watercourse or natural water source adjacent to the designated site for the purposes of bathing, washing of clothing or for any construction related activities. Municipal water (or another source approved by the Contractor) must instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, compacting etc.	PM / C / ECO	
	g. Dewatering of vessels, tanks, etc is to take place in a controlled manner. No uncontrolled release of water shall be allowed onto the site area. Water wastage is not permitted and where possible water must be recycled.	PM / C / ECO	
B8 – Conservation of the Natural Environment	B8.1 Fauna and Flora		
	a. The Contractor must check that any indigenous vegetation clearing has the prior permission of the ECO.	ECO / PM / E / C	On-going monitoring / as the work progresses

	<p>b. A conservative buffer zone was recommended of 15 m for the construction and operation phases respectively. The buffer zone will not be applicable for areas of the project that traverse watercourse areas, however, for all secondary activities such as lay down yards, storage areas and camp sites, the buffer zone must be implemented.</p>	C / PM / ECO	
	<p>c. Alien vegetation encroachment onto the site as a result of construction activities must be controlled during construction. Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place. Identified alien plants include Chromolaena odorata, Lantana camara, Melia azedarach and Solanum mauritianum (castor oil plant) were noted within the wetland area and must be removed during construction by the contractor, overseen by the ECO.</p>	ECO / PM / E	
B8.2 Geology			
	<p>a. During excavation, the material that is removed must be separated into topsoil and subsoil. The top 150mm would be considered topsoil and must be stockpiled separately.</p>	PM / C / ECO	On-going monitoring
	<p>b. During infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.</p>		
B9 – Materials Management	B9.1 Stockpile Management		

	a. Stockpiles must not be situated such that they obstruct natural water pathways.	PM / C / ECO	On-going monitoring
	b. Stockpiles must not exceed two (2) metres in height unless otherwise permitted by the Engineer or be left for longer than three (3) months.	PM / C / ECO / E	On-going monitoring
	c. Stockpiles must be protected from erosion using appropriate measures for conditions the stockpiles are exposed to which may include construction of berms or low brick walls around their bases.	PM / C / E / ECO	On-going monitoring
	d. Stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding.		
	B9.2 Handling of Hazardous Materials		
	a. Cement, bitumen and other potential environmental pollutants must be mixed on an impermeable surface with special provisions for storm water management.	E / PM / C / ECO	On-going
	b. All empty containers must be removed from the site for appropriate disposal at a licensed facility and must be treated as hazardous waste.		
	c. No vehicles transporting concrete may be washed on site.		
	d. All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of / removed from the site.		

	e. Hazardous substances / materials must be transported in sealed containers or bags.		
	f. The Contractor must provide a method statement for dealing with accidents / spillages of hazardous materials. This statement must be handed to the Engineer as well as ECO.		
B9.3 Sourcing construction materials			
	a. Wherever possible, materials that have been produced locally must be used for the construction of the site camp (e.g. bricks, window frames, etc)	E / C / PM	On-going monitoring
B10 – Waste Management	B10.1 On-site Waste Management		
<i>Definition; “Refuse” refers to all construction waste (such as rubble, cement, bags, timber, cans etc)</i>	a. The Contractor shall ensure that all refuse is collected from the camp and work areas daily.	PM / ECO	Monitored weekly and at the start of the builders holidays
	b. All material used for construction and maintenance must be removed from the site after construction or maintenance work.	PM / ECO	On-going
	c. Refuse must be placed in the designated skips / bins which must be regularly emptied. These must remain within demarcated areas and must be covered to prevent wind-blown rubbish and scavenging by people and animals.	PM / C / ECO	On-going
	d. In addition to the waste facilities within the construction camp, provision must be made for waste receptacles to be placed at intervals along the work front.	ECO / PM / C	On-going
	e. Littering on site is forbidden and the site shall be cleared of litter at the end of each working day.	ECO / PM	On-going

B.10.2 Waste Disposal		
Non – hazardous waste		
a. All waste must be removed from the site and transported to a registered landfill site.	E / PM / ECO	On-going
b. Any construction rubble shall be disposed of at registered disposal sites and waybills retained in the site environmental file.	PM / E / C /ECO	On-going
c. Waste from chemical toilets must be disposed of regularly and in a responsible manner by a registered waste contractor. Waybills must be retained in the site environmental file.	PM / ECO	On-going
Hazardous Waste		
a. Contaminated water associated with construction activities must be contained in separate areas with berms and must not be allowed to enter into the natural drainage system.	PM / C / ECO	On-going
b. Chemical waste must be stored in appropriate containers and disposed of at licensed disposal facilities.	PM / C	On-going
d. Soil that is contaminated with, e.g. cement, bitumen, petrochemicals or paint must be disposed of at a registered hazardous landfill site.	PM / ECO / C	On-going
e. A sump must be created for concrete waste. This is to be de-sludged regularly and the cement waste is to be removed to a tip site as approved by the local authority.	E / PM / ECO	At least 24 hours prior to the activity taking place.
B.11 Social Impacts	B.11.1 Disruption of Infrastructure and Services	

