GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: 102 Merriman Street, George 6530
PO BOX: 9087, George , 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

PRE-CONSTRUCTION, CONSTRUCTION AND POST-CONSTRUCTION PHASE

ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE

PROPOSED ESTABLISHMENT OF A CREMATORIUM FACILITY AND ASSOCIATED INFRASTRUCTURE ON ERF 2433, MONTAGUE GARDENS, CITY OF CAPE TOWN MUNICIPALITY, WESTERN CAPE.

APPLICANT:	PLATINUM PRIDE CREMATORIUM CONTACT: MR SYBRAND TEUBES
ENVIRONMENTAL CONSULTANT:	SHARPLES ENVIRONMENTAL SERVICES CC AUTHOR: MR WILLAN ADONIS CONTRIBUTOR: MS JAMIE CLOETE REVIEWER: MS AMEESHA SANKER
DEA & DP PROJECT REFERENCE:	16/3/3/1/A1/20/3027/22
SES REFERENCE NUMBER:	CT24/REMPR/09/22
DATE:	September 2022

CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

Appendix 4 of the EIA Regulations 2014 (as amended 2017).

This Environmental Management Programme has been drafted in accordance with Appendix 4 of the Environmental Impact Assessment Regulations 2014 (as amended 2017). The table below shows how the requirements of Appendix 4 have been included within this Environmental Management Programme.

REQUIREMENTS AS PER APPENDIX 4 OF THE EIA REGULATIONS 2014 (AS AMENDED 2017).	RELATIVE CONTENT WITHIN THIS EMPR.
(1) An EMPr must comply with section 24N of the Act and include— (a)details of– (i)the EAP who prepared this EMPr; and (ii)the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Appendix A - EAP CV
(b)a detailed description of the aspects of the activity that are covered by this EMPr as identified by the project description;	Section 4 - Description of the Activity
(c)a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 4 - Description of the Activity
(d)a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including— (i)planning and design; (ii)pre-construction activities; (iii)construction activities; (iv)rehabilitation of the environment after construction and where applicable post closure; and (v)where relevant, operation activities;	Section 7 - Scope of this EMPr Section 8 - General Environmental Management Section 9 - Environmental Impact Management: Planning and Design Phase Section 10 - Environmental Impact Management: Pre-construction Phase Section 11 - Environmental Impact Management: Construction Phase Section 12 - Environmental Impact Management: Post Construction Rehabilitation Phase & Operational Phase
(f)a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to — (i)avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii)comply with any prescribed environmental management standards or practices; (iii)comply with any applicable provisions of the Act regarding closure, where applicable; and (iv)comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	Section 7 - Scope of this EMPr Section 8 - General Environmental Management Section 9 - Environmental Impact Management: Planning and Design Phase Section 10 - Environmental Impact Management: Pre-construction Phase Section 11 - Environmental Impact Management: Construction Phase Section 12 - Environmental Impact Management: Post Construction Rehabilitation Phase & Operational Phase
(g)the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 15 - Roles and Responsibilities Section 17 - Monitoring, Record Keeping and Reporting
(h)the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 15 - Roles and Responsibilities Section 17 - Monitoring, Record Keeping and Reporting

(i)an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 8 - General Environmental Management Section 9 - Environmental Impact Management: Planning and Design Phase Section 10 - Environmental Impact Management: Pre-construction Phase Section 11 - Environmental Impact Management: Construction Phase Section 12 - Environmental Impact Management: Post Construction Rehabilitation Phase & Operational Phase Section 15 - Roles and Responsibilities
(j)the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 8 - General Environmental Management Section 9 - Environmental Impact Management: Planning and Design Phase Section 10 - Environmental Impact Management: Pre-construction Phase Section 11 - Environmental Impact Management: Construction Phase Section 12 - Environmental Impact Management: Post Construction Rehabilitation Phase & Operational Phase Section 15 - Roles and Responsibilities
(k)the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 15 - Roles and Responsibilities Section 17 - Monitoring, Record Keeping and Reporting
(l)a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 9 - Environmental Impact Management: Planning and Design Phase Section 10 - Environmental Impact Management: Pre-construction Phase Section 11 - Environmental Impact Management: Construction Phase Section 12 - Environmental Impact Management: Post Construction Rehabilitation Phase & Operational Phase Section 15 - Roles and Responsibilities Section 17 - Monitoring, Record Keeping and Reporting
(m)an environmental awareness plan describing the manner in which— (i)the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii)risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 16 - Environmental Awareness Plan Section 15 - Roles and Responsibilities
(n)any specific information that may be required by the competent authority.	

DOCUMENT DETAILS

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DETAILS OF PERSONS WHO COMPILED THIS DOCUMENT:

Role:	Name:	E-Mail Address:	Qualifications:
Author:	Willan Adonis	willan@sescc.net	• MPhil Environmental Management (Cum laude) (SU) • PGD Environmental Management (Cum laude) (SU) • BA Development and Environment (Cum laude) (SU)
Reviewer:	Ameesha Sanker	ameesha@sescc.net	• B. Sc Hons. Environmental Management (UNISA) • B.Sc. Geological Science (UKZN)

Sharples Environmental Services cc Since 1998, SES has been actively engaged in the fields of environmental planning, assessment and management. We advise private, corporate and public enterprises on a variety of differing land use applications ranging from large-scale residential estates and resorts to golf courses, municipal service infrastructure installations and the planning of major arterials. Our consultants have over 20+ years of combined experience and we operate in the Southern, Eastern and Western Cape regions.

WILLAN ADONIS (**Intern Environmental Assessment Practitioner**)- Willan obtained his Masters in Environmental Management from Stellenbosch University. He further holds a PGD in Environmental Management and a BA in Development of Environment. He has gained experience in on-site compliance monitoring and report writing.

AMEESHA SANKER (Senior Environmental Assessment Practitioner) - Ameesha obtained her BSc. In Geological Science (Environmental and Engineering), from the University of KwaZulu-Natal and a BSc. (Hons) in Environmental Management from UNISA. Her experience encompasses more than 9 years' in environmental management, assessments and compliance monitoring, predominantly in the infrastructure, water and sanitation industry.

BETSY DITCHAM (Director and Principle Environmental Assessment Practitioner) - Betsy has a Bachelor of Science Honours Degree in Wildlife Management from the University of Pretoria and a Bachelor of Science Degree (Zoology and Ecology) obtained from the University of Cape Town in 2005. She has 14 years' experience in the environmental field, including environmental assessments, legal compliance, on-site compliance monitoring, cleaner production and business greening and sustainability (carbon and environmental footprinting). In her time as a consultant, she has compiled a number of environment assessments and management plans for both private and governmental clients. Betsy is a director of SES and registered with EAPASA as a certified Environmental Practitioner (EAPSA # 1480).

1. INTRODUCTION

Sharples Environmental Services cc (SES) has been appointed by Ikamva Green Holdings, trading as Platinum Pride Crematorium, to undertake the environmental assessment, in accordance with the National Environmental Management Act, 1998 (Act 107 of 1998), in terms of the Environmental Impact Assessment Regulations, 2014 (as amended 2017), for the Proposed Establishment of a Crematorium Facility on Erf 2433, Montague Gardens, City of Cape Town Metropolitan Municipality of the Western Cape (see Figure 1 & Figure 2).

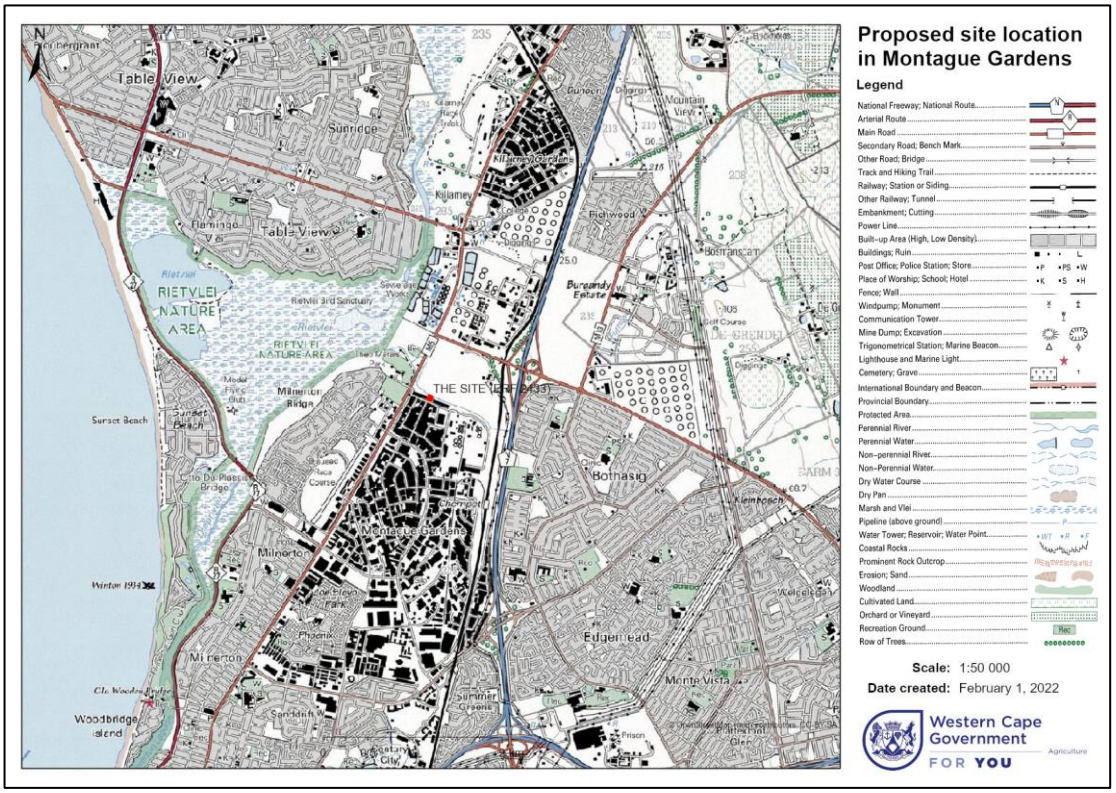


Figure 1: 1:50 000 topographic locality map (SES, 2022)

Figure 2: Locality Map, Erf 2433 in Montague Gardens industrial area, City of Cape Town.

The proposed development site is situated in Montague Gardens Industrial Area, City of Cape Town Metropolitan Municipality, Ward 4, on ERF 2433. The site is approximately 2 506.7m^2 in size, and is zoned as General Industrial Zone I, which does accommodate crematorium facilities. The site contains existing infrastructure, is fenced and has been significantly transformed, with the majority of the site covered with concrete or tar surfaces. A small area to the rear (north) of the site, has not been transformed into a hardened surface. This area is approximately 481m^2, and is predominantly sandy with sporadic vegetation, including alien invasive tree species, and some indigenous vegetation. This area is disturbed and contains building waste and stormwater infrastructure.

For this project to commence into development all relevant permits and licenses, related to construction/refurbishment and operation on site, need to be attained, this include, but is not limited to:

- A Certificate of Competence in terms of the Regulations Relating to the Management of Human Remains (2013), under the National Health Act, 2003 (Act No 61 of 2003).
- An Air Emissions License in accordance with NEM:AQA Section 37, from the City of Cape Town.
- Authorisation in terms of Section 11 of the City of Cape Town Air Quality Management By-law, 2016, to install, alter, extend, replace and operate fuel-burning equipment.
- Approval from the CCT to cremate human remains, in terms of Section 52(1) of the CCT Cemeteries, Crematoria and Funeral Undertakers By-law (2011).
- A Flammable Substance Certificate in terms of the City of Cape Town Community Fire Safety By-law, 2002 (as amended 2015), issued by the CoCTChief Fire Officer.
- In terms of the CCT Wastewater and Industrial Effluent By-law (2013), for disposing wastewater from cleaning of ash trays, the proponent is required to obtain from the CCT:
    - 'Permission to Discharge Industrial Effluent into Sewers' in the case of discharge into the municipal sewers.
    - or in the case of disposal at wastewater treatment works, the proponent must obtain permission to 'Dispose of Wastewater Directly at CCT Facilities'.
- As required by the CCT Environmental Health By -law (2003), for disposal of (solids) incinerator ash and other residual medical waste, the proponent Is required to firstly register on the Western Cape Department of Environmental Affairs and Development Planning's Integrated Pollutant and Waste Information System (IPWIS) and obtain a Waste Information Regulations certificate.

The development of the facility must be undertaken **only after the relevant permits have been obtained** for this activity from the controlling authorities;

2. ABOUT THIS EMPR

This document is intended to serve as a guideline to be used by Ikamva Green Holdings, trading as Platinum Pride Crematorium (as the Implementing Agent) and any person/s acting on behalf of Platinum Pride Crematorium, during the pre-construction, construction, post-construction operational (maintenance) phases of the development. This EMPr provides clear direction on the selection and implementation of appropriate environmental management and control techniques during the life cycle of the development.

In line with the mitigation hierarchy (see Figure 3), the overarching goal of this EMPr is to anticipate and provide measures that must be implemented to ensure that any negative environmental impact that may be associated with the development, is avoided, or where such impacts cannot be avoided entirely, are minimised and mitigated appropriately. The mitigation hierarchy was considered during the BAR planning process, to appropriately manage environmental impacts, without requiring an environmental offset.

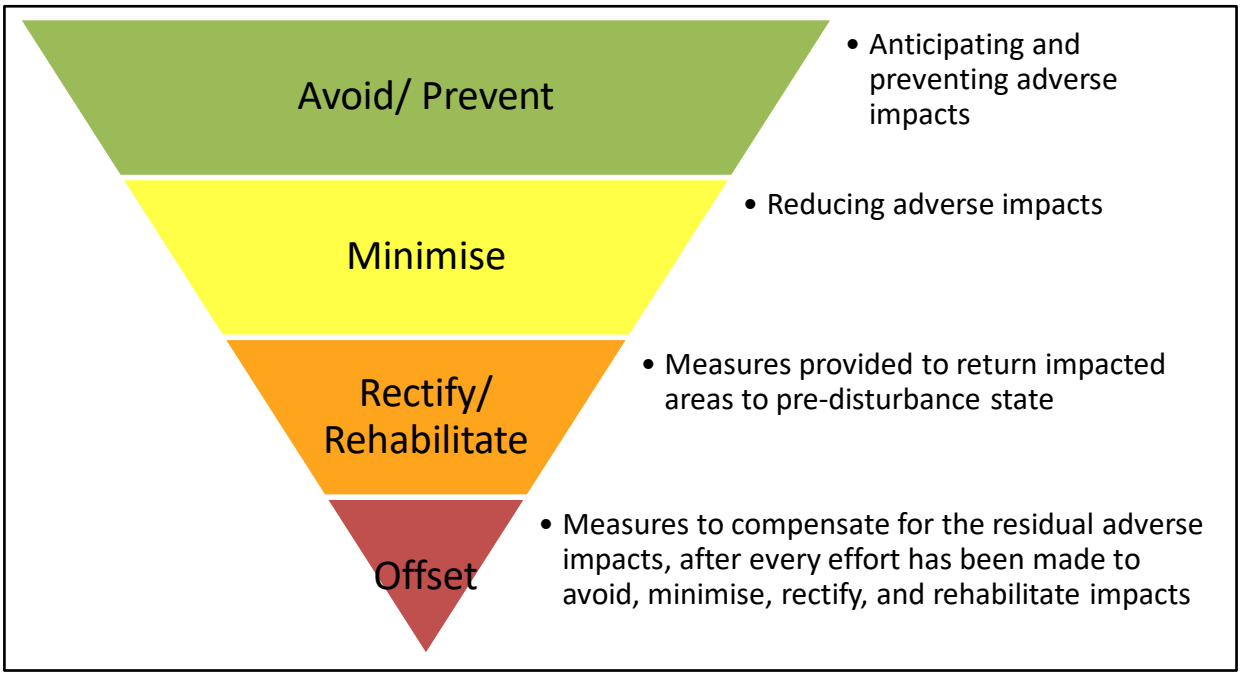


Figure 3: Mitigation hierarchy

This EMPr has been prepared in accordance with the requirements specified in the Environmental Impact Assessment Regulations, 2014 (as amended 2017), and with reference to the "Guidelines for Environmental Management Programmes" published by the Department of Environmental Affairs and Development Planning (2005).

The mitigation, management, and monitoring measures prescribed in this EMPr must be seen as binding to Ikamva Green Holdings, trading as Platinum Pride Crematorium, and any person acting on its behalf, including but not limited to agents, contractors/sub-contractors, employees, associates, guests or any person rendering a service to the development site.

2.1. Important caveat to the report

In the past, some developments have had a devastating impact on the environment even though they had EMPr's in place, while other developments have had a low impact even though no management plans have been compiled.

The Implementing Agent/Proponent and the attitude of the construction and operational team play an integral role in determining the impact that the development will have on the environment. The Proponent needs to ensure that all the role-players are aware of the constraints that this EMPr, and associated Environmental Authorization, places on the development and construction team and are prepared to be actively involved in enforcing these constraints. To ensure that the outcome of this development is sustainable and compliant, will depend on the cooperation, mutual respect and understanding of all parties involved.

3. HOW TO USE THIS DOCUMENT

It is essential that this EMPr be carefully studied, understood, implemented and adhered to as far as reasonably possible, throughout all phases of the proposed development. Ikamva Green Holdings, trading as Platinum Pride Crematorium, must retain a copy of this EMPr, and an additional copy must be kept on site at all times during the pre-construction, construction and post-construction rehabilitation (if applicable) phases of the development.

This EMPr must be included in all contracts compiled for contractors and subcontractors employed by Ikamva Green Holdings, trading as Platinum Pride Crematorium, as this EMPr identifies and specifies the procedures to be followed by engineers and other contractors to ensure that the adverse impacts of construction and maintenance activities are either avoided or reduced. Appointed contractors must make adequate financial provision to implement the environmental management measures specified in this document.

This EMPr must be seen as a working document, which may be amended as and when needed, to accommodate changing circumstances on site or in the surrounding environment, or in order to accommodate requests/ conditions issued by the competent authority, the Department of Environmental Affairs & Development Planning (DEA&DP), Region 1. Amendments to this EMPr must first be approved by the competent authority, in writing, before being implemented.

4. DESCRIPTION OF THE ACTIVITY

Ikamva Green Holdings, trading as Platinum Pride Crematorium, proposes to establish a crematorium facility on ERF 2433, Montague Gardens, an industrial area in the City of Cape Town. The site contains an existing warehouse that is currently used for chemical manufacturing and storage.

4.1. Scope of Works

The proposed scope of works for the establishment of the crematorium includes renovations of the existing warehouse facility, to house:

- Installation of 6 x BA2 cremators (manufactured by Engineered Thermal Systems) and associated infrastructure.
- LPG tanks (fuel source for cremators), stored on site in excess of 80m^3, but less than 500m^3. These storage areas will include the following specifications:
  - The handling, storage, and distribution of liquified petroleum gas will conform to SANS347 and to SANS 10087.
  - Smaller gas vessels will be utilized, filled at more frequent intervals, and will be stored in a designated area outside of the building. The location will be chosen as per the advice of the engineer or fire marshal. Recommended locations include transformed areas of the site, or within the north-western portion of the site, west of the existing extruding stormwater manhole, within the northern natural portion of site, as depicted in Figure 3. This area currently stores construction material and contains alien invasive tree species.
  - The appropriate safety distances applicable to gas fuel installations will be applied.
  - To minimize trespassing and tampering, the vessels will be enclosed by an industrial-type fence of at least 1.8m height.
  - Sufficient, acceptable, portable fire-fighting equipment will be located in close proximity to this storage area.

- 6 x Chimney stacks approximately 0.35m diameter, and approximately 6m's above the nearest building (maximum height is 12m's above ground level.
  - 3 x reefer coolers and one cool room.
  - each reefer can take 60 units, in total with three reefers and one cool room, the business can stockpile.
- Associated infrastructure and services.
- Safety Plans:
  - Compilation of a fire plan and equipment, safety measures;
- Modifications to the inside of the building includes
  - Resurfacing including flooring.
  - New offices.
  - Sterilization of the interior.
  - Servicing of roll-up doors.
- Modifications outside include:
  - New ABR sheets will be utilized on the outside.
  - Painting.
  - Appropriate signage.

Figure 4: Recommended gas vessel storage location.

The crematorium is envisioned to be commissioned in two phases:

- Phase 1, which includes the installation of 2 cremators, and;
- Phase 2, which includes the installation of an additional 4 cremators. Each cremator has the capacity to cremate 24 cadavers in a 24-hour period. This means that the crematorium, after commissioning Phases 1 and 2, will have a maximum cremation capacity of 144 cadavers per day.

4.2. The Technology

The cremators/furnaces utilized are BA2 Cremators and are sourced from Engineered Thermal Systems (Pty) Ltd, which is a South African organization. These cremators are manufactured under a license from Johnson Thermal Engineering (JTE).

The JTE BA2 cremator's design has the following benefits:

- The design has been around for more than a decade.
- Proven track record of successful operation that meets the Air Emission requirements for new plants as specified by the National Environmental Management: Air Quality Act (NEM:AQA).
- Design, manufacturing, testing and commissioning is done in accordance with SANS329 (Industrial Thermo-Processing Equipment) and conforms to SANS347 (Categorization and conformity assessment Criteria for all Pressure Equipment). Adherence to these Standards is required by SASOL and SAGA (South African Gas Association) of which Engineered Thermal Systems is a proud member of.

The cremator set-up has the following benefits:

- All controls arranged for ease of access at maintenance time.
- If managed and operated as per specifications, maintenance is not required for up to 5 years, minimum.
- Equipment is registered with the Safe Gas Equipment Scheme, per SANS requirement.
- The Combustion Air Fan is noise attenuated and located on top of the Cremator roof.
- There is a main shut-off isolation solenoid valve in case of emergencies.
- Contains a primary burner and secondary burner, to optimize incineration process.
- Actuators are accessible so as to control the air supply to the burner and secondary chamber.
- The hydraulic power is also accessible from the rear of the furnace.
- Cremator doors are controlled by two hydraulic cylinders to open and close doors, which also ensures an airtight seal by locking the Cremator door in a door surround seal during the Cremation process.
- The electrical/instrumentation box with PLC and fan VFD is located above the hydraulic power pack.
- The system has an HMI (touchscreen) at the front of the Cremator communicates with the PLC and the HMI affords the Operator full control of the Cremator.

4.3. Summary of Development Sites and Pipeline Route

Province	Western Cape	
Municipality	City of Cape Town Metropolitan Municipality	
Ward number(s)	Ward No 4	
Nearest town(s)	Milnerton	
SG Code	Erf 2433	C01600360000243300000

Co-ordinates of the property boundaries as shown in the adjacent table and figure:

Table 1: Site boundary coordinates

Point	Longitude (S)	Latitude (E)
A	18°31'18.00"E	33°51'3.49"S
B	18°31'19.69"E	33°51'4.11"S
C	18°31'17.29"E	33°51'5.10"S
D	18°31'18.95"E	33°51'5.71"S

Figure 5: Site boundary coordinates.

5. DESCRIPTION OF RECEIVING ENVIRONMENT

This EMPr is informed by three specialist assessments as outlined in the table below.

Table 2: Specialists and specialist studies informing this EMPr

STUDY	*SPECIALIST*	*SENSITIVITY THEME AIMING TO BE ADDRESSED*
Aquatic Compliance Statement	Christel du Preez (BSc, BSc Hons, MSc) of FEN Consulting (Pty) Ltd	Aquatic Biodiversity
Atmospheric Impact Assessment	Ms Caitlin Morris (BSc, LLM) of Yellow Tree	Air Quality
Final Rapid Appraisal Health Impact Assessment	Vumile Ribeiro of Niara Environmental Consultants	Human Health

5.1. Vegetation

According to the SA Vegetation Map (2018), the dominant vegetation type is the Cape Flats Sand Fynbos vegetation type, which is characterized as Critically Endangered, however transformation of majority of the site has been undertaken into hardened surfaces. The site does not contain, nor is it adjacent to any sensitive biodiversity areas.

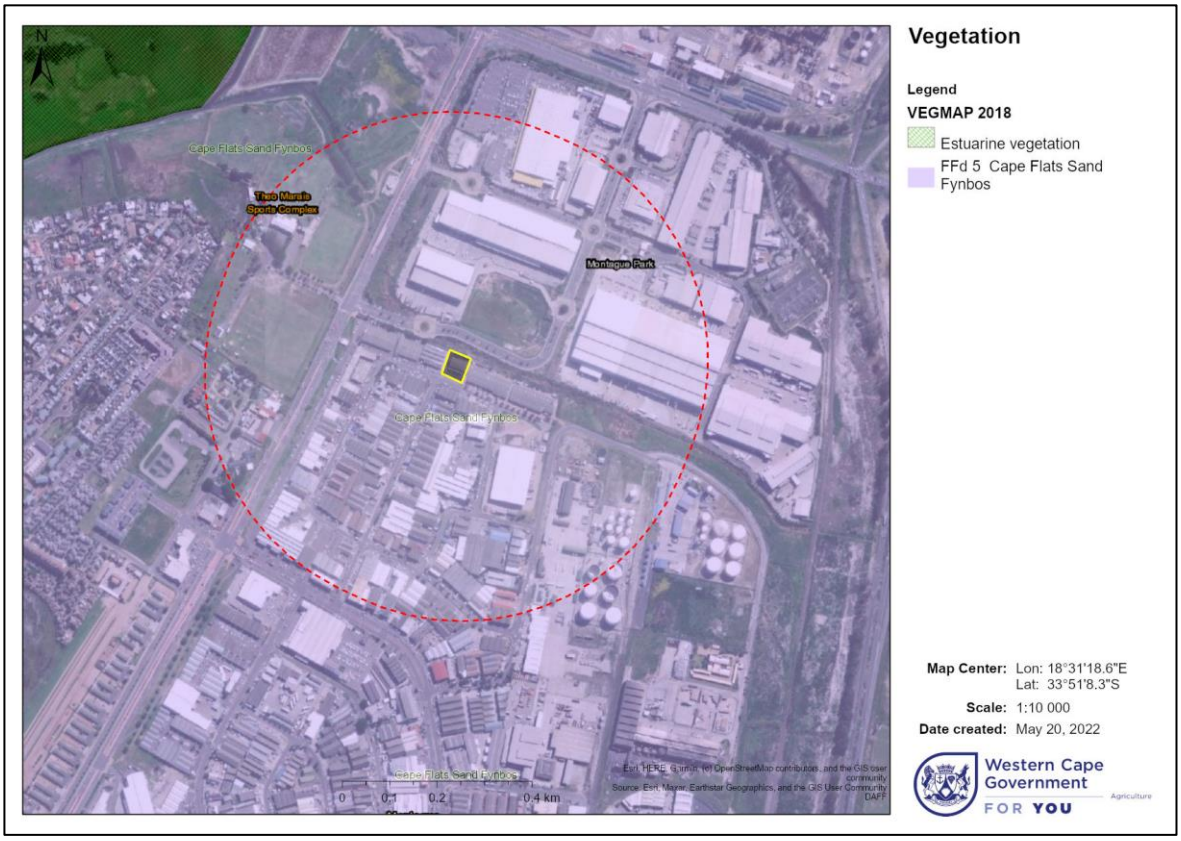


Figure 6: Vegetation Map (CapeFarmMapper, 2022).