Regular communication between the Contractor and the IAPs is important for the duration of the contract.	a. Contractors activities and movement of staff is to be restricted to designated construction areas.	PM / C	On-going
	b. Should the construction staff be approached by members of the public or other stakeholders, they must provide contact details on which they may contact the Engineer or Contractor of which contact details need to be displayed on the site camp.	E / PM / C	Monthly
	c. The conduct of the construction staff when dealing with the public or stakeholders shall be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the Engineer.	E / PM / C	
	d. Disruption of access for local residents must be minimised and must have the consent of the Engineer.	E / PM / ECO	
	e. The Contractor is to inform neighbours in writing of disruptive activities at least 24 hrs beforehand.	PM / C / ECO / E	
	f. Drivers of construction vehicles must maintain the construction speed limit of 30km at all times.	PM / C	
	B.11.2 Visual Impacts		
b. The site must be kept clean at all times to minimize the visual impact of the site.	PM / C / ECO	As required	
B.11.3 Noise			

	a. Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours.	PM / C / ECO	On-going
	b. Notice of particularly noisy activities must be given to residents adjacent to the construction site. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.	PM / C / ECO	On-going
B.11.4 Communication with Interested and Affected Parties (IAPs)			
	a. The Engineer and Contractor are responsible for on-going communication with those people that are interested / affected by the project.	PM / C / E / ECO	On-going
	b. Queries and complaints are to be handled by: - documenting details of such communications; - submitting these for inclusion in the complaints register; - bringing issues to the Engineers attention immediately; - taking remedial action as per Engineer's instruction.		
	c. Selected staff are to be made available for formal consultation with IAPs in order to: explain the construction process; answer questions.		

C. POST-CONSTRUCTION



Activity	Management / Mitigation	Responsibility	Frequency / Timing
C.1 Construction Camp	C.1.1 Construction Camp Rehabilitation	E / PM / C / ECO	Project completion.
	a. All structures comprising the construction camp must be removed from site.		
	b. The area that previously housed the construction camp must be checked for spills of substances such as oil, paint and fuels, etc. and these must be cleaned up. Quarterly vegetation rehabilitation surveys need to be conducted of the vegetation within the project footprint for a period of at least a year after construction has been completed to assess vegetation regrowth and recovery and an alien invasive plant management plan needs to be compiled and implemented post construction to control current invaded areas and prevent the growth of invasive on cleared area		
	c. All hardened surfaces within the construction camp area must be ripped, all imported materials removed, and the area shall be top-soiled and re-grassed using the guidelines set out in the re-vegetation specification. Any exposed earth should be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil. The cleared surfaces should be re-vegetated with <i>Cynodon dactylon</i> , <i>Sporobolus africanus</i> and <i>Eragrostis curvula</i> .		
	d. The Contractor must arrange the cancellation of all temporary services.		
C2 – Vegetation	C.2.1 Landscaping		

	a. All disturbed areas or areas, which have been engineered for the purpose of the development, are to be rehabilitated with indigenous vegetation such as <i>Cynodon dactylon</i> , <i>Sporobolus africanus</i> and <i>Eragrostis curvula</i> .		
	b. There must be ongoing weeding of vegetated areas especially areas around the wetland and other areas with sensitive vegetation to remove alien plant species.		
C3 – Land Rehabilitation	C.3.1 Land Rehabilitation		
	a. Excavated soil and soil disturbance – excavated soil not used in the development must be disposed of in a designated area as agreed with Engineer. Surfaces must be checked for waste products from activities such as concreting and asphaltting and cleared in a manner approved by the engineer.	E / PM / C / ECO	Project Completion
	b. Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation.	E / PM / C / ECO	Project Completion
	c. All rubble must be removed from the site to an appropriate disposal site as approved by the Engineer. Burying of rubble on site is prohibited.		
	d. The site must be cleared of all litter.		
	e. All embankments must be trimmed, shaped and re-planted to the satisfaction of the Engineer and ECO.	E / PM / C / ECO	