A natural area is located within the northern portion of the site, to the rear of the building. The area is dominated by alien invasive species identified as *Acacia saligna* (common name: Port Jackson), existing extruding stormwater infrastructure (manhole) and stockpiled construction debris. Three patches of potentially indigenous *Geraniaceae Pelargonium* was seen in the northern natural portion of the site.

Figure 7: Northern portion of the site, with patches of indigenous species (circled in green) and alien invasive species (circles in red).

In terms of the National Biodiversity Act (10 of 2004: s70), *Acacia Saligna* is a category 1b alien invader that requires compulsory control and must be removed and destroyed as part of invasive species control undertaken by the developer. In terms of Section 28, of the National Environmental Management Act, 1998 (Act 107 of 1998), Duty of Care, the landowner is responsible for the clearance of any potential pollution or harm to the environment. This includes alien invasive species clearance within the site.

5.2. Faunal

The DEA Screening Tool report indicated that the animal sensitivity rating of the site is medium for:

- *Pachysoma aesculapius*: African Dung Beetle.
- *Conocephalus peringueyi* : Peringuey's Meadow Katydid (grasshopper)
- *Bullacris obliqua*: Bladder grasshopper.

While no further action was undertaken, the construction team and Proponent is advised to adhere to all recommended faunal management measures, where necessary.

5.3. Aquatic features

FEN Consulting confirmed that there are no aquatic features located on site, however a riparian watercourse was identified outside the northern boundary of the study area, and a wetland has been confirmed within 500m radius.

Aquatic recommendations included:

- All operational activities must be contained and managed within the existing footprint within the study area. Control measures that must be implemented during the refurbishment and operational phase of the proposed crematorium:
  - No runoff from the study area may be released or enter the stream during both the refurbishment activities and the operational phase.

- All stormwater runoff generated in the study area must be managed in appropriate stormwater management structures and released into the municipal stormwater infrastructure.
- Regular inspection of the stormwater management infrastructure in the study area must be undertaken to ensure proper functioning thereof;
- Suitable dust management practices must be implemented for the duration of the refurbishment activities to prevent dust deposition in the stream that could lead to sedimentation thereof;
- No construction personnel may enter the stream or access the study area along the northern boundary. Access to the study area must be limited to the existing access area along the southern boundary;
- General good housekeeping practices must be implemented during all phases of the proposed development, to ensure limited direct, indirect and cumulative impacts to the stream.

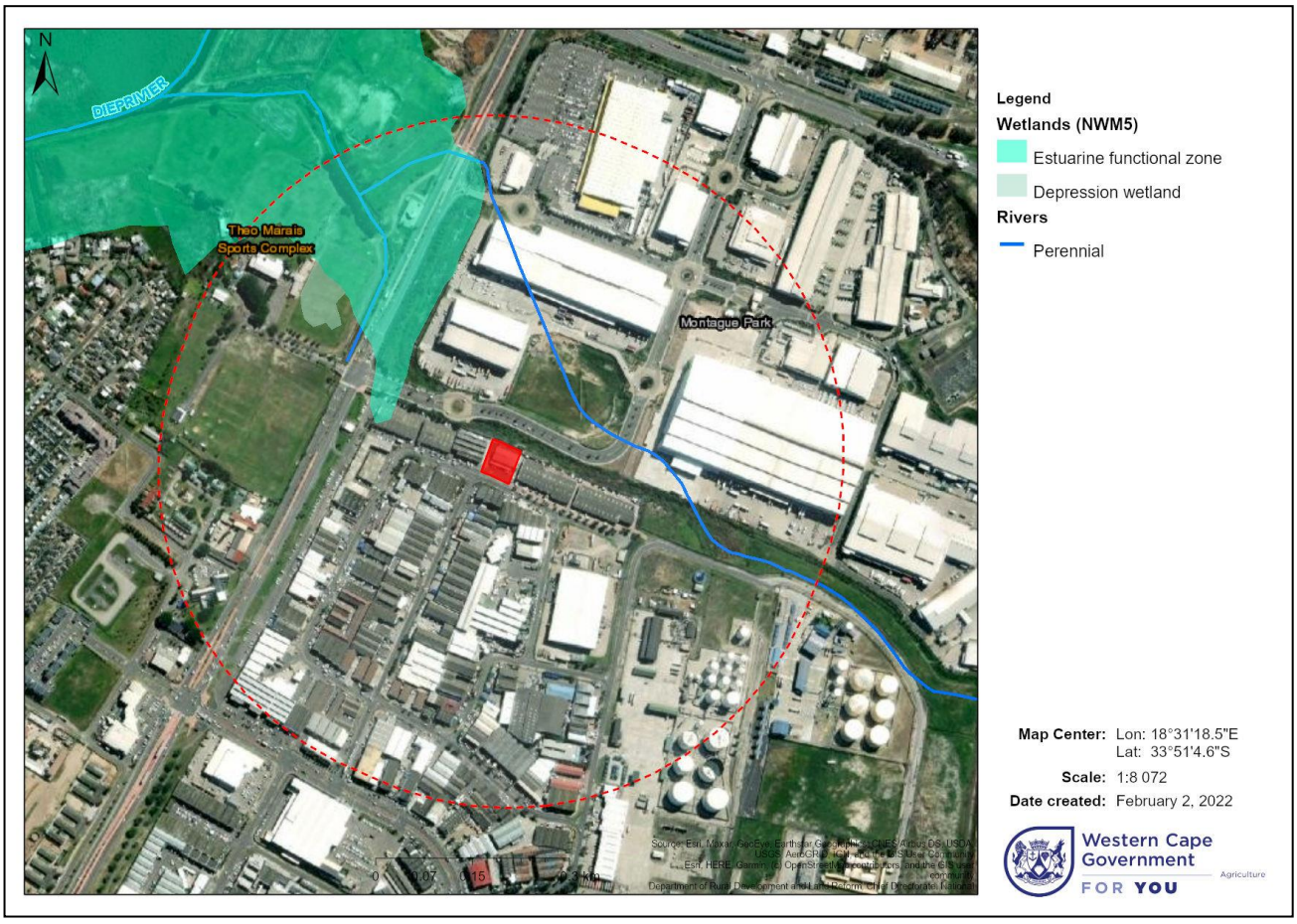


Figure 8: Aquatic features as per CapeFarmMapper.

6. LEGAL FRAMEWORK

6.1. The NEMA, Act No 107 of 1998, as Amended, and the EIA Regulations (2014)

The National Environmental Management Act, 1998 (Act No. 107 of 1998) as per EIA Regulations, 2014 (as amended 2017), gives effect to the Constitution of the Republic of South Africa by providing a framework for co-operative environmental governance and environmental principles that enable and facilitate

decision-making on matters affecting the environment. NEMA requires that an environmental authorisation be issued by a competent authority (CA) before the commencement of an activity listed in the Environmental Impact Assessment Regulations, 2014 (as amended 2017), in terms of the Listing Notices G.N. 324, 325, 326 & 327 published on the 7th of April 2017.

Due to the fact that this development proposal consists of activities listed in the EIA Regulations, Listing Notice 1 and 3, a Basic Assessment Process was required, and the respective reports (Basic Assessment Report and Appendices) were submitted to the DEA&DP, for assessment, before the environmental authorization was issued to the applicant, Ikamva Green Holdings.

The following table indicates the amendments necessary for the new development proposal to be compliant with the latest NEMA Regulations:

Table 3: Listed Activities in terms of the NEMA Environmental Impact Assessment Regulations (2017), as amended, that are proposed to be triggered

Activity #	Listing Notice 1. Description of Activity as per GN No. R 327
14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.
~~Activity #~~	~~Listing Notice 3. Description of Activity as per GN No. R 324~~
Activity #	**Listing Notice 2. (GN No. R325): Scoping & Environmental Impact Reporting**
~~6~~	~~The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent,~~ **excluding–** **(i) activities which are identified and included in Listing Notice 1 of 2014;** ~~(ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;~~ ~~(iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or~~ ~~(iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day~~

Therefore, in summary, the following activities will be applied for:

- Listing Notice 1: Activity 14.
- Listing Notice 2: ~~Activity 6~~ (excluded)

6.2. Other applicable legislation

All relevant licenses and permits must be obtained prior to construction activities as related the various phases of the proposal.

Ikamva Green Holdings, trading as Platinum Pride Crematorium, is responsible for ensuring that all contractors, labourers and any other appointed person/entity acting on their behalf, remain compliant

with the conditions of the received authorisations, as well as the provisions of all other applicable legislation, including *inter alia*:

- National Environmental Management Act (NEMA) (Act 107 of 1998, as amended);
    - NEMA Environmental Impact Regulations (GN NO. R. 982 of 2014) s19, Appendix 4
    - National Environmental Management: Biodiversity Act (Act 10 of 2004);
    - National Environmental Management: Waste Act (Act 59 of 2008);
- National Water Act (Act 36 of 1998), if deemed necessary;
- Occupational Health and Safety Act (Act 85 of 1993);
- National Health Act (Act 61 of 2003)
    - Regulations Relating to the Management of Human Remains, 2013 (GN No. R. 363 of 2013)
    - National Environmental Health Norms and Standards for Premises and Acceptable Monitoring Standards for Environmental Health Practitioners, 2015 (GN. R. 1229 OF 2015)
- National Environmental Management: Air Quality Act (Act 39 of 2004)
    - NEM:AQA National Atmospheric Emission Reporting Regulations, 2015 (GN. No. R. 283 of 2015)
    - NEM:AQA National Dust Control Regulations, 2013 (GN. No. R. 827 of 2013)
- Western Cape Provincial SDF, 2014
- City of Cape Town Municipal Spatial Development Framework, 2018
- City of Cape Town Municipal Integrated Development Plan (2017-2022)
- City of Cape Town Municipal Planning By-law, 2015
- City of Cape Town Air Quality Management By-law, 2016 (as amended 2021)
- City of Cape Town Cemeteries, Crematoria and Funeral Undertakers By-law, 2011
- City of Cape Town Community Fire Safety By-law, 2002 (as amended 2015)
- City of Cape Town Stormwater Management By-law, 2005
- City of Cape Town Wastewater and Industrial Effluent By-law, 2013
- City of Cape Town Integrated Waste Management By-law, 2009 (as amended 2016)
- City of Cape Town Environmental Health By-law, 2003

It is the responsibility of Ikamva Green Holdings, trading as Platinum Pride Crematorium, to ensure that all contractors and employees are aware of their obligations in terms of the above legislation, and to ensure on-going monitoring and compliance with condition of other licenses and permits. This EMPr does not detract from any other legal requirements.

As provided in the BAR, and may be conditioned in the EA, legal requirements may include the obtaining of permits related to the operation of a crematorium and the storage of hazardous goods; these include:

- An Environmental Control Officer must be appointed to monitor the compliance and implementation of the Environmental Management Programme, mitigation measures and the Environmental Authorization conditions.
- Annual emissions sampling from the chimney stacks for PM, CO, NOx and Hg is required as per GN 893 of 2013. More frequent emissions sampling can be specified in the AEL, if the licensing authority sees fit.
- The Applicant is to ensure that all relevant applications are made for compliance purposes related to the operation of a crematorium and storage of hazardous goods, this should include as a minimum:
    - In terms of the National Health Act, 2003 (Act No 61 of 2003), Regulations Relating to the Management of Human Remains, May 2013, the applicant is to apply for an:
        - Exemption, in terms of Chapter 2, from compliance with 18(1)(g) if after monitoring air quality (as specified in the AEL), that exceedances are noted.

Certificate of Competence (application as per Appendix G of this legislation) in respect of Regulation 3(1) from the local authority.

- The applicant is to apply for written authorisation in terms of Section 11 of the City of Cape Town Air Quality Management By-law, 2016, to install, alter, extend, replace and operate fuel-burning equipment (through a separate application process subsequent to the BAR approval).
- In terms of City of Cape Town Cemeteries, Crematoria and Funeral Undertakers By-law (2011), Section 52(1) of the By-law, the proponent must obtain written approval from the COCT to cremate or cause to cremate human remains within any crematorium after obtaining approval of the City and complying with all conditions as determined by the City.
- In terms of Section 53(3) of the By-law, the crematorium facility must be fitted with abatement equipment to prevent the dispersion of ash into the atmosphere.
- In terms of the City of Cape Town Community Fire Safety By-law, 2002 (as amended 2015), an application for a flammable substance certificate must be submitted to the controlling authority, which in this case is the COCT Chief Fire Officer. This is to include:
  - A final layout plan must be provided depicting the location of the Liquified Petroleum Gas (LPG) storage tanks.
  - A screening risk assessment to establish if the facility will constitute a Major Hazard Installation or if additional site-specific mitigation measures are required, for example, a blast wall between the LPG installation and perimeter or closest building, specific location of the LPG tanks on site where they pose the least risk, etc.
  - A fire plan which complies with SANS 10400-T:2020 and the By-Law relating to Community Fire Safety of 2002 will have to be submitted prior to approval from Fire and Rescue Services.
- In terms of the City of Cape Town Wastewater and Industrial Effluent By-law, 2013, for disposing wastewater from cleaning of ash trays, the proponent is required to complete and submit the:
  - 'Permission to Discharge Industrial Effluent into Sewers Application Form' in the case of discharge into the municipal sewers, for authorization by the CoCT.
  - or in the case of transportation and disposal at wastewater treatment works, the proponent must complete and submit the 'Disposal of Waste Water Directly at CoCT Facilities Application Form'.
  - If applicable, for disposal of (solids) incinerator ash and other residual medical waste, the proponent Is required to firstly register on the Western Cape Department of Environmental Affairs and Development Planning's Integrated Pollutant and Waste Information System (IPWIS) and obtain a Waste Information Regulations certificate.
  - In the event of the proposed development discharging any industrial type effluent into the municipal sewers, an application to discharge industrial effluent into municipal sewer system will be required.
  - The business owner will essentially need to apply to Shahied Solomon (Shahied.Solomon@capetown.gov.za) or Molepana Ramonyai (Molepana.Ramonyai@capetown.gov.za) for permission to discharge. These City Officials will be able to guide the developer/owner with regards to the process. This will be undertaken should the environmental authorization be awarded.
- An Air Emissions License in accordance with NEM:AQA Section 37, from licensing authority of the area (City of Cape Town).

- Upon receipt of the Environmental Authorization the proponent will appoint appropriately experience and skilled operators where necessary.

The development of the facility must be undertaken **only after the relevant permits have been obtained** for this activity from the controlling authorities; and the EA holder must ensure on-going monitoring and compliance with the conditions of such permits.

7. SCOPE OF THIS EMPR

This EMPr describes the measures that must be implemented in order to avoid, minimise, manage and monitor the potential environmental impacts of the development, during all phases of the project life cycle, namely:

- Planning and Design Phase
- Pre-construction Phase
- Construction Phase
- Post-Construction Rehabilitation
- Operational Phase

It should be noted that due to the proposed development being accommodated within the existing warehouse on ERF 2433, a brownfield site, construction activity in large part will constitute refurbishment of the existing warehouse, including interior and exterior superficial changes, and installation of equipment within the existing warehouse. Therefore, minimal standard construction activities such as earthworks and building will take place on site.

Each phase has specific impacts or issues unique to that phase of the development activity. General environmental management measures that must be applied throughout the project lifecycle (as and where applicable) are described in Chapter 8 below. Specific management measures that must be implemented to address the associated impacts that may arise during each phase are provided in **Chapters 9-12** of this EMPr. Brief management statements are provided, as well as a description of the desirable impact management outcomes (see Table 4 for summary). An impact management outcome describes the intended objective or end goal of impact management, effected through the implementation of mitigation measures / impact management actions.

Table 4: Summary of the Potential Impacts and Impact Management Outcomes of the Proposed Development.

IMPACT DESCRIPTION	IMPACT STATUS	IMPACT MANAGEMENT OUTCOME
Planning and design phase		
Appointment of ECO and Environmental Auditor	N/A	The requirements of this EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.
Site Layout Plan	N/A	Development is compliant with recommendations of the BAR and this EMPr.
Pre-construction phase		
Working Areas	N/A	Future construction activities will be restricted to within the designated areas & all areas indicated as no-go areas, will be protected from disturbance.

Site camp and site facilities	N/A	Site camp facilities do not impact significantly on environment. The equipment required to implement the provisions of this EMPr are provided on site.
Pre-construction ECO inspection	N/A	ECO confirms that site facilities are appropriately located on site, and construction workers receive environmental awareness training before commencing work on site.
Construction phase		
Sedimentation and Ponding	Negative	Stormwater systems are not impacted significantly.
Pollution and Waste	Negative	The environment (including soil and groundwater) is not contaminated.
Sense of place (noise, dust, and lifestyle)	Negative	The impact on the sense of place caused by the construction of the proposed development is significantly reduced and no notable impacts occur.
Sense of place (visual)	Negative	
Traffic access, congestion, and safety	Negative	The functioning of the surrounding road network remains efficient and the state of the infrastructure is not hampered.
Loss of terrestrial vegetation/ habitat	Negative	The disturbance of surrounding indigenous vegetation is minimised.
Creation of job opportunities and capital expenditure	Positive	Social benefits from the employment opportunities created during the construction phase.
Vandalism and site security and safety	Negative	The development remains unvandalized and safe.
Post-construction and operational phase		
Air quality – Health and odour	Negative	The impact on the sense of place (dust and odour) caused by the operation the proposed development is significantly reduced and no notable impacts occur.
Air quality – Exceedances	Negative	NAAQS is complied with and the impacts to health is reduced.
Storage and use of hazardous material (e.g. LP gas)	Negative	Explosions and risks to employee health is avoided.
Alien invasive vegetation clearance and rehabilitation	Positive	Existing alien invasive vegetation is removed, and alien invasive proliferation is avoided.
Contamination of stormwater	Negative	The site is developed, as proposed, and the surrounding environment does not show signs of disturbance, as a result of the construction activity, all exposed surfaces are suitably covered/ stabilised in line with the proposal or rehabilitated.
Visual impact	Negative	The proposed development, once constructed, does not cause long-term visual impacts for the surrounding community.
Traffic impact	Negative	The functioning of the surrounding road network remains efficient, and the state of the infrastructure is not hampered.
Health Impact	Negative	Potential large quantity of unorganized odour emissions accumulating inside the workshop and impact the health of the workshop staff, including risks from inhaling radioactive ashes. Due to the prolonged half-life of some radioisotopes, if the patient dies soon after implantation, then the cremated

		remains would also remain radioactive (Smith et al.,2012), until placed into a metal urn. Pacemakers and expandable orthopaedic nails are also two potential dangers to cremation staff.
Socio-economic: Decline in property values	Negative	Avoid a significant decline in ambient air quality resulting in commensurate decline in property value.
Socio-economic: Provision of a crematorium facility	Positive	Improved quality of life.
Socio-economic: Local economic revenue and employment opportunities	Positive	Creation of business and employment opportunities.

8. GENERAL ENVIRONMENTAL MANAGEMENT

The following general management measures are intended to protect environmental resources from pollution and degradation during all phases of the project life cycle. These measures must be implemented as and where applicable, reasonable and practicable, during the pre-construction, construction and post-construction and operational (maintenance) phases of the proposed development.

Code of Conduct

The purpose of the Code of Conduct (CoC) is to minimise the impact of the activities associated with the construction/facility establishment phase on the environment. The rules and regulations prescribed in this CoC are intended to ensure that the impacts on the environment are not prejudiced by the construction/ establishment activities. Failure to adhere to or any breach of this CoC will result in a fine being levied against the offending or defaulting party / individual.

Labourers during the construction/facility establishment phase must conserve the natural environment, endorsing the principles of sustainable use and minimum impact. They must also be sensitive to the impact of their operation on the environment within which they work and minimise any adverse impacts.

This EMPr forms an integral part of the activities during the construction/ facility establishment phase and as such, is legally enforceable. In addition to the restrictions and controls provided for in this EMPr, the environmental controls comprise the following:

Engineers

- Unless otherwise stated by the holder, only a registered engineer must be appointed for the construction phase of the development.
- The engineer shall provide work or services of a quality and scope, and to a level, which are commensurate with accepted standards and practices.
- The engineer shall be impartial in decision-making, provision of advice and judgement.

Contractors and sub-contractors

- Unless otherwise determined, only appropriately registered contractors shall be appointed.
- It shall be the responsibility of the holder to ensure that the contractors abide by and comply with the rules and regulations of the Code of Conduct.
- Contractors shall at all times be responsible for their sub-contractors and employees whilst they are on the development property.

Rules and Regulations

It is of vital importance that engineers, and contractors understand and acknowledge that they are working on an environmentally sensitive development and agree to conform to all environmental controls specified in this EMPr, and any additional environmental permits/licenses, as well as any additional input by the ECO. In addition to this EMPr, the environmental controls comprise of the following:

- **Building Plan Controls**
  - A copy of the approved and signed building plans must be available on site during the construction/establishment phase of the development, where applicable.
  - Variations of the building plans must be approved by the engineer / holder prior to being implemented, where applicable.

- **Site tidiness**
  - The contractor must keep the appearance of the site neat and tidy at all times. Building rubble must be removed from site at regular intervals, and litter must be removed from the site on a daily basis. Waste receptacles must be available on site into which waste can be placed. The drums must be emptied on a regular basis and the waste taken to a licenced local waste disposal facility.
- **Safety**
  - The contractor shall comply with the Health and Safety Act (Act No. 85 of 1993), as amended, together with such regulations promulgated hereunder.

8.1. Site access and traffic management

Access to the proposed site is located along the southern boundary, along Stella Road.

All vehicles involved in site establishment need to adhere to traffic laws and regulations, drivers must be sensitised to the fact that they are working in an area with a potentially high volume of foot and vehicle traffic. The speed of vehicles, especially heavy vehicles, must be strictly controlled to avoid dangerous conditions for other road users. As far as possible, care must be taken to ensure that the local traffic flow pattern is not significantly disrupted, and vehicle operators therefore need to be educated in terms of "best-practice" operation in order to minimise unnecessary traffic congestion or dangers. These practices include, but are not limited to, not unnecessarily obstructing the access point or traffic lanes used to access the site; considering the load carrying capacity of road surfaces and adhering to all other prescriptive regulations regarding the use of public roads by construction vehicles.

Adequate signage that is both informative and cautionary to passing traffic must be erected to warn other road users (motorists and pedestrians) about the presence of construction vehicles. Signage would need to be clearly visible and include, amongst others, the following:

- Identifying working area as a construction site;
- Cautioning against relevant construction activities;
- Prohibiting access to construction site;
- Possible indications of time frames attached to the construction activities, and;
- If a sign board is accommodated, this should list the development name, proponent, contractors and engineers that are working on the site and potentially the ECO.

Other mitigation measures include:

- No construction to take place over or during the December construction shut-down period without prior permission from the relevant authorities.

- Construction vehicles must adhere to the load carrying capacity of road surfaces and adhere to all other prescriptive regulations regarding the use of public roads by construction vehicles.
- ECO to do awareness training with the contractor and labourers and to highlight the traffic related risks before construction commences (see Section 16 for Environmental Awareness Plan and Appendix C for Environmental Awareness Training Booklet).
- Where possible, construction traffic that may obstruct traffic flow on the surrounding roads must be scheduled for outside of peak traffic times.
- Ensure appropriate behaviour of operators of construction vehicles.
- If needed, appropriate traffic management measures and/ or points men (traffic marshals) must be utilized to assist vehicles entering/ exiting the site, particularly where vehicles must cross the path of oncoming traffic.

8.2. Site demarcation

The working areas must be clearly demarcated on site during the pre-construction or construction phases of the development, as appropriate.

8.2.1. Construction working area

The existing boundary wall and fence must be considered as the outer boundary of the development area. This demarcation boundary is to ensure that construction activities are restricted to only the site, and to prevent unnecessary disturbance of soil surfaces and vegetation outside of the development footprint. Controlled access to the site must be ensured via the existing gates on the southern boundary of the site.

8.2.2. No-go areas

The northern portion of the property, as depicted in Figure 7, consisting of sporadic vegetation, waste material and stormwater manhole, should be managed in accordance with Section 28 of NEMA, Duty of Care as instructed by the landowner, to be undertaken by the applicant. The north-western portion to the (west of the existing stormwater manhole), may be utilized for establishment of the LPG storage area. However, the north-eastern portion of this site should be **considered a no-go area for all material storage, heavy machinery, labour and all other refurbishment/construction activities**. This area can be accessed **ONLY for clearance of alien invasive species,** in compliance with the alien invasive clearance mitigation measures, which can be conducted as follows:

- Without heavy machinery.
- Only by hand.
- Areas of indigenous vegetation must be cordoned off, until clearance is complete.
- Utilize an appropriate cover.
- Disposal must be undertaken as per mitigation methods.

Prior to the commencement of any construction activities, all no-go areas (as identified by the ECO), must be demarcated and must not be disturbed during the construction phase. It is recommended that the no-go areas be demarcated with a suitable material that can be easily identified and noticed. Danger tape flagging (pieces of danger tape tied to twine or rope) may be utilised; however, the use of only danger tape is not recommended for long-term demarcation as it is easily displaced.

No-go areas in general could include areas with slopes of 1:4 and steeper, greenbelt / corridor areas, public open spaces, demarcated/barricaded trees, streams and/or other wetlands outside of the approved development area. However, none of these exist on this site. All areas outside of the approved development area must be considered No-Go areas, and must be off-limits to all construction workers, vehicles and machinery during the development. No vegetation may be cleared from within the no-go areas (unless limited to alien vegetation clearance, under the supervision of the ECO), and no dumping of any material (waste, topsoil, subsoil etc.) may occur in these areas. Construction workers must be informed of the no-go areas, and if necessary appropriate signage can be used to enforce the demarcation. Any interaction with no-go areas must be consulted between the contractor and ECO prior to any actions.

8.2.3. Demarcation of the site camp

The area chosen for the site camp and associated facilities must be the minimum area reasonably required to accommodate the site camp facilities and must be located on the existing hardened surface on the site, within the fenced extent of the site. Site selection must be done in consultation with the ECO.

8.3. Site camp and associated facilities

The set up and organisation of the site camp is paramount to ensuring compliance. An environmental file is to be created by the contractor and be situated within the site camp throughout the construction phase and with the applicant thereafter. The environmental file is to include the following;

- A copy of the Environmental Authorisation
- A copy of any other relevant permits/licenses/authorisations
- A copy of the approved EMPr
- Waste slips
- Disposal slips or cleaning slips (ablution cleaning)
- All EMR's (Environmental Monitoring Reports) and ECO instructions as well as audit reports
- Copies of Environmental Induction Register/s
- A Complaints Register
- Updated method statements
- Risk Management, Prevention and Emergency Preparedness Plan
- An Incident Register

The following general management measures pertaining to the set-up, operation and closure of a site camp must be applied where appropriate, reasonable and practicable:

8.3.1. Fencing & Security

The site camp area must be secured to prevent any unauthorised individuals from entering the site camp and possibly getting injured or posing a safety and/or security risk. Adequate signage must be displayed, designating the site office / camp as a restricted area to non-personnel. A site register is recommended to record any daily visitors and activities, for record keeping purposes.

8.3.2. Fire Fighting Equipment

Adequate firefighting equipment must be readily accessible and functioning as provided by the CCT Fire Safety Bylaw (2015) and any permit conditions. Extinguishers must be in a working condition and within their service period. A fire extinguisher must always be present wherever any "hot works" (e.g. welding, grinding etc.) are taking place. It is recommended that all construction workers receive basic training in

fire prevention and basic fire-fighting techniques and are informed of the emergency procedure to follow in the event of accidental fires.

Open fires and smoking must be prohibited on site. However, it is noted that despite this, incidents may arise where fires are created after hours by security, and labour may attempt to smoke on site. In these cases, measures must be taken to ensure that activities are managed appropriately according to the fire management plan.

Should the contractor choose to, he/she may designate a smoking area within the site camp, of which the contractor is solely responsible for the management of this activity on site, and any incidents that may occur. Should the Contractor choose to do this at his own risk, it must contain the following features as minimum:

- Appropriate signage.
- A barrel/bucket filled to 50% capacity with sand, for disposal of used cigarettes.
- An appropriately weighted lid, that cannot be easily displaced by volatile weather conditions
- The bin and designated area must be positioned in such a manner that it is not directly affected by heavy winds.
- This bin must be emptied as is necessary and must not be allowed to reach 75% capacity.

This area must not be located close to flammable storage areas (permanent and temporary). In the case of accidental fires, the contractor must (if required/significant) alert the Local Authority's Fire Department as soon as a fire starts prior to the fire becoming uncontrollable.

The EAP does not recommend that any uncontrolled/unpermitted fires or smoking areas be established on site.

8.3.3. Waste Storage Area

Sufficient bins for the temporary storage of construction related waste must be provided inside on the site and must be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. Label each waste receptacle for waste separation, and ensure waste is contained either by use of lids or by ensuring waste receptacles are emptied prior to filling up, so that they are not susceptible to wind dispersion. Sufficient signage and awareness must be created to ensure that these bins are properly used.

8.3.4. Hazardous Substances Storage Area

Fuels, chemicals, lubricants, and other hazardous substances must be stored in a demarcated, secured, bunded and clearly sign-posted area within the site camp away from the sensitive areas. Ensure that when substances are transferred, this is done on an impermeable and/or bunded surface, to contain any spillage. Spillage, should it occur, must be disposed of appropriately.

Any accidental release of a hazardous substance during the construction and operational phase of the proposed development, must be reported to the relevant authorities, including the Department of Environmental Affairs and Development Planning's Directorate: Pollution and Chemicals Management, in terms of Section 30(3) of the NEMA.

8.3.5. Potable Water

An adequate supply of potable water must be provided to construction workers. It is the Contractors duty to ensure that the labour has adequate access to potable water throughout construction phase, and to

monitor weather conditions, to ensure that labour has enough drinking water on hotter days, or construction activity must cease, until conditions are safe to continue. To conserve water, it is recommended that buckets of water are used to clean tools and machinery, rather than running water.

8.3.6. Ablution Facilities

The existing toilet facilities on site can be used during the construction phase, or chemical toilets can be provided. If chemical toilets are utilised, they must be located on a level surface and secured from blowing over and located in such a way that the toilets will not cause any form of pollution. As per the SANS10400 requirement, one ablution facility for every 8 male workers and 2 ablution facilities for every 8 female workers must be provided.

The ablution facilities must not be linked to the river system in any way. Toilets must be serviced regularly and kept in an orderly state. The contractor must ensure that no spillage occurs when the toilets are cleaned, serviced or moved. The toilet facilities must be emptied and cleaned on a weekly basis, by an appropriately registered service provider. Proof of this weekly servicing must be obtained and filed in the Environmental File on site. Performing ablutions outside of the provided toilet facilities is strictly prohibited.

8.3.7. Eating Area & Rest Area

A dedicated area within which construction workers can rest and eat during breaks must be provided on the site. Seating and shade must be provided, along with appropriate bins.

8.3.8. Vehicle & Equipment Maintenance Yard

Where possible, construction vehicles and equipment that require repair must be removed from site and taken to a workshop for servicing. If emergency repairs and/or basic maintenance of construction vehicles or equipment are necessary on site, such repair work must be undertaken on impermeable surfaces. Repairs must be conducted on an impermeable surface, covered in tarpaulin and/or drip trays must be laid down prior to emergency repairs taking place, in order to capture any leaks/spills and prevent any fuel, oil, lubricant or other spillages from contaminating the surrounding environment. The captured wastewater must be disposed of appropriately, at a registered facility.

8.3.9. Housekeeping

The site camp and related site camp facilities must be kept neat and orderly at all times, in order to prevent potential safety risks and to reduce the visual impact of the construction activities.

8.4. Protection of fauna

Construction workers are to be sensitised to the fact that they may encounter fauna during the construction period. This must be included in the environmental awareness training completed with all site personnel before any construction commences (see Section 16 for Environmental Awareness Plan and Appendix C for Environmental Awareness Training Booklet). Environmental Awareness Training must educate labour on conduct in terms of faunal management throughout construction phase, including but not limited to:

- No person/s may harm, kill, capture or keep any fauna.
- Appropriate access control must be put in place to reduce the risk of animal species gaining access to the development area, only where applicable.

- Where possible, avoid interactions, particularly with fauna that can inflict harm, if such fauna is identified on site contact local SPCA other animal protection and removal services.
- Ensure emergency numbers for local service providers such as SPCA, and other animal protection and removal services, are available at the site camp.
- Include infographics of harmful animals common to the area, such as snakes, to aid in identification, if necessary.
- Maintain good housekeeping, so that fauna cannot hide amongst waste and material.

If any fauna is encountered by construction workers, the ECO is to be notified. If the ECO is not on site, the site manager is to be informed. Construction workers should move away from fauna and avoid cornering or interacting with fauna. Emergency services must be contacted. Rescued fauna must be released into a nearby area of similar habitat away from any construction. Contact details for animal rescue services and/or snake wrangler, from the local area, should be available on site, in case of an emergency.

8.5. Indigenous vegetation clearing and protection.

Indigenous vegetation must be managed in accordance with the following measures:

- Indigenous vegetation outside of the construction footprint and working area applicable to the development phase and within any no-go areas must not be cleared.
- Any alien vegetation that is cleared must be disposed of at an appropriate waste disposal facility in consultation with the ECO.
- No unpermitted/uncontrolled fires are allowed on site.
- To limit adverse impacts to the surrounding environment, the contractor and labourers must take great care if cement is to be mixed on site. Cement is to be mixed on the existing impermeable concrete surfaces, thick plastic sheets or in large buckets that are bunded. Any spillage must be cleaned up immediately. Cement water is also to be contained in the above manner and allowed to dry out and then removed from site. Cement water, which is highly alkaline, poses a definite threat to the soil, or to the stormwater drainage, should the water disperse into surrounding areas.
- Monitoring and auditing of the implementation of the Environmental Authorization and EMPr will be undertaken throughout the construction phase, as well as during a certain period of the post-construction phases, addressing any persistent environmental issues and impacts. The monitoring must be regular and additional visits must be taken on a ad hoc basis.
- An Independent Environmental Control Officer will oversee compliance with all the prescribed environmental requirements and mitigation measures listed here and will be on site regularly.

8.6. Integrated waste management approach

It is recommended that an integrated waste management system is adopted on site. The system must be based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Separate waste bins/skips that are weather and animal proof must be provided for recyclable waste, general waste and hazardous waste. Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until removal. These bins/skips must be emptied, and the waste taken to a registered recycling facility. The receipts from the facility must be kept on file and must be available on request.

The non-recyclable and non-reusable waste (e.g. builder's rubble, etc.) generated on site must be disposed of at a landfill site licensed in terms of the applicable legislation. The receipts from the facility must be kept on file and must be available on request.

Chemical toilets present a risk to the surrounding environment and must be managed accordingly. Chemical toilets must be kept on a level surface and secured from blowing over. Chemical toilets must be regularly emptied, and the waste disposed of at an appropriate wastewater disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets.

Hazardous substances such as diesel, oil and detergents will be present on site throughout the construction phase of the proposed development. Hazardous substances pose a greater risk to the surrounding environment than general substances and therefore need to be managed accordingly. A designated storage area within the site camp that is clearly demarcated must be set aside for the storage of hazardous substances and is to be treated as a no-go zone to unauthorised personnel. Appropriate signage, Material Safety Data Sheets (MSDSs), recently serviced fire extinguishers and spill kits must accompany the hazardous substances. Appropriate storage of hazardous substances is important while drip trays must always be utilised when decanting of hazardous substances and when refilling chemical/ fuel storage tanks. If any spills do occur, the soil must be excavated and disposed of as hazardous waste.

Cement and concrete batching will be permitted on site but may only take place on designated bunded/impermeable surfaces, as agreed with the ECO. Used cement bags must be disposed of as hazardous waste.

8.7. Erosion control and stormwater management

Stormwater must be managed in accordance with the CCT Stormwater Management Plan (2005) and based on Sustainable Drainage Systems (SUDS). The SUDS systems attempt to maintain or mimic the natural flow systems as well as prevent the wash-off of urban pollutants to receiving waters.

8.8. Visual Impact.

The proposed development has the potential to cause a visual impact during the construction and operational periods. To minimise the potential visual impact, all working areas, storage facilities, stockpiles, waste bins, rainwater tanks and the site camp must be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. Waste must be managed according to this EMPr. Good housekeeping practices on site must be maintained to ensure the site is kept neat and tidy. The use of reflective materials and excessive lighting must be avoided, and construction vehicles must enter and leave the site during working hours (7:30 – 17:30).

8.9. Noise management.

Additional noise is expected during the construction period due to construction activities. It is important that noise complaints register must be open and available on site, all construction activities must be restricted to normal construction working hours (7:30 – 17:30) as far as possible. Work on site must be well-planned and must proceed efficiently so as to limit the duration of the disturbance. This is to be done by ensuring that all equipment is in good working condition and fitted with mufflers/exhaust silencers in necessary. Noise levels must comply with the relevant health & safety regulations and SANS codes and must be monitored by the Health & Safety Officer as necessary and appropriate, and all affected parties must be informed of the excessive noise factors.

8.10. Dust management.

Although the generation of dust is synonymous with construction sites, care needs to be taken to prevent excessive dust from impacting the surrounding environment and community. Majority of the dust causing activities will take place during the construction period. Exposed surfaces, such as stockpiles must be provided with a suitable cover as soon as possible or wetted down. Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. A Complaints Register must be available at the site office for inspection by the ECO, in case of complaints, such as those related to dust. This must form a part of your Environmental File.

During the operational phase of the cremators, dust must be managed in accordance with the NEM:AQA National Dust Control Regulations (GN. No. R. 827 of 2013). The EA holder must ensure the following general measures for the control of dust:

- Dustfall monitoring and reporting as advised by the relevant Air Quality Officer (i.e. the CCT Air Quality Officer);
- Dust control measures and the requirement for a dustfall management plan if the non-residential dustfall standard is exceeded;
- Dustfall standards.

Restriction Areas	Dustfall rate (D) (mg/m²/day, 30-days average)	Permitted frequency of exceeding dust fall rate
Residential area	D < 600	Two within a year, not sequential months.
Non-residential area	600 < D < 1200	Two within a year, not sequential months.

8.11. Heritage Resources

In the unlikely event that any heritages resources, including evidence of graves, human remains, archaeological material and paleontological material, are uncovered during construction activities; these must be immediately reported to Heritage Western Cape. Burials must not be disturbed or removed until inspected by a professional archaeologist. In case of the unexpected uncovering of fossil bones in the surficial cover-sands and soil, or buried archaeological material, or unmarked graves, the Fossil Finds Procedure (FFP) included as Appendix D of this EMPr, must be followed.

8.12. Site closure

Upon completion of the construction phase, or as a result of a sudden unplanned site closure/planned over the December-January standard construction shutdown period, the site camp and associated site camp facilities must be managed as follows:

If shutdown is to occur as a result of end of construction activities and any related post-construction activities:

- The site camp area must be cleared of all site camp facilities, ablution facilities, fencing, signage, waste and surplus material.
- All areas within the working area and site camp, particularly the northern portion of the proposed site, that have become devoid of vegetation or where soils have been compacted due to construction activities must be scarified or ripped to improve filtration and reduce run-off.
- All demarcation fencing, including all droppers, wires, netting and barrier tape must be removed from site and taken to an appropriate site for re-use or disposal.

- Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved by the ECO. Any soil contaminated with hydrocarbons (oil, fuel, etc) or other hazardous substance must be collected and disposed of as hazardous waste to a licenced disposal facility.
- All construction waste is to be removed from the site and disposed of at an appropriate facility. Unpermitted burying or burning of waste or rubble on site is strictly prohibited.
- The disturbed, newly rehabilitated surfaces (particularly steeper slopes and areas recently covered with topsoil) must be protected from wind & water erosion using mulch, brush packing or other appropriate erosion protection measures. Brush-packing/ mulching is done by covering the exposed surface with organic plant material such as branches, plant cuttings and leafy material. Ideally the vegetation removed from site at the start of the construction must be utilised. Brush-packing/ mulching plays a valuable role in erosion control, while also promoting re-vegetation of the site by retaining moisture in the soil, introducing seeds and/or trapping wind-blown seeds and providing organic material (compost) to promote new plant growth.
- Final landscaping and rehabilitation of the site must be done to the satisfaction of the ECO and must adhere to all conditions/ requirements of the Environmental Authorisation.

If a sudden or planned shutdown occurs, for a temporary period the following should be undertaken:

- All waste removed from site and disposed of appropriately.
- Any non-compliances, exposed areas, or potential risks to the environment, must be reported to the ECO. The ECO must undertake an inspection, and advise on closure measures, to avoid cumulative impacts.
- All potential risks to the environment, including stockpiles, exposed areas, etc. should be corrected in compliance with the ECO's direction.
- The site should be secured.

No rehabilitation is proposed for this site.

9. ENVIRONMENTAL IMPACT MANAGEMENT: PLANNING AND DESIGN PHASE

No direct environmental impacts are associated with the planning and design phase. However, poor planning or inappropriate design decisions in this phase may result in environmental impacts arising during subsequent phases of the project.

Planning and design activities must therefore take into account the environmental constraints and opportunities identified during the Environmental Impact Assessment process, in order to avoid or minimise the potential future impacts of the development. Proper planning is also essential to ensure that adequate provision is made to implement the environmental requirements of this EMPr, and to ensure that the development is compliant with additional conditions which may be included in the Environmental Authorisation.

The environmental management objectives (goals) during this phase are to:

- Appoint an Independent Environmental Control Officer, and Environmental Auditor.
- Complete the detailed design of the structures and detailed site layout plan.
- Ensure legislative compliance.
- Update this EMPr (if necessary).

These environmental management objectives, as well as the management actions that must be implemented in order to achieve the desired objective and avoid/minimise potential impacts, are discussed in more detail below.

9.1. OBJECTIVE 1: APPOINTMENT OF AN ENVIRONMENTAL CONTROL OFFICER, AND AN ENVIRONMENTAL AUDITOR

Impact Management Objective: ***To appoint a suitably qualified and experienced environmental control officer, and environmental auditor.***			
Potential impact to avoid	Failure to appoint an ECO and Environmental Auditor will result in non-compliance with the requirements of this EMPr.		
Impact Management Outcome	The requirements of this EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
• A suitably qualified and experienced Environmental Auditor must be appointed before any activities commence on site. • A suitably qualified and experienced Environmental Control Officer must be appointed before any activities commence on site. • The appointed ECO must adhere to the requirements stated in Chapter 15. • The appointed ECO must be advised of the construction start date, at least two weeks in advance, prior to the commencement of any construction activities on site, so that the ECO can perform a pre-commencement inspection, ensure any pre-construction conditions of the environmental authorization are completed, and plan for environmental awareness training of construction workers (see Section 16 for Environmental Awareness Plan and Appendix C for Environmental Awareness Training Booklet).		Ikamva Green Holdings, trading as Platinum Pride Crematorium	During design phase
Performance Indicator	A qualified ECO and Environmental Auditor is appointed prior to the commencement of any construction activities (including pre-construction set-up activities) on site.		

9.2. OBJECTIVE 2: FINAL SITE LAYOUT PLAN

Impact Management Objective: ***To compile a final site layout plan that adheres to the recommendations of the BAR Report and any additional conditions which may be included in the Environmental Authorisation or other relevant license/permit.***			
Potential impact to avoid	Substantial deviation from the conceptual layout plan may result in: • Non-compliance with the Environmental Authorisation during construction. • Triggering of additional listed activities not authorised in the Environmental Authorisation. • An increase in the severity of the impacts identified and assessed in the BAR or may result in new impacts not previously assessed and not provided for in this EMPr, resulting in environmental degradation. • Visual disturbance.		
Impact Management Outcome	Development is compliant with recommendations of the BAR and this EMPr.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General • The final detailed design & layout must adhere to the conceptual layout assessed in the BAR process. • The final detailed design & layout must be approved prior to commencement of activities on site. • If the final detailed design differs significantly from that assessed during the BAR, the revised layout must be assessed by an ECO and escalated to the Environmental Auditor, who should liaise with the CA regarding an amendment, prior to proceeding.		Ikamva Green Holdings, trading as Platinum Pride Crematorium	During design phase
Performance Indicator	Detailed designs and site layout plans are approved and adheres to the conditions of the EA and EMPr, prior to the commencement of construction.		

9.3. OBJECTIVE 3: LEGISLATIVE COMPLIANCE

Impact Management Objective:		
Potential impact to avoid	Commencement of activities without all relevant permits/permissions/licences/approvals and compliance with EMPr pre-construction activities, can result in penalties, time delays and excessive costs. All stemming from poor planning.	
Impact Management Outcome	All permits, permissions, licences, approvals, and specialist input are acquired and the proposed development is compliant with the respective conditions.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
<u>General</u> • Ensure programme of works is planned accordingly and includes recommended measures where necessary. • Ensure financial allowances are made for the recommended measures. • Ensure all relevant permits/licenses/approvals are in place and are valid prior to commencing with works. These include: o Environmental Authorisation o A Certificate of Competence in terms of the Regulations Relating to the Management of Human Remains (2013), under the National Health Act, 2003 (Act No 61 of 2003). o An Air Emissions License in accordance with NEM:AQA Section 37, from the City of Cape Town. o Authorisation in terms of Section 11 of the City of Cape Town Air Quality Management By-law, 2016, to install, alter, extend, replace and operate fuel-burning equipment. o Approval from the CCT to cremate human remains, in terms of Section 52(1) of the CCT Cemeteries, Crematoria and Funeral Undertakers By-law (2011). o A Flammable Substance Certificate in terms of the City of Cape TownCommunity Fire Safety By-law, 2002 (as amended 2015), issued by the CoCT Chief Fire Officer. This is to include	Ikamva Green Holdings, trading as Platinum Pride Crematorium	During design phase

▪ A final layout plan must be provided depicting the location of the Liquified Petroleum Gas (LPG) storage tanks ▪ A screening risk assessment to establish if the facility will constitute a Major Hazard Installation of if additional site-specific mitigation measures are required, for example, a blast wall between the LPG installation and perimeter or closest building, specific location of the LPG tanks on site where they pose the least risk, etc. ▪ A fire plan which complies with SANS 10400-T:2020 and the By-law relating to Community Fire Safety of 2002 will have to be submitted prior to approval from Fire and Rescue Services. – In terms of the City of Cape Town Wastewater and Industrial Effluent By-law, 2013, for disposing wastewater from cleaning of ash trays, the proponent is required to complete and submit the: ➢ 'Permission to Discharge Industrial Effluent into Sewers Application Form' in the case of discharge into the municipal sewers, for authorization by the CoCT. ➢ or in the case of transportation and disposal at wastewater treatment works, the proponent must complete and submit the 'Disposal of Waste Water Directly at CoCT Facilities Application Form'. ➢ If applicable, for disposal of (solids) incinerator ash and other residual medical waste, the proponent Is required to firstly register on the Western Cape Department of Environmental Affairs and Development Planning's Integrated Pollutant and Waste Information System (IPWIS) and obtain a Waste Information Regulations certificate. ➢ In the event of the proposed development discharging any industrial type effluent into the municipal sewers, an application to discharge industrial effluent into municipal sewer system will be required. ➢ The business owner will essentially need to apply to Shahied Solomon (Shahied.Solomon@capetown.gov.za) or Molepana Ramonyai (Molepana.Ramonyai@capetown.gov.za) for permission to discharge. These City Officials will be able to guide the developer/owner with regards to the process. This will be undertaken should the environmental authorization be awarded.		

○ As required by the CCT Environmental Health By -law (2003), for disposal of (solids) incinerator ash and other residual medical waste, the proponent Is required to firstly register on the Western Cape Department of Environmental Affairs and Development Planning's Integrated Pollutant and Waste Information System (IPWIS) and obtain a Waste Information Regulations certificate. • Ensure that the Contractor has accepted the approved EMPr and Environmental Authorization (and any other relevant permits/licenses, etc), as a part of their Contract Document, to ensure that they are fully aware of their responsibilities in terms of the implementation of these documents. • Ensure that the Contractor provides method statements for activities intended to be undertaken, and these are checked and approved by the ECO as well as the Engineer. • Inform ECO of planned works ahead, so as to ensure inductions are undertaken timeously.		
Performance Indicator	The project does not incur delays, excessive costs and penalties due to unobtained permits and non-compliance with the conditions of required permits, permissions, licences, and approvals.	

10. ENVIRONMENTAL IMPACT MANAGEMENT: PRE-CONSTRUCTION PHASE

Proper set-up during the pre-construction phase can set the foundation for good environmental management during the active construction phase to follow and can avoid potential impacts from arising at a later date.

The Impact Management Objectives for this phase of the project relate to:

- Identification and Demarcation of working areas.
- Establishment of site camp and associated site facilities.
- Pre-construction ECO visit.

10.1. OBJECTIVE 1: IDENTIFY & DEMARCATE WORKING AREAS

***Impact Management Objective:* Identify working areas and site facilities.**		
Potential impact to avoid	• Insensitive location of working areas and site facilities may result in environmental impacts during the construction phase. • Failure to accurately demarcate working areas may result in an increased disturbance footprint.	
Impact Management Outcome	Future construction activities will be restricted to within the designated areas & all areas indicated as no-go areas, will be protected from disturbance.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General • Construction activities must be contained within the existing boundary wall and fence • The existing gated access point/s must be maintained to provide controlled access to the site on entrances and on exit. • Already disturbed/transformed areas/ hardened surface should be used for the accommodation of construction equipment, construction material, offices, etc. during the construction phase. • Ensure permits/licenses applicable as per the EA, are obtained prior to commencement of construction works on site.	Contractor (General)	Pre-construction phase (prior to arrival of construction equipment, machinery, or workers on site)

• In consultation with the ECO, natural vegetation in the northern portion of the site must be demarcated to protect it from disturbance due to construction activity and during clearance of alien invasive species. • This area may only be maintained in terms of NEMA Section 28, by instruction from the Landowner.		
Performance Indicator	Working areas and areas for site camp facilities have been identified and appropriately demarcated to the satisfaction of the ECO, before construction activities commences on site.	

10.2. OBJECTIVE 2: ESTABLISH ENVIRONMENTALLY SENSITIVE SITE CAMP & SITE FACILITES

Impact Management Objective: ***To set up and equip the site camp and associated site facilities in a manner that will promote good environmental management.***		
Potential impact to avoid	• Failure to properly demarcate and set up site facilities may result in disorganised construction activities. • Failure to provide the necessary site facilities and/or failure to equip these facilities with the necessary equipment/materials may impede good environmental management & compromise ability to respond to emergencies.	
Impact Management Outcome	Site camp facilities do not impact significantly on environment. The equipment required to implement the provisions of this EMPr are provided on site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General • The site camp and associated site facilities must be set-up and managed in accordance with the general environmental management measures specified in Chapter 8 of this EMPr. • The site camp must be strategically set up in a manner that will promote good environmental management during construction/ demolition, and to respond to potential emergencies (including fires, spillage of hazardous substances etc.) that may arise. • The site camp, storage facilities, stockpiles, waste bins, and any other temporary structures on site must be located in such a way that they will present as little visual impact to surrounding residents and road users as possible.	Contractor / Ikamva Green Holdings, trading as Platinum Pride Crematorium	Pre-construction phase (prior to start of construction activities)

• The existing toilet facilities on site can be used during the construction phase, or chemical toilets can be provided. • Frequent stormwater outlets must be maintained to prevent erosion at discharge points. • Visual obstruction, such as shade cloth, around the permitter of the site camp or the site should be added. <u>Waste Management</u> • Separate waste bins/skips that are weather and animal proof must be provided for recyclable waste, general waste and hazardous waste. • Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until removal. The waste must be disposed of at a registered waste disposal facility. The disposal receipts from the facility must be kept in the Environmental File. • Ablution facilities, i.e. if chemical toilets are provided, they must be kept on a level surface, secured from blowing over. Chemical toilets must be regularly emptied, and the waste disposed of at an appropriate wastewater disposal/ treatment site by the Contractor or an appointed service provider. Maintenance receipts must be kept in the Environmental File. • A designated storage area within the site camp that is clearly demarcated must be set aside for the storage of hazardous substances and is to be treated as a no-go zone to unauthorised personnel. Appropriate signage, Material Safety Data Sheets (MSDSs), recently serviced fire extinguishers and spill kits must accompany the hazardous substances. • Drip trays must always be utilised when decanting hazardous substances and when refilling chemical/ fuel storage tanks. If any spills do occur, the solid must be excavated and disposed of as hazardous waste. • Cement is to be mixed on the existing impermeable concrete surfaces or thick plastic sheets or in large buckets that are bunded. Any spillage must be cleaned up immediately. Cement water is also to be contained in the above manner and allowed to dry out and then disposed of as hazardous waste. <u>Environmental File</u> • An environmental file is to be created by the contractor and be situated within the site camp throughout the construction phase and with the applicant thereafter. The environmental file is to include the following; o A copy of the Environmental Authorisation		

o A copy of General Authorisation or any other relevant permits o A copy of the approved EMPr o Waste slips o Disposal slips or cleaning slips (ablution cleaning) o All EMR's (Environmental Monitoring Reports) and ECO instructions o Copies of Environmental Induction Register/S o A Complaints Register o Updated method statements o Risk Management, Prevention and Emergency Preparedness Plan o An Incident Register		
Performance Indicator	Appropriate, well organised, and properly equipped site facilities are available on site prior to commencement of construction activities. The location and set up of the facilities don't impact on the natural resources.	

10.3. OBJECTIVE 3: PRE-CONSTRUCTION ECO INSPECTION

It is essential that the appointed ECO be advised of the intended construction start date before construction activities commence on site, in order for the ECO to conduct an initial site inspection to assess the pre-commencement condition of the site. The ECO can also advise on the appropriate siting and demarcation of the site facilities. The ECO may also conduct the first round of environmental awareness training at this stage, if the construction workers are present on site.

Impact Management Objective: ***Environmental Control Officer to conduct an inspection prior to the commencement of construction activities on site.***	
Potential impact to avoid	• Failure to appoint ECO or to notify ECO of commencement prior to commencement may result in non-compliance with the EA. • If a pre-commencement ECO inspection is not performed, the Construction Contractor may be held liable for environmental degradation that took place prior to the Contractor commencing work on site.
Impact Management Outcome	• Good environmental management is promoted and enforced by the ECO during the full pre-construction and construction phases. • Site facilities are appropriately located on site. • Construction workers receive environmental awareness training before commencing work on site.

IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• The appointed ECO must be advised of the construction start date, before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training of construction workers.	Contractor	Start of construction phase
Performance Indicator	A pre-commencement site inspection is conducted by the appointed ECO before construction activities commence on site.	

11. ENVIRONMENTAL IMPACT MANAGEMENT: CONSTRUCTION PHASE

A number of potential environmental impacts may arise during the construction phase of the development. These impacts have been identified and assessed during the Basic Ennvironmental Impact Assessment process. Environmental Management objectives and actions that will prevent the identified potential impacts from arising – or where avoidance is not possible, that will minimise and mitigate the impacts – are provided in this section.

The environmental management actions and mitigation measures prescribed in this section must be implemented throughout the construction phase and must be implemented in conjunction with the general management measures specified in Chapter 8 of this EMPr, as well as any other conditions which may be stated in the Environmental Authorisation. The Environmental Control Officer must monitor and enforce the implementation of the relevant environmental management measures and may provide guidance on the implementation of these environmental management measures as and when required.

The environmental management objectives (goals) for the Construction phase are:

- Prevent sedimentation and erosion
- Prevent pollution and implement waste management
- Maintain sense of place (noise, dust and lifestyle)
- Maintain sense of place (Reduce the visual impact)
- Maintain traffic access and safety
- Prevent the loss of terrestrial vegetation / habitat.
- Prevent vandalism and maintain safety
- Creation of multiple job opportunities & capital expenditure

The environmental management actions that must be implemented in order to achieve the desired objectives and avoid/minimise potential impacts are discussed in more detail in the sections below.

11.1. OBJECTIVE 2: PREVENT POLLUTION AND IMPLEMENT WASTE MANAGEMENT.

Impact Management Objective: ***To prevent environmental pollution and contamination of water or soil***		
Potential impact(s) to avoid	• Fuel, oil, lubricant or other pollutants leaking from vehicles/ machinery and contaminate soil, surface water and/or ground water. • Leaking chemical toilets. • Contaminated run-off from site or site camp facilities entering surrounding area. • Contaminated water or waste dispersed into stormwater network. • Waste (solid or liquid) from the construction site blown or washed into surrounding environment. • Alteration of soil parameters (pH and nutrient levels) • Litter being improperly managed and dispersed on and around site, or into stormwater drains resulting in blockages, or onto adjacent properties.	
Impact Management Outcome	The environment (including soil and groundwater) is not contaminated.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General • Practice good house-keeping, and plan set-up and programme of works ahead of time. • Be mindful of weather patterns, that may interrupt work as well as safeguard waste areas so as to not be dispersed in bad weather. • Ensure storage of material is done in an orderly fashion. • Contain disturbance to the transformed areas within ERF. • No storm water runoff containing waste, or water containing waste emanating from renovation activities may be discharged into the environment. • Polluted stormwater must be contained on the site. • Development personnel, equipment and materials must be limited to the minimum practical working footprint. • Any accidental release of a hazardous substance during the construction phase of the proposed development, must be reported to the relevant authorities, including the Department of	Contractor	Construction phase

Environmental Affairs and Development Planning's Directorate: Pollution and Chemicals Management, in terms of Section 30 of the NEMA. • Dedicated waste bins or skips must be provided on site and kept in a demarcated area on an impermeable surface. • Separate waste bins/skips must be provided for recyclable waste, general waste and hazardous waste. Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until removal. • Waste must be placed in the appropriate waste bins/skips/ stockpiles. • Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown waste or dust. • Hazardous waste bins must be kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins. • Waste bins/skips must be regularly emptied and must not be allowed to overflow. – Ensure that waste receptacles are weighted down, or have weighted covers, are labelled appropriately, and/or are cleaned by a reputable waste disposal company. – Obtain a disposal/cleaning slip for this waste, to file in the Environmental File. – The National Department of Water and Sanitation Berg – Olifants WMA must be informed if: Should the refurbishment extend beyond the existing facility footprint. – There be any surface, ground or storm water pollution as a result of activities on the site. • No activities are permitted relating to the abstraction of surface or groundwater, nor storage of water. • ECO monitoring must be undertaken <u>Educating Labour</u> • Workers appointed for renovations must be instructed not to litter and to place all waste in the appropriate waste bins provided on site. • The Contractor must ensure that all workers on site are familiar with the correct waste disposal procedures to be followed. • Waste generated on site must be classified and managed in accordance with the National Environmental Management: Waste Act – Waste Classification and Management Regulations (GN No. R. 634 of August 2013).		

• Disposal of waste to landfill must be undertaken in accordance with the National Environmental Management: Waste Act – National Norms and Standard for the Assessment of Waste for Landfill Disposal (GN No. R. 635 of August 2013). • If the landowner so instructs, the applicant may be responsible for the clearance of alien invasive species located to the north of site along with any waste material. This should be undertaken as soon as possible, covered with a suitable crop cover, and then be demarcated to allow rehabilitation. - Disposal of alien invasive plant material must be undertaken in accordance the measures set out in the EMPr. • All waste, hazardous as well as general, resulting from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF). <u>Pollution Management -Hydrocarbons (oil, fuel etc.)</u> • While the site is transformed, any spills/leaks etc. has the potential to be washed into the existing stormwater network, leading to contamination. To ensure this is avoided the following is recommended: - Vehicles and machinery must be in good working order and must be regularly inspected for leaks. - If a vehicle or machinery is leaking pollutants it must, as soon as possible, be taken to an appropriate location for repair. The ECO has the authority to request that any vehicle or piece of equipment that is contaminating the environment be removed from the site until it has been satisfactorily repaired. - Repairs to vehicles/ machinery may take place on site, within a designated maintenance areas where contamination cannot access the stormwater network. - Drip trays must be utilized when: ➢ Refuelling. ➢ During decanting of hazardous substances and when refilling chemical fuel storage tanks. ➢ Generators are being utilized on site where there is risk of leakage/spillage. - Where feasible, fuel tanks must be elevated so that leaks are easily detected. - A spill kit to neutralise/treat spills of fuel/ oil/ lubricants must be available on site, and workers must be educated on how to utilise the spill kit. - Soil contaminated by hazardous substances must be excavated and disposed of as hazardous waste.		

Pollution Management – Ablution facilities • Utilize existing ablution facilities on site. • No labour may be permitted to utilize any natural or disturbed area of the site for ablution purposes. Pollution Management – Hazardous Substances • Any hazardous substances (materials, fuels, other chemicals etc.) that may be required on site must be stored according to the manufacturers' product-storage requirements, which may include a covered, waterproof bunded housing structure. • Material Safety Data Sheets (MSDSs) shall 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 on ecological impacts and measures to minimise negative environmental impacts during accidental releases. • Utilize existing bunded areas on site for hazardous storage and refuelling areas. If none of the existing areas can be utilized, ensure that no spills are able to contaminate the stormwater network. Cement Batching • Cement batching and wastewater from such activities must not be permitted to wash into the stormwater network, bunding must be applied where necessary. • No natural area may be used for cement mixing. • Unused cement bags must be stored in such a way that they will be protected from rain. Empty cement bags must be disposed of in an appropriate waste bin, for other hazardous waste materials. • All excess concrete/ cement must be removed from site and disposed of at an appropriately registered disposal facility. Fire safety • Avoid stockpiling waste material on site for excessive timeframes. • No waste may be stored on site for more than 90-days. • No uncontrolled or unpermitted burning of waste is permitted. • If utilized, ensure that gas or any flammable substances are stored according to industry standards. • Maintain fire hoses and extinguishers. • Erect fire safety signage, and warning signage to alert people that flammable items are stored in a certain area, etc. and to indicate where fire safety equipment (e.g. fire extinguishers) are located.		

Performance Indicator	The surrounding environment remains free of any pollutants (in accordance with any necessary tests) and any spills that occur are responsibly managed and recorded on file during monitoring.

11.2. OBJECTIVE 3: MAINTAIN SENSE OF PLACE (NOISE, DUST AND LIFESTYLE)

Impact Management Objective: To maintain the sense of place associated with Montague Gardens Industrial Area.		
Potential impact(s) to avoid	• Avoid unnecessary noise generated during the undertaking of construction activities, which may present a nuisance to surrounding community and negatively impact the Sense of Place. • Dust may cause a nuisance to the surrounding residents. • Dust may smother surrounding vegetation. • Decreased visibility for labourers and operators. • Unsettled community.	
Impact Management Outcome	The impact on the sense of place caused by the construction of the proposed development is significantly reduced and no notable impacts occur.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
Noise Mitigation • A complaints register must be available on site for any complaints received. • Any heavy machinery required, ie. cranes, trucks, etc. must be restricted to normal construction working hours (7:30 – 17:30), as far as possible. • Work on site must be well-planned and should proceed efficiently so as to limit the duration of the disturbance. • Vehicles and equipment must be kept in good working condition. If deemed necessary, machinery and equipment should be fitted with mufflers/ exhaust silencers. No unnecessary disturbances should be allowed to emanate from the construction site.	Contractor	Construction phase

• Workers should be educated on how to control noise-generating activities that have the potential to become disturbances, particularly over an extended period of time. • Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate. • Affected parties must be informed of the excessive noise factors. • The noise management and monitoring measures prescribed in the EMPr must be adhered to. <u>Dust Mitigation</u> • Stockpiles of material that may generate dust must be protected from wind erosion/dispersion (e.g. covered with netting, tarpaulin or other appropriate measures.) • Be mindful of influential weather events (significantly windy conditions, storms, etc.), when planning renovations to the exterior. • The location of stockpiles must take into account, the prevailing wind direction, and should be situated so as to have the least possible dust impact to surrounding road-users and other land-users. • If dust appears to be a continuous problem the option of using shade cloth to cover the fence line, may need to be explored. This will also allow for some visual distortion of renovation activities. • Work on site must be well-planned and should proceed efficiently so as to minimise the handling of dust generating material. • Material loads should be properly covered during transportation. • Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. • A Complaints Register must be available at the site office for inspection by the ECO, documenting any complaints that may have been received.		
Performance Indicator	Noise and dust levels on site remain within acceptable standards. No complaints are received.	

11.3. OBJECTIVE 4: MAINTAIN SENSE OF PLACE - VISUAL IMPACT MANAGEMENT.

Impact Management Objective: ***To prevent the site from presenting an unnecessary visual impact to the surrounding public.***		
Potential impact(s) to avoid	• Temporary loss of the visual aesthetics (sense of place) due to construction disturbance.	
Impact Management Outcome	The impact on the sense of place caused by the construction of the proposed development is significantly reduced and no notable impacts occur.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General: • The site camp, toilets, storage facilities, stockpiles, waste bins, and any other temporary structures on site, should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • Utilize shade cloth, or other suitable material, along the fence perimeter of the site camp and construction site. • Waste must be managed according to this EMPr and the mitigation measures listed above in terms of waste management. Good housekeeping practices on site must be maintained to ensure the site is kept neat and tidy and free of litter at all times. • Work on site must be well-planned and well-managed so that work proceeds quickly and efficiently, thus minimizing the disturbance time. • The site camp, storage facilities, stockpiles, waste bins, elevated tanks and any other temporary structures on site must be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • Visual screening via shade cloth or other suitable material, must be established as soon as possible, until permanent wall can be established. • Special attention must be given to the screening of highly reflective material. • Use of lighting (if required) must take into account surrounding residents and land users and must present little or no nuisance. Downward facing, spill-off type lighting is recommended. • Construction vehicles must enter and leave the site during working hours.	Contractor	Construction phase

• Working areas, storage facilities, stockpiles, waste bins, elevated tanks and any other temporary structures on site must be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • Provision for high infiltration surfaces.		
Performance Indicator	• Good "housekeeping" is evident on site. • The site does not pose a visual impact to surrounding community.	

11.4. OBJECTIVE 5: TRAFFIC ACCESS, CONGESTION AND SAFETY.

Impact Management Objective: ***To ensure continued community on the roads during construction.***		
Potential impact(s) to avoid	• The temporary disturbance to traffic in the area. • Reduced safety on surrounding roads. • Damage to the condition of the of the existing road network.	
Impact Management Outcome	The functioning of the surrounding road network remains efficient, and the state of the infrastructure is not hampered.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General • Plan deliveries ahead of time, such as abnormal loads, to occur outside of peak traffic periods. • All construction vehicles need to adhere to traffic laws. The speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. As far as possible care should be taken to ensure that the local traffic flow pattern is not significantly disrupted. • Utlise one access point as an entry and the other as an exit. • All vehicle operators need to be educated in terms of "best-practice" operations to minimise unnecessary traffic congestion or dangers. Construction vehicles should therefore, not unnecessarily obstruct the access point or traffic lanes used to access the site.	Contractor	Construction phase

• Ensure that adjacent property owners are able to access their properties at all times.
• Adequate signage, that is both informative and cautionary to passing traffic (motorists and pedestrians), warning them of the construction activities must be suitably located in the area where the construction is occurring and must be easily visible by all road users. Signage needs to be clearly visible and needs to include, among others, the following:
  o Identifying working area as a construction site;
  o Cautioning against relevant construction activities;
  o Prohibiting access to construction site;
  o Clearly specifying possible detour routes and/or delay periods;
  o Possible indications of time frames attached to the construction activities, and;
  o Details of responsible contractors and engineers are working on the site.
• Speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users.
• If needed, appropriate traffic management measures and/ or points men (traffic marshals) must be utilized to assist vehicles entering/ exiting the site, particularly where vehicles must cross the path of oncoming traffic.		

Performance Indicator	• The surrounding road networks infrastructure remains in its current state. • Limited congestion and traffic.	

11.5. OBJECTIVE 6: PREVENT THE LOSS OF TERRESTRIAL VEGETATION / HABITAT.

***Impact Management Objective:* Reduce the impacts caused by land disturbance and impacts on surrounding indigenous vegetation.**		
Potential impact(s) to avoid	• Permanent loss of indigenous vegetation along the northern portion of the site because of construction activities. • Increased susceptibility to erosion caused by construction activities.	
Impact Management Outcome	The disturbance of surrounding indigenous vegetation is minimised.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
Vegetation • Uncontrolled and unpermitted fires should be prohibited on site. • An Environmental Control Officer will monitor compliance with all the prescribed environmental requirements and mitigation measures listed here. Alien Invasive Species – if advised by the landowner • Alien Invasive Species identified in the northern portion of the site, must be removed in accordance with the regulations contained in the National Environmental Management: Biodiversity Act (NEM:BA, Act 10 of 2004), the Invasive Species Regulations (October 2014), the Conservation of Agricultural Resources Act (CARA, Act 43 of 1983) and the Duty of Care / Best Practice principles (NEMA, s28). o Seedlings and saplings can be removed through hand pulling and hoeing, treated with herbicide through a foliar spray or basal stem treatments. o Mature trees can be felled or ring barked or treated with herbicide by means of frilling or cut stump treatment. o Herbicide should not be applied in wet or windy conditions. • In consultation with the ECO, any alien vegetation that is cleared must be disposed of at an appropriate waste disposal facility (potentially the Vissershok Waste Disposal and Landfill facility).	Contractor	Construction phase

Faunal Management • During inductions, the ECO must alert the labour potential fauna on site, and highlight the faunal management measures recommended, to be implemented throughout the construction phase, including but not limited to: o No person/s may harm, kill, capture, or keep any fauna. o Appropriate access control must be put in place to reduce the risk of animal species gaining access to the development area. o Where possible, avoid interactions, particularly with fauna that can inflict harm, if such fauna is identified on site contact local SPCA other animal protection and removal services. o Maintain good house-keeping, so that fauna cannot hide amongst waste and stockpiled material. • If any fauna is encountered by construction workers, the ECO is to be notified. If the ECO is not on site, the site manager is to be informed. Rescued fauna must be released into a nearby area of similar habitat away from any construction. • Contact details for animal rescue services and/or snake wrangler, from the local area, should be available on site, in case of an emergency.		
Performance Indicator	Construction team limit disturbance to the surrounding vegetation.	

11.6. OBJECTIVE 7: PREVENT VANDALISM AND MAINTAIN SITE SECURITY AND SAFETY

Impact Management Objective: ***To prevent the site from presenting an unnecessary visual impact to the surrounding public.***			
Potential impact(s) to avoid	• Materials positioned on site overnight may attract people with nefarious intentions. • Opportunities for criminal activities. • Increased fire risk.		
Impact Management Outcome	The development remains unvandalized and safe. The risk of the development posing a fire hazard is reduced.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General • Ensure access to site is controlled and restricted. • A register must be kept of all vehicles and personnel entering the site. • At night, ensure that materials are covered/obstructed from view. • Erect signage detailing prohibited activities. • Ensure the boundary fence is maintained, any detection of vandalism should be reported immediately. Fire safety • Ensure that gas or any flammable substances are stored/implemented according to industry standards, the CoCT Fire Safety By-law (2015), and the conditions of the flammable substance certificate obtained from the CoCT Chief Fire Officer. • Maintain fire hoses and extinguishers. • Erect fire safety signage, and warning signage to alert people that flammable items are stored in a certain area, etc. and to indicate where fire safety equipment (e.g. fire extinguishers) are located.		Contractor	Construction phase
Performance Indicator	• Good "housekeeping" is evident on site. • The site does not pose a safety impact to surrounding community.		

11.7. OBJECTIVE 8: CREATION OF MULTIPLE JOB OPPORTUNITIES AND CAPITAL EXPENDITURE.

Impact Management Objective: ***To create employment opportunities with potential for skills transfer, for members of the local community.***		
Potential impact(s) to be promoted.	• A number of job opportunities for skilled and unskilled labour will be created during the construction phase of the development. • Potential transfer of skills from more experienced workers to less experienced workers. • Increase in business for local businesses within the construction industry.	
Impact Management Outcome	Social benefits from the employment opportunities created during the construction phase.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• Positive, therefore no mitigation necessary. • It should be noted that this impact will benefit the local community and address the issue of unemployment within the Western Cape, and country of South Africa, particularly for unskilled labourers, although temporary. • The applicant is recommended to source local labour, contractors and sub-contractors, as well as utilize local materials and suppliers. Labour that previously lacked construction skills and experience, who were hired for this project, will now be able to utilize this for future developments.	Ikamva Green Holdings, trading as Platinum Pride Crematorium/ Contractor	Construction phase
Performance Indicator	The majority of the construction team is from the local community, with preference given to historically disadvantaged individuals and, where appropriate, unskilled labourers. Skills transfer from experienced to less experienced workers is actively encouraged on site.	

12. ENVIRONMENTAL IMPACT MANAGEMENT: POST CONSTRUCTION PHASE & OPERATIONAL PHASE

After all construction activities have ceased, the sites must be cleared of all construction related equipment, materials, facilities and waste. In addition, all disturbed surfaces – including disturbed areas around the structures and all areas utilised for site facilities – must be stabilised, rehabilitated and provided with a suitable cover. All temporary access roads constructed must be rehabilitated and access must be restricted from the public.

The environmental management objectives (goals) for this phase are:

- Sense of Place: Air Quality – Health and Odour Impacts
- Air Quality Exceedances
- Safe Storage and Use of Hazardous Material: LPG Tanks
- Alien Invasive Species Clearance and Rehabilitation
- Contamination Of Stormwater
- Sense of Place: Perception and Visual Impact
- Sense of Place: Reduce Traffic Impact
- Socio-Economic Impact: Property Value Impacts
- Socio-Economic Impact: Provision of Crematorium Services to Surrounding Communities
- Socio-Economic Impact: Employment Creation & Local Revenue

12.1. OBJECTIVE 1: SENSE OF SPACE: AIR QUALITY – HEALTH AND ODOUR

***Impact Management Objective*: The proposed development complies with air quality standards and does not create a public health risk or public nuisance**	
Potential impact(s) to mitigate.	• Complaints from neighbours based on smells. • Dust/visible gas emissions. • Compromise human health of surrounding occupiers. • Nuisance smells can impact on functioning businesses.

Impact Management Outcome	Given the technology compliance, the impact on the sense of place (dust and odour) caused by the operation the proposed development is significantly reduced and no notable impacts occur.

IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period

<u>General</u>
• Erect chimney stacks to 6m's above roof height (12m's high)
• Ensure all associated infrastructure, including cold rooms, etc, are maintained as per manufacturer's instructions and capacity is not exceeded.
• Labour should be provided with gloves, and masks for handling of human remains and ashes.
• The crematorium should be cleaned as often as possible, and comply with all Health and Safety requirements for such a facility.
• A back-up electricity supply (e.g. a generator) must be available in the case of mains electricity outages to maintain electrical supply to:
  o Cold rooms,
  o Essential keypads,
  o Access control entrances,
  o Emergency lighting,
  o Emergency exit lighting,
  o Lighting around LPG storage area,
  o Furnace control circuits to allow for appropriate shutdown and/or operation should it be feasible.
• It is recommended that when locating the generator, be cognisant of restrictions regarding the proximity of ignition sources to the LPG storage area. This to be determined by an appropriately certified service provider.
 	
<u>Furnaces</u>
• Ensure an operating manual exists on site, with emergency numbers, in an accessible area.
• Operate furnaces as per manufacturer's instructions.
• No cremation shall take place until the minimum combustion temperatures of the furnace has been reached.
• Ensure scheduled cleaning and maintenance of the furnaces to ensure effective combustion as per manufacturer's specifications.
	Developer	Operational phase

• Johnson Thermal Engineering (JTE) advises the following maintenance regime for the BA2 Cremators:
  o A quarterly inspection.
  o Hearth replacement after 2 000 cremations or as further advised by manufacturer.
  o Complete refractories reline after 5 000 cremations.
• Ensure that operators of furnaces are trained on the correct and acceptable operation of furnaces in line with the manufacturers operational plan and specificationsand should be educated on the following:
  o Correct operating practices.
  o Signs of failure or inadequacies.
  o Maintenance requirements and frequency.
  o Who to report any issues to and what needs to be done in case of emergencies.
• Avoid strain on furnaces and infrastructure, by amongst others ensuring that no foreign material like plastics and metals are incinerated. Coffins should not be treated with harmful wood sealants.
• It is expected that funeral parlours and mortuaries (the clients of the proposed facility) will prepare the corpses, including remove and dispose of all medical waste that cannot be cremated. This to be undertaken prior to delivery at the crematorium facility.
• Do not operate equipment that is malfunctioning
• Repair faulty/malfunctioning equipment in consultation with the manufacturer
• Ensure that wastewater is collected and disposed of as per permits/licenses.
 	
<u>Air quality</u>
• Monitor emissions from the stacks in accordance with the
  o AEL requirements
  o Minimum Emission Standards for Subcategory 8.2 (GN 893 of 2013)
  o National Ambient Air Quality Standards (GN 1210 of 2009)
  o NEM:AQA National Dust Control Regulations).
• Monitor incinerators regularly to ensure effective operations in terms of permit conditions and the local authority's by-laws
• Maintain the furnaces and associated abatement equipment as per manufacturers' specifications
• Ensure any non-compliances or unusual events are recorded and addressed by the relevant professional.
• Notify the City of Cape Town air pollution officer in the emergency event of air emissions exceeding the levels conditioned in the AEL.		

Health: In terms of the National Environmental Health Norms and Standards (GN. R. 1229 OF 2015), the cremation facility should • comply with the Occupational Health and Safety Act (Act 85 of 1993) and associated regulations. • have suitable trained staff available and responsible for duties in the mortuary and ensure that the Hygiene Standards are adhered to. • have an infection control staff member should regularly monitor whether the policy regarding the handling of corpses is followed and whether the mortuary is operated in an acceptable manner and in consideration of the Norms and Standards document. • provide adequate protective clothing (comprising of waterproof aprons, light coloured overalls and protective gloves) for employees working in the mortuary. • adopt approved methods of waste collection, storage, transportation and disposal for the handling of infectious waste in the mortuary, in compliance to the SANS 10248. Housekeeping In terms of the Regulations Relating to the Management of Human Remains (2013) and the National Environmental Health Norms and Standards (GN. R. 1229 of 2015), both promulgated under the National Health Act (Act 61 of 2003), the cremation facility: • premises must be kept clean, sanitary and in good repair; • be adequately ventilated and illuminated; • shall be operated and managed in a manner as to prevent the dispersion of ash into the atmosphere • shall maintain a cleaning schedule for cleaning of all areas in the facility. • shall maintain a register and records of the information regarding the handling of corpses; including the record of refrigeration facilities and temperatures must be taken daily. • shall ensure that cleaning staff are trained and competent on cleaning techniques and processes to be utilized for various areas in the health facility.shall ensure that cleaning material, detergent and equipment required to ensure a hygienic environment in the health facility are available and properly stored at all times. • Shall ensure that the infection control staff member should regularly monitor whether the policy regarding the handling of corpses is followed and whether the mortuary is operated in an acceptable manner and in consideration of the Norms and Standards document.		

Control Measure(s)	Pollutants			
	PCDD/Fs	Hg	$PM_{2.5}$	Radioactivity
Source Control				
Removal of plastics	*		*	
Non-toxic and eco-friendly coatings or materials in caskets	*			
Removal of Hg fillings		*		
Removal of medical devices containing radioactive material				*
Operational Control				
Minimum 850°C (2nd chamber)	*		*	
Minimum residence time of 2 s (2nd chamber)	*		*	
Adequate O_2 in combustion chamber	*		*	
Monitoring CO releases	*		*	
Air tightness of combustion chambers and casings	*	*	*	*
Maintenance	*	*	*	*
Operator training	*	*	*	*
Emission controls				
Dust control (filters and scrubbers)	*		*	
Activated carbon treatment	*	*		
Hg removal technology (binding, precipitation etc.)		*		

Adequate chimney height	General dispersion and dilution of pollutants higher into atmosphere

The table above indicates the measure which can help reduce emissions may be employed in order to monitor the various control on the key pollutants associated with the crematorium.

For comprehensive management and control of unorganized odour emissions in workshops, workshop ventilation should be improved, and exhaust fans should be installed considering practical conditions, such that low-concentration unorganized odour emissions can be promptly diluted and discharged. Additionally, equipment should be operated in an intermittent working mode to reduce odour accumulation in the workshop associated with the workload.

The following table provides a summary of the best available techniques that can be used to control the cremation process (as provided by the specialist report):

Release	Substance	Control techniques	Technology compliance
Flue gas	Nitrogen oxides	No control	Technology has taken this into consideration, and has been designed accordingly. See Appendix L.
	Odour	Good combustion and a secondary combustion	
	Carbon monoxide	Good combustion and a secondary combustion	
	Volatile organic compounds	Good combustion and a secondary combustion	
	PAH	Good combustion and a secondary combustion	

	Mercury and its compounds	Abatement, or contribute via burden sharing scheme			
	Particulate matter	Good combustion, slow gas velocities and a secondary combustion zone. Abatement further minimises emissions*			
	Hydrogen chloride	Minimise halogens combusted, avoid excessive temperature in primary chamber. Abatement further minimises emissions*			
	PCDD/F	Minimise chlorine combusted and particulate matter emitted, good combustion and a secondary combustion zone, Abatement further minimises emissions*			
	Carbon dioxide	Measure gas consumption, good cremator design			
Cremated remains size reduction machine	Particulate matter	Filter on machine or external dispersion and filter if needed.	Ash is removed from ash tray, with cleaning tools, with minimal dispersion.		

Spent gas-cleaning materials	Particulate matter, mercury	Keep containers tightly lidded	This will be included in the mitigation measures.		
* if fitted for mercury abatement purposes					

Cremation Register

The Regulations Relating to the Management of Human Remains (2013), under the National Health Act (Act 61 of 2003), requires that a cremation register must be maintained at the facility, including:

- Date of cremation;
- Name, identity number, address, occupation, age, sex, and marital status of each deceased person cremated therein;
- The date of death of each cremated person;
- The name, identity number and address of the person in whose name the crematorium is registered;
- The name, designation and address of the person issuing the certificate of the cause of death of each cremated person;
- The cause of death and the registration number of the death certificate of each cremated person; and
- The manner in which the ashes of the person was disposed.

Performance Indicator	• The operation of the crematorium avoids nuisance or health effects to local communities by managing dust entrapment. • The development complies with MES and NAAQS air quality standards. • Good "housekeeping" is evident on site.

12.2. OBJECTIVE 2: AIR QUALITY: EXCEEDANCES NOTED BY THE ATMOSPHERIC IMPACT ASSESSMENT

***Impact Management Objective*: The proposed development and technology complies with NAAQS and results in low health risks**

Potential impact(s) to mitigate.	• Non-compliance with National Ambient Air Quality Standards (GN 1210 of 2009) (NAAQS) • The Atmospheric Impact Assessment noted that as per the AERMOD outcome, it was predicted that daily exceedances of PM_{10} and NO_2 were predicted. The Specialist noted that the cumulative air quality impact of the facility is estimated by assuming that the maximum daily concentration will be experienced every day in the three-year period, which would not be the case in reality. However, technology has proven compliance in terms of the compliance with the Air Emission Standards for New Plants. The Health Specialist confirmed that there are negligible to no health concerns.
Impact Management Outcome	Air quality standards are complied with, resulting in low health risks to the surrounding community and workers.

IMPACT MANAGEMENT ACTIONS

Mitigation measure	Responsible party	Time period
General: • Annual emissions sampling from the chimney stacks for PM, CO, NOx and Hg is required as per GN 893 of 2013. More frequent emissions sampling can be specified in the AEL, if the licensing authority sees fit. Technology Compliance: • Operate technology as per the manufacturer's specifications. • Ensure staff is trained appropriately, particularly operators. • Ensure all emergency plans are available on site, and all staff have been trained accordingly. • Ensure each cremation is conducted as per the manufacturer's specifications, and temperature and other conditions are monitored appropriately. Health Compliance to applied as necessary: • Training: Staff at all levels need the necessary training and instruction in their duties relating to control of the process and emissions to air. In order to minimise risk of emissions, particular emphasis should be given to control procedures during start-up, shut down and abnormal conditions; • Maintenance: Effective preventative maintenance plays a key part in achieving compliance with emission limits and other provisions. All aspects of the process including all plant, buildings and the equipment concerned with the control of emissions to air should be properly maintained; • Monitoring instruments should be fitted with a visual alarm to warn the operator of arrestment machine failure. Authorities should decide whether additionally to specify an audible alarm, having	Holder/ Ikamva Green Holdings, trading as Platinum Pride Crematorium	Operational phase

regard to, amongst other things, the likelihood of the visual alarm not being noticed, and the intrusiveness of any such alarm for those using the crematorium; • Exhaust flow rates should be installed. These should be consistent with efficient capture of emissions, good operating practice and meeting the requirements of the legislation relating to the workplace environment. • Minimum furnace temperature (850 °C), residence time in the second chamber (2 seconds for combustion gases) and enough air to ensure combustion in the second chamber and avoid generating products of incomplete combustion; • Suitable air pollution control equipment, which could include temperature controls, dust control, carbon injection, fabric filtration, air tightness of combustion chambers and casings; • Monitoring of gas temperature and flue gas O_2 and CO concentrations, application of relevant emission limit values and additional monitoring, including ambient monitoring of soil and air in the proximity of crematoria; • The presence of PVC, metals and other contaminants (particularly chlorine compounds) in the coffin material and furnishings should be avoided to reduce the generation of persistent organic; • Use of waste-derived or other fuels potentially contaminated with persistent organic pollutants should be minimized. • Operational controls, inspection and preventive maintenance; • Sealed furnaces are essential to contain fugitive emissions while permitting heat recovery and collecting off-gases for abatement or discharge; • Particulate matter should be removed to reduce PCDD/PCDF emissions to atmosphere; • All crematorium staff involved in such a case should wear a mask and rubber gloves when handling the cremated materials, all cremated remains should be put in a metal urn, any unwanted radionuclides should decay in storage for 20 months before being discarded, and remains should not be scattered until 20 months after the date of implantation; • Other good practice measures to protect crematoria workers, such as removal of radioactive implants before cremation, informing crematoria workers of recent radiotherapy treatments for deceased patients, and safe handling practices for ashes, can also reduce possible environmental releases of pollutants. • Carbon dioxide emissions from gas usage are the main greenhouse gas component of a crematoria's carbon footprint. The applicant may wish to note that the development of an energy reduction strategy will have the benefits of saving money and reducing their carbon footprint. A measure as simple as recording of gas consumption (e.g., comparison of quarterly gas bills) is a first step in managing energy use and therefore CO2 emissions. • Source Control – Proponent to encourage clients: ➢ Removal of plastics		

- Non-toxic and eco-friendly coatings or materials in caskets
- Removal of Hg fillings
- Removal of medical devices containing radioactive material

- Operational Control – Operators to be Trained to operate equipment
  - Minimum 850°C (2nd chamber)
  - Minimum residence time of 2 s (2nd chamber)
  - Adequate O2 in combustion chamber
  - Monitoring CO releases
  - Air tightness of combustion chambers and casings
  - Maintenance
  - Operator training
- Emission controls
  - Dust control (filters and scrubbers), where necessary
  - Activated carbon treatment, where necessary
  - Hg removal technology (binding, precipitation etc.), where necessary
- Adequate chimney height (12m's)

Control Measure(s)	Pollutants			
	PCDD/Fs	Hg	$PM_{2.5}$	Radioactivity
Source Control				
Removal of plastics	*		*	
Non-toxic and eco-friendly coatings or materials in caskets	*			
Removal of Hg fillings		*		
Removal of medical devices containing radioactive material				*
Operational Control				
Minimum 850°C (2nd chamber)	*		*	
Minimum residence time of 2 s (2nd chamber)	*		*	

Adequate O_2 in combustion chamber	*		*	
Monitoring CO releases	*		*	
Air tightness of combustion chambers and casings	*	*	*	*
Maintenance	*	*	*	*
Operator training	*	*	*	*
Emission controls				
Dust control (filters and scrubbers)	*		*	
Activated carbon treatment	*	*		
Hg removal technology (binding, precipitation etc.)		*		
Adequate chimney height	General dispersion and dilution of pollutants higher into atmosphere			

The table above indicates the measure which can help reduce emissions may be employed in order to monitor the various control on the key pollutants associated with the crematorium.

For comprehensive management and control of unorganized odour emissions in workshops, workshop ventilation should be improved, and exhaust fans should be installed considering practical conditions, such that low-concentration unorganized odour emissions can be promptly diluted and discharged. Additionally, equipment should be operated in an intermittent working mode to reduce odour accumulation in the workshop associated with the workload.

The following table provides a summary of the best available techniques that can be used to control the cremation process (as provided by the specialist report):

Release	Substance	Control techniques	Technology compliance
Flue gas	Nitrogen oxides	No control	Technology has taken this into consideration, and has been designed accordingly. See Appendix L.
	Odour	Good combustion and a secondary combustion	
	Carbon monoxide	Good combustion and a secondary combustion	
	Volatile organic compounds	Good combustion and a secondary combustion	
	PAH	Good combustion and a secondary combustion	
	Mercury and its compounds	Abatement, or contribute via burden sharing scheme	
	Particulate matter	Good combustion, slow gas velocities and a secondary combustion zone. Abatement further minimises emissions*	
	Hydrogen chloride	Minimise halogens combusted, avoid excessive temperature in primary chamber. Abatement further minimises emissions*	

	PCDD/F	Minimise chlorine combusted and particulate matter emitted, good combustion and a secondary combustion zone, Abatement further minimises emissions*				
	Carbon dioxide	Measure gas consumption, good cremator design				
Cremated remains size reduction machine	Particulate matter	Filter on machine or external dispersion and filter if needed.	Ash is removed from ash tray, with cleaning tools, with minimal dispersion.			
Spent gas-cleaning materials	Particulate matter, mercury	Keep containers tightly lidded	This will be included in the mitigation measures.			
* if fitted for mercury abatement purposes						
PERFORMANCE INDICATOR	• Monitoring of air quality that ensures compliance • Technology and Health compliance					

12.3. OBJECTIVE 3: SAFE STORAGE AND USE OF HAZARDOUS MATERIAL

***Impact Management Objective*: Hazardous Material, E.G. LPG Tanks, Is Safely Stored And Used On Site**	
Potential impact(s) to mitigate.	• Explosions leading to damage to infrastructure, loss of life and environmental impacts. • Health risk to employees. • LPG inhalation can cause asphyxiation that can cause unconsciousness and/or death if oxygen levels are sufficiently reduced. LPG released under pressure can cause frostbite burn due to rapid temperature decrease.

	• Concerns regarding the storage and handling of LPG. • Methane is the main component of natural gas, this is a potent greenhouse gas. Exposure to methane may lead to reduced oxygen levels, headaches and nausea. • One of the most significant issues of Natural Gas is that of reliable supply, as there is no existing natural gas pipelines in the area, and none are planned for the near future. Therefore, if it were to be adopted there is uncertainty that supply would be continuous, affecting the operational efficiency of the facility. As such, LPG is the preferred fuel source due to it being more readily available as the demand has grown, therefore indicating that there will be reliable and continuous supply for the furnaces. LPG is known as being the most environmentally friendly based on its far lower carbon dioxide emissions compared to other petroleum based fuel sources.
Impact Management Outcome	Explosions are avoided. Incidents to damage of infrastructure and environmental impacts are reduced and risks to employee health are avoided

IMPACT MANAGEMENT ACTIONS

Mitigation measure	Responsible party	Time period
<u>General</u> • Ensure all relevant permits/licenses required for storage and handling of dangerous goods/gas are obtained. • Ensure designated storage area is secure, well-ventilated and free of any fire risks. • Ensure storage tanks and connections are checked on a daily basis. • Ensure that safety plans are drafted and available to all employees. • Establish appropriate signage indicating hazardous material and prohibiting activities such as smoking. • Material Safety Data Sheets must be filed on site be accessible to personnel for reference when handling hazardous materials. <u>LPG Establishment</u> • Ensure designated areas are acceptable as per all relevant legislative requirements. • Ensure that LPG is stored according to the CCT Fire Safety By-law (2015), and the conditions of the flammable substance certificate obtained from the CCT Chief Fire Officer.	Developer	Operational phase

• Ensure tank/s are installed or filled appropriately in line with specifications. • Ensure a final layout depicting the location of the LPG storage area is undertaken. Ensure that a risk assessment is undertaken to establish if the facility will constitute a Major Hazard Installation or if additional site specific mitigation measures are required, for example, a blast wall between the LPG tanks on site where they pose the least risk, etc. • Storage tanks must be marked with the Hazchem placards, as listed in South African Bereau of Standards (SABS) 0232 • The proper safety signage must be erected on the security fence to alert individuals of the potential danger and these signs must comply with the SABS 1186: Part 1 <u>Educating Labour</u> • Ensure health and safety personnel are available on site. • Ensure operators are fully aware and trained on the following: ➢ Supplier of tanks and their details. ➢ Standard operating, maintenance and management measures as specified by operators. ➢ Emergency plans, including fire safety. ➢ Conditions required to comply with relevant permits/licenses required for storage and handling of dangerous goods/gas. ➢ Evidence of incidents/contamination, i.e.. signs of inhalation such as drowsiness or dizziness and respiratory irritation (cough, sneezing, headache, nose and throat pain). ➢ Ensure employees are fully aware of the standard reporting procedure should any incidents/complaints arise. <u>Fire Safety</u> • Ensure firefighting equipment is readily accessible, functioning, and in close proximity to areas where gas will be used. Ensure emergency numbers are visible, with a working landline/phone to utilize. • Ensure all infrastructure is operating as per manufacturer specifications.		
Performance Indicator	• Avoid leaks or explosions, relating to the LPG gas storage.	

12.4. OBJECTIVE 4: ALIEN INVASIVE SPECIES CLEARANCE

***Impact Management Objective*: The proposed development…**		
Potential impact(s) to mitigate.	• Failure to conduct follow-up clearance of alien invasive, will result in proliferation along the Northern portion of the site.	
Impact Management Outcome	• Existing alien invasive vegetation is removed. • Alien invasive proliferation is avoided.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period

General
• In terms of Section 28, of the National Environmental Management Act, 1998 (Act 107 of 1998), Duty of Care, the landowner is responsible for the clearance of any potential pollution or harm to the environment. This includes waste dumped on site and alien invasive species success on the site.
• Ensure all waste and alien invasive species are cleared from the northern portion of the site.
• On-going alien invasive control should be implemented, with the following methods applied appropriately.
  o Seedlings and saplings can be removed through hand pulling and hoeing, treated with herbicide through a foliar spray or basal stem treatments.
  o Mature trees can be felled, or ring barked or treated with herbicide by means of frilling or cut stump treatment.
  o Herbicide should be used in accordance with the MSDS and should not be applied in wet or windy conditions.
• In consultation with the ECO, any alien vegetation that is cleared must be disposed of at an appropriate waste disposal facility (potentially the Vissershok Waste Disposal and Landfill facility).
• Prohibit further waste dumping on site.
• Identify an indigenous cover crop to re-vegetate the northern portion of the site, once the waste and alien species are removed.
• Monitor rehabilitated area.
	Developer/ Landowner	Operational phase

Waste Management • Failure to remove all construction related waste and materials may result in environmental pollution. • Prohibit further waste dumping in the area. • Ensure all waste is removed from site. • In terms of the City of Cape Town Environmental Health By-law (2003), if applicable, for disposal of (solids) incinerator ash and other residual medical waste, the proponent Is required to firstly register on the Western Cape Department of Environmental Affairs and Development Planning's Integrated Pollutant and Waste Information System (IPWIS) and obtain a Waste Information Regulations certificate.		
Performance Indicator	• No alien invasive vegetation is evident on site. • Alien invasive vegetation does not proliferate on site and does not spread to the surrounding environment.	

12.5. OBJECTIVE 5: CONTAMINIATION OF STORMWATER

***Impact Management Objective:* To rehabilitate all external areas (access) disturbed by construction activities in an environmentally sensitive manner.**		
Potential impact(s) to mitigate	• Stormwater contamination may occur from leaks/spills of any chemicals used on site • Stormwater contamination may occur when maintaining and washing ash trays, or the facility. • Stormwater management has been flagged as an important aspect to be addressed, by the Engineers, due to the flat landscape, and poor drainage predicted for the site. • Long lasting disturbance to the surrounding environment.	
Impact Management Outcome	• The site is developed, as proposed, and the surrounding environment does not show signs of disturbance, as a result of the construction activity, all exposed surfaces are suitably covered/ stabilised in line with the proposal or rehabilitated. • There is no construction-related waste or pollution remaining on site or surrounding the site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General:	Contractor	Construction phase

• Ensure good house-keeping practices.
• Ensure all waste/wash water is collected and disposed of correctly:
• The City of Cape Town advised that in the event of the proposed development discharging any industrial type effluent into the municipal sewers, an application to discharge industrial effluent into the municipal sewer system will be required. The business owner essentially need to apply to Shahied Solomon (Shahied.Solomon@capetown.gov.za) or Molepana Ramonyai (Molepana.Ramonyai@capetown.gov.za) for permission to discharge. These City Officials will be able to guide the developer/owner with regards to the process. This has been included as a condition of Environmental Authorization.
• .
  • Any wastewater from cleaning will be handled as above, alternatively disposal at Vissershok Hazardous Waste Disposal Site will be considered. However, it is recommended that cleaning of the facility be undertaken with chemicals that require as little water as possible, for example Spray Klean Flight. Specifications include (The Go Green Store, 2022)*:
  - Tested by the SABS and is proven to kill 99.9% of all known bacteria.
  - Registered with the NRCS as an Anti-Bacterial detergent.
  - Biodegradable
  - Non-Toxic
  - Contains no Bleach or Ammonia
  - Non-abrasive
  - Non-flammable
  - multi-purpose detergent
  - can be diluted up to 25:1 or used in its concentrated form. For full anti-bacaterial effect spray on and leave for 5 minutes wipe off * https://ggstore.co.za/product/spray-klean-flight-5l-4/
• Ensure that all chemicals/liquid fuels are decanted within bunded, transformed areas and cannot be dispersed beyond this area.
• All construction waste, litter and rubble are to be removed from the site and re-used elsewhere, or recycled/disposed of at an appropriate facility, with the disposal receipt filed in the Environmental File.
• Burying or burning of waste or rubble on site is prohibited.
• Ensure all stormwater infrastructure is maintained.
 	
<u>Aquatic specialist recommendations:</u>
 	
• No runoff from the site may be released or enter the stream during the operational phase.		

• All stormwater runoff generated in the study area must be managed in appropriate stormwater management structures and released into the municipal stormwater infrastructure, as permitted by applicable permits obtained in terms of the CCT Wastewater and Industrial Effluent By-law (2013). • Regular inspection of the stormwater management infrastructure on the site must be undertaken to ensure proper functioning thereof; • Suitable dust management practices must be implemented for the duration of operations to prevent dust deposition in the stream that could lead to sedimentation thereof; • No personnel may enter the stream or access the site along the northern boundary. Access to the site must be limited to the existing access area along the southern boundary; • General good housekeeping practices must be implemented during all phases of the proposed development, to ensure limited direct, indirect and cumulative impacts to the stream.		
Performance Indicator	• Avoid leaks or spills resulting in stormwater contamination. • Contaminated stormwater is contained and disposed of appropriately.	

12.6. OBJECTIVE 6: SENSE OF PLACE: PERCEPTION AND VISUAL IMPACT.

<u>Impact Management Objective</u>: Reduce the visual impact caused by the proposed development.		
Potential impact(s) to mitigate.	• Change in the sense of place. • Community tension.	
Impact Management Outcome	The proposed development, once constructed, does not cause long-term visual impacts for the surrounding community.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
<u>General</u> ▪ The proposed development intends to improve the aesthetic appeal of the existing warehouse, for example, by replacing the roofing ▪ Respond and address community complaints timeously.	Developer	Operational phase

▪ Plan and co-ordinate deliveries of human remains to site in order that no corpse carrying vehicles are delayed on the street. All deliveries must be scheduled ahead of time and must be permitted on to the premises on arrival. ▪ Plan and coordinate abnormal deliveries to the site outside of peak traffic/working hours. ▪ Ensure records are kept of all deliveries of human remains, made to site. ▪ Obscure visuals of any off-loading of corpses by: o Ensure delivery vehicles off-load with the rear facing the building o Ensure that deliveries and any other human remains are stored inside the building that cannot be seen from the surrounding properties/street. o No coffins (used or unused) or any funeral paraphernalia to be visible from the street or surrounding properties. o Consider screening off the driveway where corpses will be offloaded, to obstruct the view from the street o Consider allowing delivery vehicles to off-load corpses with their rear-end inside the building entrance o Establish a screen (potted plants/trees) for the transfer area between vehicle and building, within the delivery area. ▪ Use waste receptacles which obscures public view of waste, such as receptacles with lids of waste skips. All waste receptacles must not be allowed to reach more than 75% capacity. ▪ ▪ Utilise the two access gates on site, designate one as an entrance and one as an exit to control traffic flow. <u>Storage on site:</u> ▪ <u>All funeral paraphernalia, i.e. Coffins, etc. should be stored inside the facility, and disposed of as soon as possible, at an appropriately registered disposal facility, unless another facility agrees on a waste exchange or to be repurposed. Loading of this paraphernalia should take into account visual triggers.</u> ▪ <u>Ensure no coffins, etc, are stockpiled in areas that are visible on site.</u> ▪ <u>Ensure all waste is positioned in bins/skips, that are weighted down, to avoid toppling.</u> ▪ <u>Visual:</u>		

▪ Screening of off-loading site ▪ Prohibiting storage of funeral paraphernalia outside the facility (including coffins, waste, etc.), in view of Stella Road or the neighbouring properties. ▪ Potted trees/plants purchased locally will be established along the interface of Stella Road and the site, creating a natural screen, in order to obscure the view of the site as well as to improve upon the natural aesthetic of the site ▪ The proponent shall ensure that the ECO is involved in selecting the appropriate potted vegetation ▪ If the facility is to be painted, only natural colours, aligning with the surrounding developments, will be utilized where necessary. ▪ Non-descript vehicles will be utilized to transport human remains to the site, no hearses will be utilized by the proponent. ▪ The proponent will minimize the use of signage, indicating the presence of a crematorium. Maintenance of Infrastructure ▪ Ensure cremators are appropriately maintained to manufacturers specifications and no excessive air emissions are observed (i.e. dark cloud emissions). ▪ Ensure the facility is maintained, including freezers and other machinery that may give off bad odours if not in good condition. Social Initiative: – The proponent will join the local community group, allowing for open communication between the proponent and surrounding landowners/occupiers. – The proponent will make the air emissions reports available, to any interested party on written request. – The proponent will allow any interested party to raise any concerns or enquiries during operational phase. The proponent commits to: • Comply with all mitigation measures and conditions recommended in the Final EMPr, as and when applicable.		

• Comply with all the conditions of the Environmental Authorization, and any other relevant permits. • Will appoint an appropriately experienced service provider, to undertake the necessary risk assessment, to establish the need for a Major Hazard Installation. • Appoint an appropriately experienced service provider to undertake the recommended air emissions monitoring in line with the Air Emissions License. These reports will be released to any person who wishes to view them, on written request, and may not be shared with a third party unless approved by the proponent. • Appoint only skilled and experienced staff to conduct the required functions during operations. • Will encourage the use of cardboard coffins amongst clients.		
Performance Indicator	• The proposed development maintains the industrial character of the area and the visual impact is dissipated. • The site does not pose a visual impact to surrounding community.	

12.7. OBJECTIVE 7: SENSE OF PLACE: REDUCE TRAFFIC IMPACT.

***Impact Management Objective*: No additional traffic inflow and outflow from site.**		
Potential impact(s) to mitigate.	Traffic along Stella Road will not be significantly impacted during operational phase, as the site has two access points, and the expected deliveries to the site can be managed efficiently. Delivery vehicles expected per day, are non-descript trucks, approximately 1 – 3. Workers are estimated to be 8, therefore limited movement is expected on and off site.	
Impact Management Outcome	The functioning of the surrounding road network remains efficient and the state of the infrastructure is not hampered.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General: • Ensure deliveries are coordinated and planned ahead of time. • Utilize two access points, one as an exit, the second as a designated exit, so as to avoid traffic generation, on entering and exiting Stella Road.	Developer	Operational phase

• Establish signage indicating entrance and exit point.		
Performance Indicator	• Limited congestion and traffic on the road network.	

12.8. OBJECTIVE 8: POOR WASTE PRODUCTION – WORK -PLACE COMPROMISED

***Impact Management Objective*: Healthy conditions and good waste production operations.**		
Potential impact(s) to mitigate.	▪ Poor waste management ▪ Unhealthy and unhygienic conditions ▪ Incorrect disposal of non-hazardous and hazardous waste.	
Impact Management Outcome	Healthy and hygienic conditions are met through good waste management.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General • Practice good house-keeping, and plan set-up and programme of works ahead of time. • Be mindful of weather patterns, that may affect waste storage area (based on placement). • Ensure storage of waste is done in an orderly fashion. • No storm water runoff containing waste, or water containing waste emanating from the waste area may be discharged into the environment. • Polluted stormwater must be contained on the site. • Any accidental release of a hazardous substance must be reported to the relevant authorities, including the Department of Environmental Affairs and Development Planning's Directorate: Pollution and Chemicals Management, in terms of Section 30 of the NEMA. • Dedicated waste bins or skips must be provided on site and kept in a demarcated area on an impermeable surface (may be permitted within, if non-hazardous, if hazardous utilize spill kits on site.	Proponent	Operational phase

• Separate waste bins/skips must be provided for recyclable waste, general waste and hazardous waste. Green waste (if any) may be stockpiled in separate bin until removal. • Waste must be placed in the appropriate waste bins/skips/ stockpiles. • Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown (if exposed) waste or dust. • Waste bins/skips must be regularly emptied and must not be allowed to overflow. • Always dispose waste at a registered waste disposal site, unless there is a chance that the waste can be re-used etc. in which case utilize an appropriate facility. • Minimize office waste. • Remain as a paperless as possible. • Ensure that if necessary, any OH&S monitoring is undertaken as required by any permit/license etc. • Ashes are to be transferred from ashtray using cleaning tools provided with technology for smoothe transition (masks and gloves must be worn). • Masks and gloves must be worn during handling of human remains Ensure Good House-keeping: • Utilize gloves when cleaning. • Do not allow waste to accumulate to more than 90% fo the waste receptacle. • Waste should be disposed of as soon as possible. • Clean facility bi-weekly atleast. Manage waste water: - The City of Cape Town advised that in the event of the proposed development discharging any industrial type effluent into the municipal sewers, an application to discharge industrial effluent into the municipal sewer system will be required. The business owner essentially need to apply to Shahied Solomon (Shahied.Solomon@capetown.gov.za) or Molepana Ramonyai (Molepana.Ramonyai@capetown.gov.za) for permission to discharge. These City Officials will be able to guide the developer/owner with regards to the process. This has been included as a condition of Environmental Authorization. - Any wastewater from cleaning will be handled as above, alternatively disposal at Vissershok Hazardous Waste Disposal Site will be considered. However, it is recommended that cleaning		

of the facility be undertaken with chemicals that require as little water as possible, for example Spray Klean Flight. Specifications include (The Go Green Store, 2022)*: - Tested by the SABS and is proven to kill 99.9% of all known bacteria. - Registered with the NRCS as an Anti-Bacterial detergent. - Biodegradable - Non-Toxic - Contains no Bleach or Ammonia - Non-abrasive - Non Flammable - Multi-Purpose Detergent - Can be diluted up to 25:1or used in its concentrated form. For full anti-bacterial effect spray on and leave for 5 minutes wipe off * https://ggstore.co.za/product/spray-klean-flight-5l-4/ Educating Labour • The proponent must ensure that all workers on site are familiar with the correct waste disposal procedures to be followed. • Waste generated on site must be classified and managed in accordance with the National Environmental Management: Waste Act – Waste Classification and Management Regulations (GN No. R. 634 of August 2013). • Disposal of waste to landfill must be undertaken in accordance with the National Environmental Management: Waste Act – National Norms and Standard for the Assessment of Waste for Landfill Disposal (GN No. R. 635 of August 2013). • All waste, hazardous as well as general, resulting from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF). Pollution Management – Hazardous Substances • Any hazardous substances (materials, fuels, other chemicals etc.) that may be required on site must be stored according to the manufacturers' product-storage requirements, which may include a covered, waterproof bunded housing structure. • Material Safety Data Sheets (MSDSs) shall 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 on ecological impacts and measures to minimise negative environmental impacts during accidental releases. • Utilize existing bunded areas on site for hazardous storage, in spillkits, if necessary. Fire safety • Avoid stockpiling waste material on site for excessive timeframes. • No waste may be stored on site for more than 90-days. • No uncontrolled or unpermitted burning of waste is permitted. • Ensure that gas or any flammable substances are stored according to industry standards. • Ensure that labour is fully trained and aware of dangers and appropriate management of LPG. • Ensure signage (for LPG etc. is in place) the proper safety signage must be erected on the security fence to alert individuals of the potential danger and these signs must comply with the SABS 1186: Part 1. • Maintain fire hoses and extinguishers. • Erect fire safety signage, and warning signage to alert people that flammable items are stored in a certain area, etc. and to indicate where fire safety equipment (e.g. fire extinguishers) are located.		
Performance Indicator	• Good waste management practices that ensure healthy and hygienic condition.	

12.9. OBJECTIVE 9: HEALTH IMPACTS ON WORKERS WITHIN THE CREMATORIUM

***Impact Management Objective*: The proposed developments operational conditions should not cause a risk to the workers short-term and long-term health.**	
Potential impact(s) to mitigate.	According to Cui et al., (2021) cremators, incinerators, and post-processing devices are all installed in cremation workshops and operated indoors. Consequently, a large quantity of unorganized odour emissions accumulates inside the workshop and impact the health of the workshop staff. Several studies have highlighted the potential risks of inhaling radioactive ashes by crematorium staff or members of the public. Due to the prolonged half-life of some radioisotopes, if the patient dies soon after implantation, then the cremated remains would also remain radioactive (Smith et al.,2012). This causes a hazard to the staff and those who handle the remains, until placed into a metal urn. Pacemakers and expandable orthopaedic nails are also two potential dangers to cremation staff. Studies conducted by Korczynski (1997) and Maloney et al., 1998) exposure

	to Hg to be higher amongst crematoria staff than in a control population, and exposure to fine particulates may occur, particularly where there are no operational and engineering controls to reduce exposure to dust. The Health Assessment Report has advised that "odour is not expected to be a considerable nuisance for the proposed crematorium. Research shows that in a modern effectively functioning crematorium, after it all, there is nothing left to smell -little to no odour. The heat is high enough that everything that can be reduced to smoke is done. Considering that smoke is minute particles carried on hot gasses, even these particles are burned until they are almost completely broken down. There is hardly anything left to smell." However, in the case of the proposed technology, the manufacturer has guaranteed that the technology is odourless and smokeless. No concerns have been raised from the operating of the technology on other sites.		
Impact Management Outcome	The health of all workers within the crematorium is not at risk during operational phase		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General • Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. • A Complaints Register must be available at the facility. • Emission controls ▪ Dust control (filters and scrubbers), where necessary <u>Health specialist Recommendation:</u> • Minimum furnace temperature (850 °C), residence time in the second chamber (2 seconds for combustion gases) and enough air to ensure combustion in the second chamber and avoid generating products of incomplete combustion; • Suitable air pollution control equipment, which could include temperature controls, dust control, carbon injection, fabric filtration, air tightness of combustion chambers and casings;		Developer	Operational phase

• Monitoring of gas temperature and flue gas O2 and CO concentrations, application of relevant emission limit values and additional monitoring, including ambient monitoring of soil and air in the proximity of crematoria; • The presence of PVC, metals and other contaminants (particularly chlorine compounds) in the coffin material and furnishings should be avoided to reduce the generation of persistent organic; • Use of waste-derived or other fuels potentially contaminated with persistent organic pollutants should be minimized; • Operational controls, inspection and preventive maintenance; – Sealed furnaces are essential to contain fugitive emissions while permitting heat recovery and collecting off-gases for abatement or discharge;Particulate matter should be removed to reduce PCDD/PCDF emissions to atmosphere (although they will be discharged to landfill);All crematorium staff involved in such a case should wear a mask and rubber gloves when handling the cremated materials, all cremated remains should be put in a metal urn, any unwanted radionuclides should decay in storage for 20 months before being discarded, and remains should not be scattered until 20 months after the date of implantation;Other good practice measures to protect crematoria workers, such as removal of radioactive implants before cremation, informing crematoria workers of recent radiotherapy treatments for deceased patients, and safe handling practices for ashes, can also reduce possible environmental releases of pollutants. • Implement Appendix F Control Measures during operational monitoring. <u>In terms of the Regulations Relating to the Management of Human Remains (2013) and the National Environmental Health Norms and Standards (GN. R. 1229 of 2015), both promulgated under the National Health Act (Act 61 of 2003), the cremation facility:</u> Point 14(5) provides the norms and standards for the reception of dead bodies on the premises: • must comply with the requirements of the Regulations relating to the Management of Human Remains, R363 of 22 May 2013 published in terms of the National Health Act, 2003 (Act 61 of 2003), as amended. • Suitable trained staff should be available and responsible for duties in the mortuary and ensure that the Hygiene Standards are adhered to.		

• A cleaning program for the mortuary should be in place. A register and records must be kept and maintained of the information regarding the handling of corpses; including the record of refrigeration facilities and temperatures must be taken daily. • The infection control staff member should regularly monitor whether the policy regarding the handling of corpses is followed and whether the mortuary is operated in an acceptable manner and in consideration of the Norms and Standards document. • Adequate protective clothing (comprising of waterproof aprons, light coloured overalls and protective gloves) should be provided and utilized for employees working in the mortuary. • Approved methods of waste collection, storage, transportation and disposal should be adopted for the handling of infectious waste in the mortuary, in compliance to the SANS 10248. Point 14(9) • provides that premises where boilers and incinerators are used must comply with the National Environmental Air Quality Act (Act 39 of 2004) with regards to the use of incinerators. Point 14(9) further provides that "incinerators should be monitored regularly to ensure effective operations in terms of permit conditions and the applicable local authority's by-laws." Point 14(10) provides the 'General Hygiene Requirements' as follows: • The premises must be maintained clean, free from offensive odours, unsightly accumulation of debris, litter and miscellaneous waste at all times. • Cleaning staff should be trained and competent on cleaning techniques and processes to be utilized for various areas in the health facility. • Cleaning material and detergent required to ensure a hygienic environment in the health facility must be available and properly stored at all times. • A cleaning schedule should be kept and maintained for cleaning of all areas in the facility. • Appropriate cleaning material and equipment should be available on the premises. Monitoring: Annual emissions sampling from the chimney stacks for PM, CO, NOx and Hg is required as per GN 893 of 2013. More frequent emissions sampling can be specified in the AEL, if the licensing authority sees fit. Technology Compliance: • Operate technology as per the manufacturers specifications. • Ensure staff is trained appropriately, particularly operators.		

• Ensure all emergency plans are available on site, and all staff have been trained accordingly. • Ensure each cremation is conducted as per the manufacturers specifications, and temperature and other conditions are monitored appropriately.		
Performance Indicator	• No recorded health issues pertaining to working conditions and no emissions or odours from facility/cremators.	

12.10. OBJECTIVE 10: SOCIO-ECONOMIC IMPACT: PROPERTY VALUE IMPACTS

***Impact Management Objective*: Reduce the impact on property value due to the proposed development.**		
Potential impact(s) to mitigate.	• Potential for property values to decrease, as the desirability to reside close to a crematorium facility or operate a business in the food industry, may be low. The area is zoned as an industrial zone with other existing air emitters already contributing emissions to the area (noted in the Air Quality Report), and other risk zones in close proximity. The zoning as an industrial area permits such a land use. Given the allowances for various activities in industrial zones, not permitted in other areas, the demand for property in industrial areas is high. This will be another business established in the correctly zoned area. Further to this Health Specialist confirmed that there is negligible to no human health risks anticipated, especially considering the technology compliance.	
Impact Management Outcome	Avoid a significant decline in ambient air quality resulting in commensurate decline in property value.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General • Ensure air quality emissions are maintained at acceptable levels. • Ensure all measure recommended in the EMPr are implemented • Ensure open communication with local community groups	Developer	Operational phase

• Ensure all visual/perception mitigation has been integrated and		
Performance Indicator	• The proposed development avoids decline in ambient air quality, minimising the impact on property values. • The proposed development minimises the impact on sense of place.	

12.11. OBJECTIVE 11: SOCIO-ECONOMIC IMPACT: PROVISION OF A CREMATORIUM FACILITY.

***Impact Management Objective*: Maintaining a functional and efficient facility to cater to the needs of the community.**			
Potential impact(s) to be promoted.	• Improved access to cremation services for the surrounding communities such as Blouberg, Atlantis, Table View, Milnerton and the broader City of Cape Town. • Meeting the demand for crematorium services in the City of Cape Town that can be utilized by other municipalities given that it is privately owned. • Relieves the burden on other cremation facilities in the City of Cape Town ensuring that the local municipality is able to sustain the current demand, to support its residents' needs. • Utilizing space in an appropriate manner, contributing to smart land use in an urban area.		
Impact Management Outcome	Improved quality of life.		
IMPACT MANAGEMENT ACTIONS			
Enhancement measures		Responsible party	Time period
Positive impact therefore mitigation is not required.		Developer	Operational phase
Performance Indicator	• Meeting the need for cremation services within the municipality. • Promoting economic growth and interest for the municipality as basic community services are available.		

12.12. OBJECTIVE 12: SOCIO-ECONOMIC IMPACT: LOCAL ECONOMIC REVENUE, AND CREATION OF BUSINESS AND EMPLOYMENT OPPORTUNITIES.

Impact Management Objective: ***Increased economic revenue for local businesses and industries and creation of business and employment opportunities.***		
Potential impact(s) to be promoted.	• Increase in local economic revenue. • Temporary and permanent employment opportunities that will contribute to employees quality of life. • Skills transfer opportunities during employ.	
Impact Management Outcome	• Creation of business and employment opportunities.	
IMPACT MANAGEMENT ACTIONS		
Enhancement measures	Responsible party	Time period
General: • Positive impact, therefore, to further enhance this impact, the developer is encouraged to source local labour, particularly those of Historically Disadvantaged Backgrounds, provided they have the necessary skills or experience, as well as • Utilize local suppliers for any maintenance required, that cannot be undertaken in-house. • The developer is encouraged to pursue potential skills transfer to equip labour with skills and experience that will aid in securing future employment.	Developer / Ikamva Green Holdings, trading as Platinum Pride Crematorium	Operational phase
Performance Indicator	• Utilization of local businesses and suppliers. • Increase in employment of local employees from the surrounding communities. • Increase in small businesses/services.	

13. RISK MANAGEMENT, PREVENTION AND EMERGENCY PREPAREDNESS

In terms of the City of Cape Town Municipal Planning By-law, 2015, although crematorium activity constitutes a primary use right in terms of the General Industrial zoning, no activity or use which includes the on-site storage of hazardous substances, shall be permitted unless a risk management and prevention plan has been submitted and the City has given approval thereto. The storage of LPG gas, in excess of 80m^3, on site constitutes a hazardous good. Accordingly, this Section of the EMPr provides guidance on the Risk Management, Prevention and Emergency Preparedness Plan which is to be compiled by the proponent. On completion of this plan, the EMPr must be amended as per Section 17.3.

This plan has three components:

1. Risk or hazard identification.
2. Prevention of identified risks propagating into emergencies; when prevention fails,
3. Pro-actively planned emergency response procedures must be prepared for emergency situations.

In case of an emergency at the facility, the appropriate emergency response must be taken. Emergencies can be hazardous to the environment if not appropriately controlled. To minimize environmental impacts, the crematorium facility must prepare an Risk Management, Prvention and Emergency Preparedness Plan which includes:

i. Identification of potential risks/hazards that could occur at the crematorium facility;
ii. Prevention measures;
iii. Emergency procedures for each identified potential hazard;
iv. Remedial actions;
v. Directory of emergency services in the area;
vi. List of all contact details of Platinum Pride Crematorium Management for emergency communication.

In accordance with the Risk Management, Prevention and Emergency Preparedness Plan, immediate action must be taken by the facility operator, management and personnel to contain the hazard and prevent or minimize the impact on the surrounding environment.

13.1. Potential Emergencies

The potential environmental risks that may arise as a result of construction activities, or during the operation and maintenance of facility equipment must be identified. Possible emergencies and impacts resulting from activities at the facility would include, *inter alia*:

- On-site fires;
- Explosions;
- Spills of hazardous chemicals;
- Electricity outages;
- Equipment malfunctions;
- Natural disasters (such as flooding, gale force winds); and
- Injury to workers.

Platinum Pride Crematorium management is responsible for identifying and including all other possible emergency scenarios in the Risk Management, Prevention and Emergency Preparedness Plan. Following which, appropriate emergency response procedures must be compiled for each emergency scenario in accordance with Section 30A of NEMA (Act 107 of 1998).

13.2. Emergency Preparedness and Response Procedures

The following measures must be implemented, as appropriate, to ensure effective response to emergencies:

- The construction contractor is responsible for identifying potential significant environmental risks that may arise as a result of pre-construction, construction and rehabilitation activities, and the contractor must formulate emergency response procedures for these potential incidents.
- The ECO, the contractor and the Holder are responsible for ensuring that all construction workers are aware of the emergency procedures and are properly trained on how to identify and respond to an emergency incident during construction.
- An emergency procedure must clearly indicate who will take charge during an emergency, and the roles and responsibilities of workers and authorities during an emergency.
- The construction contractor is responsible for ensuring that the requirements of the Occupational Health & Safety Act (Act 85 of 1993) (OHSA) are adhered to during the construction phase. The Holder is responsible for ensuring compliance with the OHSA during the undertaking of operational and maintenance activities.
- All workers on site during the construction and operational phase must be properly educated about possible emergency incidents that may arise, how to avoid such incidents and how to respond in the event of an incident. "Refresher" training sessions on emergency procedures must be held if needed.
- All workers must ideally be given basic fire-awareness training, as well as be advised on basic firefighting and safety techniques. Fire-fighting equipment must be available on-site during construction and operational activities (see section 0 & 0).
- All workers must be trained on how to respond in the event of a spill of a hazardous substance (fuel, chemicals etc.), if hazardous substances are to be used on site.
- A spill kit for containing and/or neutralising spills of hazardous substances (e.g. hydrocarbons) must be available on site at all times, when hazardous substances are present.
- Any incidents of pollution or spillage of hazardous materials during construction must be reported to the ECO as soon as possible. The ECO must then (depending on the nature of the spill) notify the relevant authorities, if needed. During the operational phase of the development, the EA Holder is responsible for notifying the relevant authorities of any pollution incidents that arise.
- A back-up electricity supply (e.g. a generator) must be available in the case of mains electricity outages to maintain electrical supply to:
    - Cold rooms,
    - Essential keypads,
    - Access control entrances,
    - Emergency lighting,
    - Emergency exit lighting,
    - Lighting around LPG storage area,
    - Furnace control circuits to allow for appropriate shutdown and/or operation should it be feasible.
- It is recommended to be mindful of electrical scheduling when planning operations.
- A first aid kit must be available on site at all times.
- Emergency contact numbers (including the fire department, police and ambulance) must be prominently displayed on site at all times and regularly updated.

- All emergency incidents must be recorded in a site incident log. The cause of the incident, the measures taken in response to the incident and the efficacy of those measures must also be recorded. This information must be used to inform future emergency preparedness planning, and to avoid prevent similar incidents from arising again.

13.3. Emergency Contact Directory

List of potential emergency contact services specific to the area must be drawn up and strategically located on common notice boards for all personnel to access. Emergency services include, but are not limited to:

- General: 10111/ 112
- Police Services
  - South African Police Services: Milnerton: 021 528 3800
  - Cape Town Metro Police: 021 596 1999
- Milnerton Fire Station
  - General: 021 400 649
  - Emergency Calls: 021 480 7700
- Ambulance services
  - Metro Ambulance: 10177 / 021 508 4500 / 021 937 0500
  - ER24: 084 124
  - South African Paramedic Service: 021 551 2999
- Hospitals
  - New Somerset Public Hospital: 021 402 6911
  - Karl Bremer Public Hospital: 021 918 1911
  - Milnerton Mediclinic: 021 529 9000
  - Netcare Blaauwberg: 021 554 9000
  - Table View Public Clinic: 021 444 5967

The Risk Management, Prevention and Emergency Preparedness Plan and directory of emergency services contacts should both be contained in the Environmental File and as a separate file which is clearly labelled for ease of use during emergency situations. The directory of emergency services should also be displayed in the facility office and at the fire equipment locations.

14. METHOD STATEMENTS

The Competent Authority and/or the ECO may require the Holder or Construction Contractor to submit Method Statements for one or more construction-related activity, or any aspect of the management of the site, before the activity is undertaken or during the performance of the activity, if the activity is causing or may cause significant environmental damage, or pose a health and safety risk.

Method Statements need not be complex and lengthy, but must clearly state **how**, **when** and **where** the activity concerned will be undertaken, and must specify **who** will be responsible for undertaking each component of that activity. Method Statements must be prepared by the Construction Contractor and submitted to the ECO for approval before undertaking the activity concerned.

The ECO and / or Competent Authority have the authority to request method statements for activities, including but not limited to:

- Establishment of site camp, facilities, and stockpile area.
- Cement/ concrete batching, disposal and emergency contingencies.
- Storage of fuels and hazardous chemicals and emergency contingencies.
- Waste management system.
- Storm water management and control.
- Alien invasive vegetation management.
- Fire Control & Fire Emergency Plan.
- Emergency preparedness plan / emergency response procedure (see Section 13).

The ECO has the authority to prevent activities from being undertaken until such time as a satisfactory Method Statement has been submitted to the ECO and approved by the ECO.

15. ROLES AND RESPONSIBILITIES

This EMPr, once approved by the competent authority (DEA&DP), must be seen as binding to the Holder, and any person acting on the Holder's behalf, including but not limited to agents, employees, associates, contractors and service providers.

The Holder and all other persons who may be directly involved in the development are also bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998:

> ***Duty of Care:***
> *"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 cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment"*

15.1. Duties and Responsibilities of the Holder

The Holder is ultimately responsible for ensuring that the environmental management measures specified in this EMPr, as well as any other conditions specified by the competent authority, are implemented and adhered to during the construction and operational phase (maintenance activities) of the proposed development.

The Holder or delegated party is responsible for monitoring and maintenance during the operational phase. The Holder must ensure that all appointed service providers, contractors and maintenance workers are capable of complying with all statutory requirements of this EMPr and the conditions of the Environmental Authorisation. The Holder is responsible for ensuring that this EMPr and the conditions of the Environmental Authorisation, and any other relevant license, are implemented and adhered to during construction.

The Holder or appointed consultant is responsible for identifying emergency situations that may arise during operational and maintenance activities and must formulate appropriate emergency response procedures for these emergency scenarios.

15.2. Duties and Responsibilities of the Contractor

The "Construction Contractor", or any such equipment installers as the holder may appoint, are the entities responsible for undertaking the physical establishment of the crematorium facility. Should the EA holder not appoint a construction contractor, the holder is to take on the responsibilities of the contractor as specified hereafter.

The construction contractor is responsible for:

- Ensuring that all environmental management measures and conditions specified in this EMPr, the EA and any other relevant licences/permits, are implemented during the pre-construction, construction and post-construction rehabilitation phases, unless agreed otherwise with the Holder.
- The contractor must ensure that all costs related to environmental compliance with the approved EMPr, EA and other relevant permits or licenses are covered by their BOQ and arrangements have been made prior to commencement of activities.
- The contractor is responsible for all costs incurred as a result of non-compliances of implementation of the activities on site, and the related mitigation activities that will be required for this mitigation.

It is strongly recommended that the Construction Contractor appoint an Environmental Site Officer (ESO), who will act as the Contractor's representative to monitor and enforce compliance with the conditions of this EMPr, throughout all phases of construction.

In addition to the above, the Construction Contractor is responsible for the following:

- Identify emergency situations that may arise as a result of construction activities and formulate appropriate emergency response procedures.
- Ensure that all construction workers, including sub-consultants and service providers, undergo environmental awareness training prior to commencing work on site, or as soon as possible thereafter.
- Compile the required method statements, which must be to the satisfaction of the ECO, before commencing with the activity to be governed by the method statement.
- Respond to concerns or issues identified by the ECO, as relates to environmental management, and implement the appropriate management or remediation measures, at the Contractor's own expense (unless agreed otherwise)
- Should third parties be called to the site to perform clean-up/rehabilitation as a result of non-compliances, the Construction Contractor will be responsible for all associated costs.

The Holder of the Environmental Authorisation can hand over the responsibility and liability to the appointed Contractor, in writing, for the implementation of this EMPr and the conditions of the EA for construction related activities. Therefore, the Contractor should note that failure to comply with the requirements and conditions of this EMPr and the EA may result in fines or other penalties being levied against the Construction Contractor.

15.3. Duties and Responsibilities of the ECO

The appointed Environmental Control Officer (ECO) is responsible for undertaking regular site visits (as advised in the Environmental Authorisation), to monitor and report on the implementation of this EMPr and adherence to the conditions of the Environmental Authorisation during the pre-construction,

construction and post-construction rehabilitation phases. The ECO is not required to monitor the site during the operational (maintenance) phase of the development.

15.3.1. Competency of the ECO

The ECO must be independent of the Environmental Auditor, Holder, Engineer, Construction Contractor and their service providers. The appointed ECO must be suitably qualified and experienced and must be able to demonstrate that he / she is of sufficient competency to undertake the required task. The ECO must preferably be a resident in close proximity to the development area to ensure quick response if required. The ECO must work in close co-operation with the Construction Contractor, resident engineer or EO (where applicable) and all contractors in order to identify potential problems before they occur and ensure that this EMPr is still implementable, as is. If changes are required, the ECO is to escalate this to the Environmental Auditor.

15.3.2. Duties of the ECO

The duties of the ECO include, but are not limited to:

- Conduct a pre-construction site inspection to ascertain the pre-commencement conditions are met (i.e. the status quo);
- Conduct environmental awareness training for all personnel on site, which must include;
    - A brief description of the surrounding environment;
    - Importance of this EMPr;
    - Roles and responsibilities;
    - Identified environmental risks;
    - Mitigation measures to be implemented;
    - No-go areas;
    - Emergency procedures (Hydrocarbon spill);
- Undertake regular site visits to monitor compliance with all mitigation, monitoring and management measures contained in this EMPr and the Environmental Authorisation, during the pre-construction, construction and rehabilitation phases of the development;
- Evaluate the achievement of the performance indicators associated with each impact management objective specified in this EMPr;
- Liaise with site contractors and other members of the development team with regard to the requirements of this EMPr;
- Provide guidance as and when required regarding the implementation of the environmental management measures contained in this EMPr and EA;
- If assistance is required, provide environmentally acceptable solutions to construction problems in line with this EMPr;
- Ensure that the working areas, site camp facilities, access roads and/or no-go areas are properly demarcated;
- Ensure that proper alien invasive vegetation management practices are adhered to on site;
- Ensure that proper waste management & pollution prevention strategies are practised on site;
- Examine method statements, where required;
- Recommend additional environmental protection measures, should this be necessary to stop an incident from occurring on site;
- Note contraventions of this EMPr, within ECO Reports, including, but not limited to their frequency, and severity;

- Keep detailed records of all site activities that may pertain to the environment, and produce compliance-monitoring reports (ECO Reports) for submission to the Holder, and the Competent Authority at regular intervals during the construction phase;
- Submit a final post-construction inspection report, within 6 months of completion of each construction phase. The audit report must detail the rehabilitation measures undertaken, describe all major incidents or issues of non-compliance and any issues or aspects that require attention or follow-up.
- All ECO Reports and Inspection Reports must be submitted to the Holder and Competent Authority.

15.3.3. Frequency of ECO visits

The ECO must conduct a site visit once per month. The ECO has the discretion to undertake additional visits if he / she feels this is justified due to the actions of the contractors, and to make *ad hoc* visits in order to ensure compliance.

The ECO must also undertake a **final inspection (audit) 6 months after the completion of construction activities**. The purpose of this final inspection is to ensure that the rehabilitation measures applied at the conclusion of the construction phase have been sufficient to promote the successful rehabilitation of the site, and to identify any further issues that require attention or follow-up.

15.3.4. Authority of the ECO

The ECO has the authority to recommend to the authorities that they suspend all works (or part thereof) occurring on site, should any action being undertaken on site not comply with the environmental requirements, and where such actions pose a serious threat to any element of the surrounding environment.

The ECO has the authority to issue instructions to the Construction Contractor and/or Holder, regarding measures that must be implemented on site in order to ensure compliance with this EMPr and Environmental Authorisation, and/or to prevent environmental degradation or pollution from occurring.

The ECO has the authority to issue verbal and written warnings to contractors, in terms of non-compliance with the EA and EMPr. Should verbal and written instructions and/or warnings be ignored, the ECO has the authority to request the Competent Authority to issue pre-determined fines or other penalties.

The ECO has the authority and responsibility to report incidents of non-compliance to the Competent Authority or other relevant authority, at any time.

15.4. Environmental Auditor

An environmental auditor is to be appointed by the applicant. As per Section 34 of the EIA Regulations (GN R326 of 2017), the duty of an Environmental Auditor is to be in dependent and is responsible for:

- Ensuring compliance with the conditions of the environmental authorisation and this EMPr; and
- Submit an environmental audit report to the relevant competent authority, which provides verifiable findings, in a structured and systematic manner, as per Appendix 7 of GN R326.

The Environmental auditor must undertake an audit as per Appendix 7 of GN R326 at the following stages;

- At 50% completion of the project timeline.
- At practical completion of the construction period.
- 3 months after practical completion of the construction period, after reviewing the ECO Report, should it be necessary.
- 1 year after operation in line with the air quality monitoring.
- Annually for 3 years thereafter to ensure compliance and check monitoring reports.

At a minimum, this EMPr should be reviewed periodically every 24 months from the date of approval of this EMPr and while the facility continues to operate.

16. ENVIRONMENTAL AWARENESS PLAN

Environmental Awareness Training must be conducted prior to the commencement of construction activities. It is the holder's responsibility to familiarise himself/herself with the content and requirements of this EMPr. The holder is also responsible to ensure that the contractor and all labourers working on site during the construction phase are familiar with the content of this EMPr.

The following actions must be taken to ensure that all relevant parties are aware of their environmental role and duties:

1. This EMPr must be kept on site at all times.
2. The provisions of this EMPr and the conditions of the Environmental Authorisation, and the conditions of other applicable licences or permits, must be explained in detail to all staff during Awareness Training.
3. Training booklets (Appendix C) will be handed out to all labourers and must be explained to them.
4. Weekly checks to be done by the Holder's environmental representative who must be on site at all times.
5. The ECO to conduct frequent site visits.
6. Monthly monitoring reports to be compiled by the ECO. These reports will be circulated to all parties involved (including the holder, contractor and the competent authority).

The Construction Contractor must make allowance for all construction site staff, including all subcontractors that will be working at the site, to attend environmental awareness training sessions (undertaken by the ECO) before commencing any work on site. During this training, the ECO will explain this EMPr and the conditions contained therein. Attention will be given to the construction process and how this EMPr fits into this process. Other items relating to sound environmental management which must be discussed and explained during the environmental awareness training sessions include:

- The demarcated "No-Go" areas (only where necessary);
- General do's and don'ts of the site;
- Making of fires;
- Waste management, use of waste receptacles and littering;
- Use of the toilets provided;
- Use and control of construction materials and equipment etc.;
- Control, maintenance and refuelling of vehicles;

- Methods for cleaning up any spillage;
- Access and road safety;
- Emergency procedures (e.g. in case of fire, spillage etc.)
- General "best practice" principles, with regards to the protection of environmental resources.

Environmental awareness training and education must be ongoing throughout the construction of the development and must be undertaken regularly if deemed necessary (especially if it becomes apparent that there are repeat contraventions of the conditions of this EMPr), or as new workers come to site. Translators must be utilised where needed.

17. MONITORING, RECORD KEEPING AND REPORTING

An appropriately qualified air quality specialist must be appointed to undertake, air quality modelling in line with the AEL.

17.1. Environmental Auditing

In accordance with the requirements of the Environmental Impact Assessment Regulations, 2014 (as amended), the Holder of the Environmental Authorisation must, for the period that the Environmental Authorisation is valid, appoint a suitably qualified independent person to conduct an environmental audit to audit compliance with the conditions of the Environmental Authorisation and this EMPr.

The Holder is responsible for appointing, managing and remunerating the appointed auditor. The auditor may not be the appointed ECO.

The appointed auditor is to be provided with the completed EMR's and Checklists, as well as any other crucial information that may be relevant or requested (incident report, waybills etc.) in order to effectively report on the level of compliance with the conditions of the environmental authorisation and this EMPr. The appointed auditor must undertake environmental audits at the following stages;

- At 50% completion of the project timeline for each of the two phases of the development.
- At practical completion of the construction period.
- 3 months after practical completion of the construction period, if necessary, after reviewing the ECO Report.
- 1 year after operation in line with the air quality monitoring.
- Annually for 3 years thereafter to ensure compliance and check monitoring reports.
- Or according to the frequency specified in the Environmental Authorisation.

Following each audit, the environmental auditor must submit an audit report to the Competent Authority (in this instance the DEA&DP).

- Environmental auditing and environmental audit reports must adhere to the requirements of the amended 2014 Environmental Impact Assessment Regulations, in particular Section 34 (Auditing of Compliance with Environmental Authorisation, Environmental Management Programme) and Appendix 7 (Objective and Content of Environmental Audit Report)
- The audit report must provide verifiable findings on the level of compliance with the provisions/ conditions of the Environmental Authorisation and this EMPr and must also comment on the ability of the measures contained in this EMPr to sufficiently avoid, manage, and mitigate environmental impacts.

- Where the findings of the audit report indicate that the impact management measures stated in this EMPr are insufficient to adequately address environmental impacts, recommendations as to how this EMPr must be amended so as to address the identified shortcomings must be made and submitted to the competent authority together with the audit report.

17.2. Construction phase monitoring, reporting and record keeping

The appointed ECO is responsible for monitoring the site at regular intervals during the construction phase, in order to ensure that the provisions of this EMPr and the Environmental Authorisation are adhered to and that sound environmental management is ensuing on site.

The ECO must undertake monthly site visits **and compile a monthly ECO reports** detailing the ECO's observations on site, any instances of non-compliance and any issues or aspects that require attention, follow-up or remedial action. The ECO reports must be submitted to the Holder and to the Competent Authority is so requested by that authority, as well as the Environmental Auditor. The ECO inspection reports must include both photographic and written records.

17.2.1. ECO Inspections - Photographic Records

The condition of the surrounding natural environment must be monitored regularly in order to ensure that construction and management activities are not impacting negatively on the condition of the adjacent landscape and any adjacent sensitive ecosystems. The most effective way to achieve this is by means of a detailed photographic record. In this way, a record of any shift in ecosystem condition can be maintained and potential impacts be detected at an early stage. It is thus recommended that fixed-point photo-monitoring sites could be set up, and photographs must be taken at these sites during each ECO inspection. Where necessary, the entire working area must be well documented and photographed.

17.2.2. ECO Inspections - Written Records

The following record-keeping during the pre-construction, construction and rehabilitation phases of the development is recommended:

- The ECO must complete an ECO Checklist after each ECO site visit.
- The ECO must compile an ECO monitoring report and submit this to the Holder, the Contractor and the Competent Authority. The monthly reports must be a summary of the ECO inspections from the preceding month and must highlight the key concerns/ issues on site, instances of non-compliance with the EA and EMPr, all instructions issued to the contractor, actions taken and aspects that still require attention.
- All ECO reports and ECO instructions must be retained on file at least for the duration of the construction period (retaining reports for a period of at least 5 years is recommended, in the event that the Competent Authority must request information).
- A record (minutes) of construction site meetings, liaison site meetings between the ECO and any member of the construction team, monitoring reports, ECO instructions and ECO observations must be clearly documented and filed on a master file off-site for safe keeping.
- It is recommended that a site register (incident register) be kept on site at the site office for the recording of any environmental incidents (e.g. fires, spills etc.), observations which are contrary to the stipulations within this EMPr and any other contravention deemed necessary for the attention of the resident engineer. Actions taken to remedy the incidents must also be recorded.

- A complaints register must be kept on site in which complaints by any member of the public must be logged.
- The ECO must compile a final post-construction audit report, within 6 months of completion of each construction phase. The audit report must detail the rehabilitation measures undertaken, describe all major incidents or issues of non-compliance and any issues or aspects that require attention or follow-up.

17.2.3. Construction Phase Record Keeping

A copy of the approved EMPr, the Environmental Authorisation and any relevant construction method statements must be kept on site at all times during pre-construction, construction and rehabilitation activities. The ECO Reports must be retained by the Holder for a period of at least 5 years and must be provided to the Competent Authority upon request.

The set up and organisation of the site camp is paramount to ensuring compliance. An environmental file is to be created by the contractor and be situated within the site camp throughout the construction phase and with the applicant thereafter. The environmental file is to include the following;

- A copy of the Environmental Authorisation
- A copy of General Authorisation or any other relevant permits
- A copy of the approved EMPr
- Waste slips
- Disposal slips or cleaning slips (ablution cleaning)
- All EMR's (Environmental Monitoring Reports) and ECO instructions
- Copies of Environmental Induction Register/S
- A Complaints Register
- Updated method statements
- Risk Management, Prevention and Emergency Preparedness Plan
- An Incident Register

17.2.4. Operational Phase Record-keeping

The Regulations Relating to the Management of Human Remains (2013), under the National Health Act (Act 61 of 2003), requires that a cremation register must be maintained at the facility, including:

- Date of cremation;
- Name, identity number, address, occupation, age, sex, and marital status of each deceased person cremated therein;
- The date of death of each cremated person;
- The name, identity number and address of the person in whose name the crematorium is registered;
- The name, designation and address of the person issuing the certificate of the cause of death of each cremated person;
- The cause of death and the registration number of the death certificate of each cremated person; and
- The manner in which the ashes of the person was disposed.

Point 14(5) of the National Environmental Health Norms and Standards For Premises and Acceptable Monitoring Standards for Environmental Health Practitioners (2015), requires that a register and records must be kept and maintained of the information regarding the handling of corpses; including the record of refrigeration facilities and temperatures must be taken daily.

Section 5 of the CCT Integrated Waste Management By-law (2009, amended 2016) requires hazardous waste generators to maintain, for a period of 5-years, accurate records of the waste they generate and the waste they handover to transporters to be delivered to waste management facilities; which records must reflect:

- the classification of the wastes in terms SANS 10234;
- the quantity of each waste stream generated per month, expressed in tons or cubic metres;
- the quantities of each waste stream that has either been re-used, recycled, recovered, treated or disposed of; and
- by whom the waste was collected and by whom the waste was managed.

Further to the above legislated requirements, records must be kept of the maintenance of the furnaces, LPG infrastructure, and firefighting equipment as required by Sections 12.3 of this EMPr.

17.3. EMPr Review and Amendment

This EMPr must be seen as a working document, which may be amended as and when needed, accommodate changing circumstances on site or in the surrounding environment, or in order to accommodate requests/ conditions issued by the competent authority, the Department of Environmental Affairs & Development Planning (DEADP). At a minimum, this EMPr should be reviewed periodically every 24 months from the date of approval of this EMPr and while the facility continues to operate.

Amendments to this EMPr must first be approved by the competent authority, in writing, before being implemented. When a review and amendment of this EMPr is conducted and approved, the amendment must be appended to this EMPr and an entry into the Register of EMPr Review (see Annexure B) must be completed. Entries in the Register must indicate the review date, a description of the amendment undertaken, and a signature of the internal authorising party.

18. PENALTIES, CLAIMS AND DAMAGES

The contractor will be responsible for ensuring that all procedures required to rehabilitate the site are implemented, any non-compliance as a result of negligence or any other aspects that deviate from the approved scope, are the liability of the contractor. If third parties are called to the site to perform clean up and rehabilitation procedures, for non-compliant activities, the contractor will be responsible for all costs. The competent authority may impose penalties on the Holder or any of the contractors if conditions contained in this EMPr are contravened. This would be based on an agreement or contract between the Holder and the contractor.

Penalties could be imposed in terms of Chapter 11 of the Western Cape Bill on Planning and Development as published in the Extraordinary Provincial Gazette No 5183, 3 October 1997, and would be applicable for any action which leads to damage to the natural environment. Further to this, NEMA Section 2(4)(p) provides for the polluter pays principles stating that:

> "The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment."

This principle holds the produce or generator of pollution liable to pay the costs of cleaning up pollution and/or remedying its effects. Please note that the payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.

In cases where severe environmental damage occurs, the competent authority law enforcement division may take legal action against the responsible parties. The reasons for this could include, amongst others:

- Not implementing the conditions of this EMPr;
- Spillage that results in environmental damage;
- Incorrect handling and storage of construction materials and chemicals;
- Sensitive areas that are not clearly demarcated;
- Performing ablutions in areas other than facilities provided for such actions; and
- Occurrence of unattended and out of control fire.

The Contractor shall comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the ECO to issue the contractor with penalty / fine as described in the following section.

The following offences, level of severity and value of the financial fines have been drafted according to the sensitivities on the proposed site, the mitigation measures proposed, and the construction methods proposed. It must be noted that the level of severity is at the discretion of the ECO and any offences or fines will be recorded in the ECO's monitoring report. The fineable offences are not limited to the table below, additional offences may be applied by the ECO with prior agreement with the EA holder.

The following fine structure shall apply:

Table: Fines and offences.

Finable Transgression	Min Fine	Max Fine
Failure to notify the ECO of the commencement of construction or pre-construction activities, prior to the commencement of such activities.	R1 000	R2 000
Failure to comply with the provisions relating to the demarcation of the working area, site camp and associated facilities, and the maintenance of the demarcated boundaries.	R1 000	R5 000
Encroachment into "no-go" areas.	R2 000	R5 000
Failure to provide secured ablution facilities (1:30 ratio) on site.	R500	R15 000
Failure to comply with the provisions relating to the clearance of vegetation on site.	R2 000	R5 000
Clearance of indigenous vegetation (regardless of the density of alien vegetation present) outside of the demarcated boundaries of the working area and site camp.	R2 500	R15 000
Failure to implement appropriate alien invasive management measures.	R500	R2 000
Failure to adhere to designated access routes and/or the driving of vehicles through undeveloped vegetation outside of the demarcated working area or site camp.	R1 000	R5 000
Movement of vehicles and/or construction workers in no-go areas;	R1 000	R10 000

Parking or storage of vehicles, machinery, tools and other materials or equipment related to the Contractors operations, within designated "no-go" areas.	R1 000	R10 000
Parking or storage of vehicles, machinery, tools and other materials or equipment related to the Contractors operations, outside of the areas demarcated for such parking/storage.	R500	R5 000
Failure to comply with the provisions relating to the management of topsoil and subsoil.	R1 000	R5 000
Excessive excavation of material in areas not depicted for such purpose / activity on the approved design plans.	R2 500	R10 000
Failure to comply with the provisions relating to waste management on site i.e. recycling of wastes, appropriate and timeous disposal, etc.	R500	R5 000
Failure to comply with the provisions relating to the storage, use and management of hazardous substances and fuels on site and/or the spillage of hydrocarbons or hazardous substances on site leading to environmental damage.	R1 000	R10 000
Mixing cement or concrete on bare ground and/or failure to comply with any other provision regarding cement/ concrete batching.	R1 000	R5 000
Failure to provide adequate fire-fighting equipment (in working order) on site at all times and/or failure to comply with the provisions relating to fire prevention and/or the occurrence of unattended or out of control fires.	R500	R5 000
Refuelling of vehicles, machinery or equipment outside of the designated refuelling area.	R500	R2 000
Maintenance of vehicles, machinery or equipment outside of the designated maintenance yard, except in emergencies.	R500	R2 000
Failure to undertake refuelling or repairs over a drip tray or other impermeable bunded surface to collect spilled hydrocarbons (fuels, lubricants, oils etc.) and other hazardous substances; failure to provide drip trays under fuel burning equipment (including pumps and generators) where there is a risk of hydrocarbon leakage.	R500	R2 000
Failure to produce a required method statement/s to the engineer's and ECO's satisfaction prior to undertaking the activity concerned and/or failure to adhere to an approved method statement.	R1 000	R5 000

The above does not absolve the transgressor from being prosecuted in terms of the ***National Environmental Management Act (Act 107 of 1998)*** which may result in further penalties and other actions by State Departments.

19. CONCLUSION

The recommendations and mitigation measures prescribed in this EMPr have been formulated with the intention of addressing potential pre-construction, construction, and operational phase impacts on the environment. It is likely that *if* the conditions, requirements, and recommendations of this EMPr are

implemented as described and the relevant stakeholders adhere to the various mitigation measures, then the project will be completed without unforeseen negative environmental impacts.

Familiarity with the contents of this EMPr by the contractors and other individuals involved in the development project will assist in achieving "environmental best-practice", which ultimately ensures that the project arrives at a sustainable outcome.

APPENDIX A: CURRICULUM VITAE OF EAPS

CURRICULUM VITAE

AMEESHA SANKER

PERSONAL

Profession: Environmental Assessment Practitioner, Sharples Environmental Services cc, Cape Town.

Nationality: South African

Date of Birth: 27 December 1990

Languages: English (read, write and speak) - Fluent

Marital Status: Single

Drivers' License: Code B

Health: Excellent

WORK EXPERIENCE

March 2020 – Present: Sharples Environmental Services cc, Cape Town, WC
Environmental Assessment Practitioner

- Basic Assessments Reports
- Amendment Applications
- Administration.

July 2014 – March 2020: Dartingo Consulting Engineers (Pty) Ltd, Durban, KZN
Part-time GIS Technician

- Management and compilation of GIS database.
- Layout/map creation.

June 2013– March 2020: EnAq Consulting.cc
Environmental Assessment Practitioner

- Basic Assessment Applications
- Water Use License Applications
- Environmental Monitoring/Auditing
- Stakeholder Engagement
- Reporting
- Environmental Management Plans

- Public /Contractor Awareness Training
- Biodiversity Offsets
- Rehabilitation and Protected Areas
- Project Management
- GIS management
- Administration

TERTIARY EDUCATION

2019: UNISA

- Bachelor of Science Honours Degree specialising in Environmental Management.

2014: University of Kwa-Zulu Natal

- Bachelor of Science Degree specialising in Geological Science (Engineering and Environmental).

PROJECTS

Sharples Environmental Services.cc

2020-George Groenkloof Ontwikkelings (Pty) Ltd

- Partial completion of the Amendment for the Proposed Development of a Retirement Village and Associated Infrastructure on Portion 3 of the Farm Kraaibosch 195, George, Western Cape.

2020-Wittedrift The Home Market NPC

- Completion of the Basic Assessment Report for the Proposed Retirement Village and Service Infrastructure on Erf 103, 104 and a Portion of Rotterdam Street. Wittedrift, Bitou Municipal Area, Western Cape.

2020-Mossel Bay Mossel Bay Local Municipality

- Basic Assessment Report for the Proposed Construction of Walvis Street, Western Cape.

2020-Beaufort West Beaufort West Local Municipality

- Basic Assessment Report for the Expansion of the Existing "Goue Akker" Cemetery in Beaufort West, Beaufort Local Municipality, Western Cape.

2020-Melkhoutfontein Hessequa Local Municipality

- Basic Assessment Report for the Expansion of the Existing Melkhoutfontein Cemetery on ERF 566 and portion 141/480, Hessequa Local Municipality, Western Cape.

2020-Umzimkhulu Leratong Victim Empowerment Co-operative Ltd.

- Basic Assessment Report for the Construction of a Roof Sheeting Factory, Umzimkhulu Local Municipality, KwaZulu-Natal.

Previous Employment (2013 – 2020)

Margate Ugu District Municipality

- BAR, WULA, GIS and ECO for the Proposed Southern Mains Bulk Water Upgrade: Gamalakhe to Margate, Ugu District Municipality, KZN.

Port Shepstone Ray Nkonyeni Local Municipality

- Project screening, assistance with BAR preparation, public participation, GIS and ECO for the proposed Acacia Road Storm Water Network Update, Ray Nkonyeni Local Municipality, KZN.

Ixopo Harry Gwala District Municipality

- Project screening, assistance with BAR preparation, and GIS for the Upgrade of Ixopo Sewer Network, Harry Gwala District Municipality, KZN.

KwaDukuza KwaDukuza Local Municipality

- Project screening, EMPr preparation and ECO for the KwaDukuza Beach Upgrades: Life- Guard and Ablution Facilities, KwaDukuza Local Municipality, KZN.

KwaDukuza KwaDukuza Local Municipality

- Project screening, EMPr preparation and ECO for the A/C Mains Replacements, KwaDukuza Local Municipality, KZN.

Mzumbe Mzumbe Local Municipality

- Project screening, BID and Public Participation for the Proposed Mzumbe Access Road Upgrades, Mzumbe Local Muncipality, KZN.

uMtumvuna Ray Nkonyeni Local Municipality

- Project screening, Public Participation and BID for the Proposed uMtamvuna Water Treatment Works Upgrade, Ray Nkonyeni Local Municipality, KZN.

Mkholombe Ray Nkonyeni Local Municipality

- Project screening for the Proposed Upgrade of Mkholombe Sewer Network Upgrade, Ray Nkonyeni Local Municipality, KZN.

Phoenix Ethekwini Municipality

- Project screening, Assistance with the initiation of the Section 24G for the Viewhaven Housing Development, Ethekwini Municipality, KZN.

Margate Ugu District Municipality

- Project screening, and application for Amendment to the Margate Sewer Pipeline Replacement: Upgrade of Pump Station 3A and the Augmentation of Margate Effluent Main, Part 1 & 2, Ugu District Municipality, KZN.

Ballito Siza Water

- Project screening, initiation of BID and WULA for the Ballito Hills Water and Sanitation, KwaDukuza Local Municipality, KZN.

Mzumbe Umzumbe Local Municipality

- Project screening for the Proposed Constrcution of Ward 20 Community Hall, Umzumbe Local Municipality, KZN.
- Project screening for the Proposed Construction of R102 Bus Shelters, Umzumbe Local Municipality, KZN.

- Project screening for the Proposed Construction of Dweshula Community Hall, Umzumbe Local Municipality, KZN.

CURRICULUM VITAE

WILLAN ADONIS

PERSONAL

Profession: Environmental Assessment Practitioner, Sharples Environmental Services cc, Cape Town.

Nationality: South African

Date of Birth: 20 April 1996

Languages: English and Afrikaans (read, write and speak) - Fluent

Marital Status: Unmarried

Drivers License: Code B

Health: Excellent

WORK EXPERIENCE

January 2022 – Present: Sharples Environmental Services cc
Intern Environmental Assessment Practitioner

- Site Sensitivity Verification Reports
- Alien Invasive Management Plans
- ECO
- PPP plans
- NOIs
- EMPr's
- Contributions to Basic Assessments Reports
- Marketing and social media
- Tender search

Jan 2018 – Dec 2021: Stellenbosch University's School of Public Leadership
Course administrator & Online technology assistant

TERTIARY EDUCATION

2021: Stellenbosch University

- MPhil Environmental Management (Cum Laude)
- Thesis title: 'Investigating Governance for Urban River Restoration: The case of the Kuils River, South Africa'

2019: Stellenbosch University

- PGD Environmental Management (Cum laude)

2018: Stellenbosch University

- BA Development and Environment (Cum laude)

PROJECTS

Sharples Environmental Services.cc

2022 - Baden Powell bulk water — City of Cape Town
- ECO

2022 - Montague Gardens — Platinum Pride Crematorium
- Site Sensitivity Verification Report
- Public Participation Plan
- Contribution to NOI
- Contributions to BAR
- EMPr

2022 - Philadelphia — Narcross Group
- Public Participation Plan

2022 – Aalwyndal, Mossel Bay — Catfight Properties 1313 cc
- Site Sensitivity Verification Report
- NOI.
- Specialist Terms of Reference
- Letters of Appointment

2022 – Aalwyndal, Mossel Bay — Mossel Bay Storage (Pty) Ltd
- EMPr
- Alien Invasive Management Plan

2022 – Paarl — NexusAG
- SSVR
- Project Plan
- Public Participation Plan

2022 – George — Grow Green Organics (Pty) Ltd
- OEMPr
- SSVR
- NOI & Appednidices
- Specialist Terms of Reference
- Letters of Appointment

2022 – Kurland Bulks — Bitou Local Municipality
- SSVR
- Public Participation Plan
- Contributions to BAR
- EMPr

APPENDIX B: EMPR REVIEW AND AMENDMENT REGISTER

Review date	Description of Review and/or Amendment	Signature

Appendix C: Environmental Awareness Plan

GEORGE
TEL: +27 (0) 44 873 4923 **FAX:**+27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: 102 Merriman Street, George, 6530
PO BOX: 9087, George, 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:**+27 (0) 86 575 2869
EMAIL: lauren@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Unit 71, Eden on the Bay, 5 Beach Estate Boulevard
Blouberg, Big Bay, 7441
PO BOX: 443, Milnerton, 7435

ENVIRONMENTAL AWARENESS TRAINING BOOKLET

Environmental Monitor's Foreword

SES is here to ensure that everyone complies with the conditions of "Duty to Care". If these conditions are not complied with the project can be stopped and fines can be issued.

We hope that with your co-operation the project won't be stopped and fines won't be issued, and a successful project can be finished on time.

Notes:

- Workers working on this project must undergo environmental training.

- The information contained in this document should be used during day-to-day activities.

HOW IS THIS PROJECT IMPLEMENTING ENVIRONMENTAL MANAGEMENT?

This project is implementing Environmental Management on an ongoing basis throughout the duration of the project. The following aspects would be implemented to achieve the above stated:

- A dedicated Environmental Manager or Environmental Control Officer appointment to the project to implement and monitor Environmental Management.
- Regular environmental inspection on the site.
- Regular environmental training for workers
- Environmental audits on a regular basis.

WASTE TREATMENT

Refuse:

- Refuse waste includes: waste food, food containers, packaging materials, cans, bottles, newspapers and magazines.
- Day to day household waste should always be disposed of in the containers provided on site by the company.
- No dumping of waste anywhere other than in the bins provided.
- No burning of refuse.
- If there are not enough refuse containers on site, the ECO or supervisor needs to be informed.

Construction Waste:

- Construction waste includes: concrete, steel, cement, rock, pre-coated chips, wood, plastic, empty bags and rubble.
- Construction waste must be discarded in skips located in strategic areas for removal.
- Construction waste must not be discarded in holes or burned on site.

- Small amounts of construction waste should be collected and not discarded into vegetation or down fill slopes.
- Material should only be spoiled if a rehabilitation plan has been designed for the area.

Liquid waste:

- Liquid waste includes: concrete, paint, thinners, diesel, hydraulic fluids, cooking oil, chemicals, other fuel and sewage.
- Use facilities provided for waste.
- The liquid waste should be recycled as far as possible.
- Use chemical toilets and ablution facilities.

INFORM THE ENVIRONMENTAL CONTROL OFFICER (ECO) IMMEDIATELY OF ANY IMMEDIATE OR POTENTIAL ENVIRONMENTAL INCIDENT.

SPECIFIC ENVIRONMENTAL ISSUES

SPESIFIEKE OMGEWINGSKWESSIES
IMIBA ETHILE YEZOBUME BEMEKO YENDALO

The basic Do's and Don'ts towards environmental awareness are as follows:

Die basiese Moets en Moenies van omgewingsbesinning is as volg:

Oondoqo bo mawukwenze no mawungakwenzi kwilinge lezobume be meko yendalo bume ngoluhlobo:

Toilet Facilities:
Toilet Fasiliteite:
Izindlu Zangasese:

DO:
USE THE TOILET FACILITIES PROVIDED - REPORT FULL FACILITIES
MOET:
GEBRUIK MAAK VAN TOILET FASILITEITE WAT VOORSIEN WORD – RAPPORTEER AS FASILITEITE VOL IS
OMAWUKWENZE: SEBENZISA IZINDLU ZANGASESE EZIBONELELWEYO- NIKA INGXELO NGAMALUNGISELELO AGCWELEYO.

DO NOT:
USE THE BUSH
MOENIE:
DIE BOS GEBRUIK NIE
OMAWUNGAKWENZI: UKUSEBENZISA ITYHOLO.

Vehicles operation and maintenance:
Voertuig werking en onderhoud:
Ulawulo nophatho lezithuthi:

DO:
ENSURE THAT VEHICLES AND MACHINERY DO NOT LEAK FUEL OR OILS. REFUELLING, MAINTENANCE, SERVICING OR WASHING MUST BE DONE WITHIN THE DESIGNATED AREA IN THE CONSTRUCTION CAMP AREA ONLY.
MOET:
VERSEKER DAT VOERTUIE EN MASJINERIE NIE OLIES OF BRANDSTOF LEK NIE. VOLMAAK, ONDERHOUD, DIENS OF SKOONMAAK VAN VOERTUIE MOET SLEGS IN AANGEWYSTE AREAS IN DIE KONSTRUKSIE KAMP GESKIED.
OMAWUKWENZE: QINISEKISA IZITHUTHI NOMATSHINI ABAVUZI MAFUTHA OKANYE I OYILE, UKUGALELA, UKUPHATHA, UKULUNGISA OKANYE UKUHLAMBA KUFUNEKA KWENZIWE KUMMANDLA OTYUNJIWEYO KWINKAMPI YOLWAKHIWO KUPHELA NGOKUKHAWULEZILEYO.

DO:
REPORT ALL FUEL OR OIL SPILLS IMMEDIATELY & STOP THE SPILL CONTINUING.
MOET:
RAPPORTEER ENIGE BRANDSTOF OF OLIE STORTE & VERHOED DAT DIE STORT AANHOU.
OMAWUKWENZE: NIKA INGXELO NGE OLI NAMAFUTHA ACHITHEKILEYO, UZE UNQANDE UCHITHEKO LUNGAQHUBEKI.

DO:
PREVENT CONTAMINATION OR POLLUTION OF STREAMS AND WATER CHANNELS.
MOET:
VERHOED DIE KONTAMINASIE EN BESOEDELING VAN STROME & WATERKANALE.
OMAWUKWENZE : NQANDA USULELEKO OKANYE UNGCOLISEKO LWEMILAMBO NEMISELE YAMANZI.

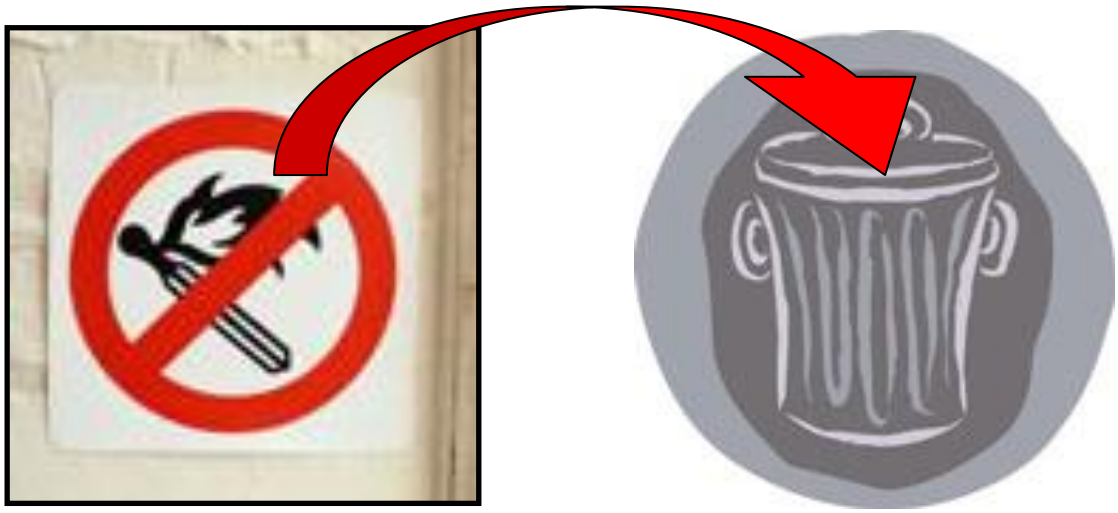
DO NOT:
ALLOW WASTE, LITTER, OILS OR FOREIGN MATERIALS INTO THE STREAM
MOENIE:
TOELAAT DAT AFVALPRODUKTE, GEMORS, OLIES OF VREEMDE MATERIALE IN STROME BELAND NIE.
OMAWUNGAKWENZI: MUSA UKUVUMELA INCITHO, ULAHLO, IOYILE OKANYE EZINYE IZINTO EMILANJENI.

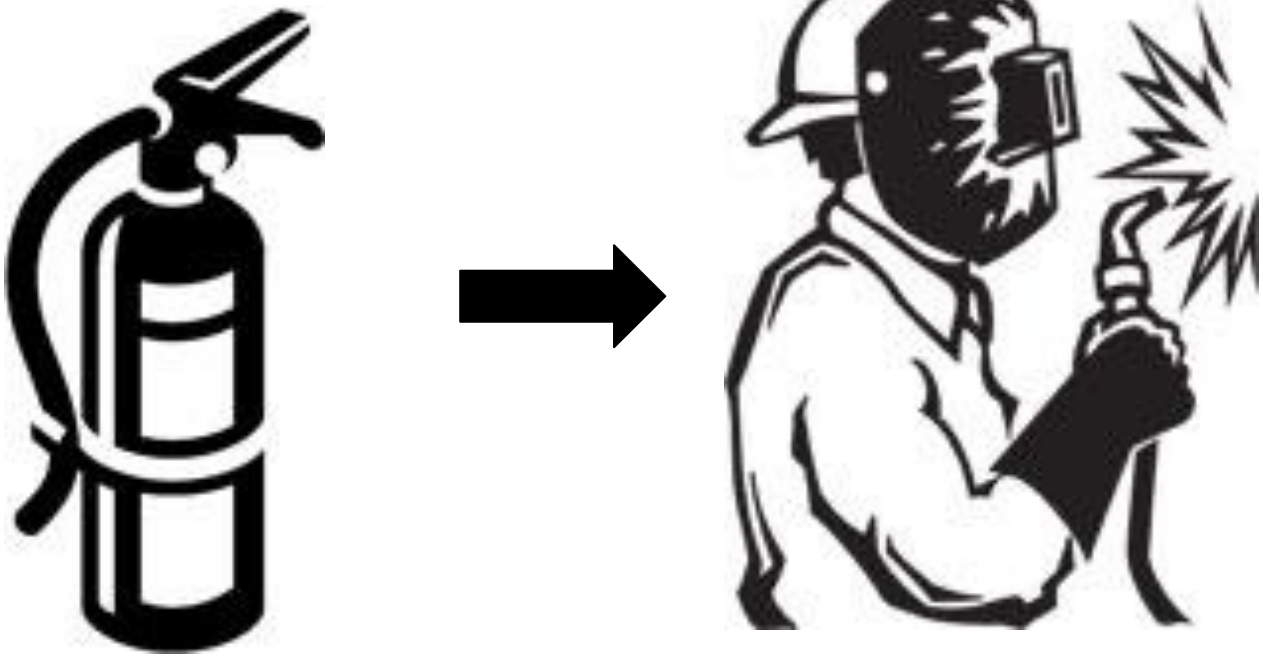
Fire Control:
Vuur Beheer:
Ulawulo Lemililo:

DO:
DISPOSE OF CIGARETTES AND MATCHES CAREFULLY. (Littering is an offence.)
MOET:
GOOI SIGARETTE & VUURHOUTJIES OP GEPASTE MANIER WEG WEG (rommelstrooi is 'n oortreding)
OMAWUKWENZE: LAHLA ISIGARETE NOOMATSHISI NGONONOPHELO (ukulahla lityala).

DO:
ENSURE A WORKING FIRE EXTINGUISHER IS IMMEDIATELY AT HAND IF ANY "HOT WORK" IS UNDERTAKEN e.g. welding, grinding, gas cutting etc.
MOET:
VERSEKER DAT 'N WERKENDE BRANDBLUSSER BYDERHAND IS INDIEN "WARM WERK" GEDOEN WORD bv. Sweiswerk.
OMAWUKWENZE: QINISEKISA ISICIMA-MLILO ESISEBENZAYO SISESANDLENI UKUBA KUKHO UMSEBENZI "OTSHISAYO" OWENZIWAYO, umz. ukuwelda, ugubo, ukuqhawula ugesi, njl.

DO NOT:
MAKE ANY FIRES
MOENIE:
ENIGE VURE MAAK OF ENIGEIETS VERBRAND NIE
OMAWUNGAKWENZI: UKWENZA IMILILO OKANYE UTSHISE NOKUBA YINTONI.





Fencing and Restricted Areas:
Omheining en Beperkte Areas:
Ubiyelo Nemimanndla Engavumelekanga:

DO:
CONFINE WORK AND STORAGE OF EQUIPMENT TO WITHIN THE IMMEDIATE WORK AREA.
MOET:
BEPERK ALLE WERK EN STOOR VAN GEREEDSKAP TOT IN DIE GEGEWE WERKAREA.
OMAWUKWENZE:GCINA UMSEBENZI NEZIXHOBO ZOKUSEBENZA NGAKUMMANDLA OKUSETYENZELWA KUWO.

DO NOT:
ENTER ANY FENCED OFF OR MARKED AREA. SUCH AREAS HAVE BEEN MARKED WITH "NO-GO AREA" SIGNS AND SHOULD BE ADHERED TO.
MOENIE:
ENIGE OMHEINDE OF GEMERKTE AREAS BINNEGAAN NIE. SULKE AREAS IS MET "NO-GO AREA" TEKENS GEMERK EN MOET GEHOORSAAM WORD.
OMAWUNGAKWENZI: MUSA UKUNGENA KWI NDAWO EBIYIWEYO OKANYE EPHAWULWEYO. IMIMANDLA ENJALO IPHAWULWE NGAMAGAMA ATHI **" NO-GO AREA**".

NO-GO AREA

Safety:
Veiligheid:
Ukhuseleko:

DO:
USE ALL SAFETY EQUIPMENT AND COMPLY WITH ALL SAFETY PROCEDURES.
MOET:
GEBRUIK ALLE VEILIGHEIDSGEREEDSKAP EN VOLDOEN AAN ALLE VEILIGHEIDS PROSEDURES.
OMAWUKWENZE: SEBENZISA ZONKE IZIXHOBO ZOKHUSELEKO, UZE UTHOBELE YONKE IMIGAQO YOKHUSELO.

Driving and Dust:
Bestuur en Stof:
Uqhubo Nothuli:

DO:
DRIVE ON DESIGNATED ROUTES ONLY.
MOET:
NET OP AANGEWYSTE ROETES BESTUUR.
OMAWUKWENZE: QHUBA KWIMIMANDLA EPHAWULWEYO KUPHELA.

DO NOT:
SPEED OR DRIVE RECKLESSLY
MOENIE:
JAAG OF ROEKELOOS BESTUUR NIE.
OMAWUNGAKWENZI: SUKUQHUBA NGESANTYA ESIPHEZULU OKANYE NGOKUNGAKHATHALI.

DO NOT:
ALLOW CEMENT TO BLOW AROUND.
MOENIE;
TOELAAT DAT SEMENT WEGWAAI NIE.
OMAWUNGAKWENZI: MUSUKUVUMELA ISAMENTE ISASAZWE.

DO NOT:
CAUSE EXCESSIVE DUST
MOENIE:
OORDREWE STOF VEROORSAAK NIE.


SLOW


PPC

Vegetation protection:
Plantegroei Beskerming:
Ukhuselo Lwezityalo:

DO NOT:
DAMAGE OR REMOVE ANY VEGETATION WITHOUT DIRECT INSTRUCTION.
MOENIE:
ENIGE PLANTEGROEI SONDER DIREKTE INSTRUKSIE BESKADIG OF VERWYDER NIE.
OMAWUNGAKWENZI: MUSA UKUTSHABALALISA OKANYE USUSE NASIPHINA ISITYALO NGAPHANDLE KOMYALELO.

Animals:
Diere:
Izilwanyana:

DO NOT:
INJURE, CAPTURE/SNARE, FEED OR CHASE ANIMALS – this includes birds, frogs, snakes, lizards, tortoises, etc.
MOENIE:
ENIGE DIERE BESEER, VANG, VOER OF JAAG NIE – dit sluit in: voëls, paddas, slange akkedisse, skilpaaie ens.
OMAWUNGAKWENZI: MUSA UKWENZAKALISA, UKUBAMBA, UKONDLA OKANYE UKULEQA IZILWANYANA- okuquka iintaka, amasele, iinyoka, amacilikishe, izikolopati.

DO:
REPORT ANY INJURY OF AN ANIMAL.
MOET:
DIE BESERING VAN 'N DIER RAPPORTEER.
OMAWUKWENZE: XELA NASIPHI ISENZAKALO SESILWANYANA.

Preventing Pollution:
Voorkoming van Besoedeling:
Ukhuselo Longcoliseko:

DO:
CLEAR YOUR WORK AREAS OF LITTER AND BUILDING RUBBLE AT THE END OF EACH DAY – use the waste bins provided and ensure that litter will not blow away.
MOET:
RUIM NA ELKE DAG DIE WERK AREA OP EN GOOI ENIGE ROMMEL WEG IN DIE GEGEWE HOUERS – maak seker dat rommel nie kan wegwaai nie.
OMAWUKWENZE: COCA INDAWO OSEBENZA KUYO, IZINTO EZILAHLIWEYO NENKUNKUMA YOKWAKHA QHO EKUPHELENI KWEMINI-sebenzisa imigqomo yenkunkuma uze uqiniseke ukuba inkunkuma ayivuthuzwa ngumoya.

DO NOT:
ALLOW WASTE BINS TO OVERFLOW OR WASTE TO BLOW AROUND.
MOENIE:
TOELAAT DAT ROMMELHOUERS OORVLOEI OF DAT ROMMEL ROND WAAI NIE.
OMAWUNGAKWENZI: MUSA UKUVUMELA IMIGQOMO YENKUNKUMA IGCWALE KAKHULU OKANYE INKUNKUMA ISASAZEKE.

DO NOT:
LITTER OR LEAVE FOOD LAYING AROUND
MOENIE:
ROMMEL OF KOS LAAT RONDLÊ NIE.
OMAWUNGAKWENZI: MUSA UKUNGCOLISA OKANYE USHIYE UKUTYA KULELE INDAWO YONKE.

DO NOT:
BURY ANY LITTER OR WASTE IN THE GROUND.
MOENIE:
ENIGE ROMMEL OF GEMORS IN DIE GROND BEGRAWE NIE.
OMAWUNGAKWENZI: MUSA UKUNGCWABA INKUNKUMA EMHLABENI.


GLASS
CARDBOARD
PAPER

Appendix D: Protocol for chance fossil finds

<table>
<tr><td>Province & region:</td><td>Western Cape, Mossel Bay Local Municipality (Garden Route District Municipality)</td></tr>
<tr><td>Responsible Heritage Resources Agency</td><td>HERITAGE WESTERN CAPE (Contact details: Protea Assurance Building, Green Market Square, Cape Town 8000. Private Bag X9067, Cape Town 8001. Tel: 086-142 142. Fax: 021-483 9842. Email: hwc@pgwc.gov.za)</td></tr>
<tr><td>ECO protocol</td><td>1. Once alerted to fossil occurrence(s): alert site foreman, stop work in area immediately (N.B. safety first!), safeguard site with security tape / fence / sand bags if necessary.</td></tr>
<tr><td colspan="2">2. Record key data while fossil remains are still in situ:
• Accurate geographic location – describe and mark on site map / 1: 50 000 map / satellite image / aerial photo
• Context – describe position of fossils within stratigraphy (rock layering), depth below surface
• Photograph fossil(s) in situ with scale, from different angles, including images showing context (e.g. rock layering)</td></tr>
<tr><td>3. If feasible to leave fossils in situ:
• Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation
• Ensure fossil site remains safeguarded until clearance is given by the Heritage Resources Agency for work to resume</td><td>3. If not feasible to leave fossils in situ (emergency procedure only):
• Carefully remove fossils, as far as possible still enclosed within the original sedimentary matrix (e.g. entire block of fossiliferous rock)
• Photograph fossils against a plain, level background, with scale
• Carefully wrap fossils in several layers of newspaper / tissue paper / plastic bags
• Safeguard fossils together with locality and collection data (including collector and date) in a box in a safe place for examination by a palaeontologist
• Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation</td></tr>
<tr><td colspan="2">4. If required by Heritage Resources Agency, ensure that a suitably-qualified specialist palaeontologist is appointed as soon as possible by the developer.</td></tr>
</table>

Proposed Preferred Alternative Site Layout

Legend

Appendix E: SIte Layout Plan

Map Center: Lon: 18°31'18.5"E
Lat: 33°51'4.6"S

Scale: 1:564

Date created: July 8, 2022

Western Cape Government
Agriculture
FOR YOU

APPENDIX F: HEALTH IMPACT ASSESSMENT - RECOMMENDED MONITORING CONTROL TABLE

The table below indicates the measures which can help reduce emissions, which may be employed in order to monitor the various control on the key pollutants associated with the crematorium.

Table 1: Measures for pollutants of most concern from crematoria emissions (O'Keeffe, 2020)

Control Measure(s)	Pollutants			
	PCDD/Fs	Hg	$PM_{2.5}$	Radioactivity
Source Control				
Removal of plastics				
Non-toxic and eco-friendly coatings or materials in caskets				
Removal of Hg fillings				
Removal of medical devices containing radioactive material				
Operational Control				
Minimum 850°C (2^{nd} chamber)				
Minimum residence time of 2 s (2^{nd} chamber)				
Adequate O_2 in combustion chamber				
Monitoring CO releases				
Air tightness of combustion chambers and casings				
Maintenance				
Operator training				
Emission controls				
Dust control (filters and scrubbers)				
Activated carbon treatment				
Hg removal technology (binding, precipitation etc.)				
Adequate chimney height	General dispersion and dilution of pollutants higher into atmosphere			