	f. All trimmed and / or compacted areas must be left rough to facilitate binding of topsoil and vegetation.	E / PM / C	
C4 – Water Resource rehabilitation	<p>a. The following are recommendations made in support of the Wetland assessment which is the only water resource on site affected by the proposed development;</p> <ul style="list-style-type: none"> • The wetland system and buffer area must be incorporated into a green area for the development. This must include a commitment to rehabilitate and manage buffer zones to ensure that these areas function optimally; • An infrastructure monitoring and service plan must be compiled and implemented during the operational phase; • An Environmental Control Officer (ECO) must oversee the construction phase of the project. 		
C5 – Materials and Infrastructure	C.4.1 Removal of Barriers, Remediation of Damage		
	a. All material used for building and maintenance must be removed from site after construction or maintenance.	PM / C / ECO	As completed
	b. The Contractor must repair any damage that the construction works has caused to adjacent areas.	PM / C / ECO	Continually as necessary
	c. Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Engineer.	PM / E / C	On completion
	e. All residual topsoil stockpiles must be removed and disposed of as agreed with ECO and Engineer.	PM / E / C	On completion

	f. All areas where temporary services were installed must be rehabilitated to the satisfaction of the Engineer and ECO.	PM / E / ECO / C	On completion
C6 – General	C.5.1 General Remediation		
	a. Temporary road works must be closed and access across these blocked.	E / PM / C	On completion of the construction and maintenance phases.
	b. All areas where temporary services including the borrow pit must be rehabilitated to the satisfaction of the Engineer and ECO.	E / PM / C / ECO	
	c. A Meeting is to be held on site between the Engineer, ECO, and the Contractor to approve all remediation activities and to ensure that the site has been restored to a condition approved by the Engineer and ECO.		

D. OPERATIONAL PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
D1 – Vegetation / Landscape Management	a. All rehabilitated areas will need to be maintained and re-seeded with local indigenous vegetation where necessary on a regular basis.	The Local Municipality	On-going
D2 – Noise Control	a. All vehicles must be in good condition to minimise noise pollution.		
	b. Trees may be planted, or walls built around the property to buffer the noise that is released to the surrounding community.		
D 5.4 Storm water Management	a. The storm water management system implemented as part of the road must be monitored and maintained to ensure continued efficient functionality.		

D 5.5. Solid Waste / Refuse Removal	a. Any waste which is produced from maintenance activities must be appropriately disposed of without any harm to the environment.		
D6 - Soil Erosion	a. The following measures need to form part of the management of the site: 1. Monitoring storm water exit points. 2. Fill in and re-vegetate eroded areas.		
D7 – Management of the Development	a. The development must be controlled to ensure that there are no further damages to the affected environment.		
	b. Local environmental authority must be informed in due time of any intended changes or developments which may affect the environment. Furthermore, the Competent authority may at any point visit the site to monitor whether any further environmental degradation has occurred.		

D. DECOMMISSIONING PHASE

Due to the nature of the activity being a daily functioning crematorium, decommissioning is not anticipated however it is imperative that non-functional structures be removed as soon as possible, and that the site is rehabilitated as soon as possible. If non-functional structures are not needed anymore, and not removed, it must be maintained that they will be used to prevent the environmental degradation of the site.

E: STAFF CONDUCT CONTROL AND INFORMATION SHEET



	<u>ALL STAFF MUST OBEY THE FOLLOWING RULES:</u>
1	DO NOT leave the construction site untidy and strewn with rubbish that will attract animal pests.
2	DO NOT bring your pets to the construction site.
3	DO NOT trespass on private properties not linked to the project.
4	DO NOT carry a weapon on the construction site or in the vehicles transporting workers to and from the construction site.
5	DO NOT set fires unnecessarily.
6	DO NOT cause any unnecessary disturbing noise at the construction camp/site or at any designated worker collection/drop off points.
7	DO NOT drive a construction-related vehicle under the influence of alcohol.
8	DO NOT exceed the national speed limits on public roads or exceed the recommended speed limits in this management plan (where applicable) whilst driving a construction vehicle.
9	DO NOT drive a vehicle that is generating excessive noise (noisy vehicles must be reported and repaired as soon as possible).
10	DO NOT litter along the roadsides, including both public and private roads.
11	DO NOT remove or destroy vegetation at the construction camp/construction site without the prior consent of the Project Manager and Environmental Control Officer.
12	DO NOT tamper with, destroy or remove vegetation from any areas that have been fenced off or marked.

13

DO NOT pollute watercourses, whether flowing or not.

12. ACKNOWLEDGEMENT FORM

Record of signatures providing acknowledgment of being aware of and committed to complying with the contents of this Environmental Management Programme (EMPr), which relates to the environmental mitigation measures for the project outlined below, and the environmental conditions contained in the civil and other construction contract documents.

PROJECT NAME:

IZOTSHA MULTICULTURAL CREMATORIUM, UGU DISTRICT MUNICIPALITY

DEVELOPER / PROPONENT:

Signed: Date:

PROJECT MANAGER:

Signed: Date:

CONTRACTOR:

Signed: Date:

ENVIRONMENTAL CONTROL OFFICER

Signed: Date: