



Executive Summary

Proposed Incinerator Replacement at the Grahamstown State Veterinary Laboratory, Eastern Cape

Final Basic Assessment Report

1. Introduction

A Basic Assessment (BA) and Waste Management License application has commenced to determine the extent and significance of the environmental consequences associated with the proposed replacement of the existing incinerator at the Grahamstown Veterinary Laboratory, to ensure that the facility complies with the relevant air quality and waste legislation and standards. The DRDAR State Veterinary Clinic is located on Erf 4904 directly south of Grahamstown in the Eastern Cape Province.

SRK Consulting has been appointed by The Department of Rural Development and Agrarian Reform (DRDAR), as the independent consultants to conduct an Environmental Basic Assessment (BA) for the proposed activity in terms of the National Environmental Management: Waste Act No 59 of 2008 (NEM:WA) and the Environmental Impact Assessment (EIA) Regulations, 2014.

1.1. Purpose and Structure of the Basic Assessment Report

The NEMA EIA Regulations were promulgated to put into practice the environmental management principles espoused in the Act. The Basic Assessment Report (BAR) provides the competent authority, the Department of Environmental Affairs (DEA), with all relevant information about the proposed activity, as well as an assessment of the potential impacts in order to inform the decision as to whether the activity should be approved and, if so, under what conditions.

This BAR comprises of two sections, of which Section 2 is mandatory in terms of the requirements for a Basic Assessment. This Summary Report is intended to provide

additional contextual information in support of the application¹. The BAR contains the following sections:

Section 1: Summary Report/ Executive Summary

Section 1 (this section) provides an introduction to the project; describes the approach to the Basic Assessment process and provides a description of the activity and the proposed concept alternatives considered. It also describes the public consultation process undertaken during the process, the key findings and recommendations and the way forward. In effect this section provides a summary of the key elements of the Basic Assessment.

Section 2: Completed DEA BAR

Section 2 contains the completed BAR, submitted in support of the BA and Waste Management License application for the activity under the NEMA EIA Regulations. Section 2 also contains the Appendices in support of this application.

1.2. Approach to the Basic Assessment

In terms of the List of Waste Management Activities as promulgated under the National Environmental Management: Waste Act (Act No 59 of 2008) (NEM:WA), the proposed development constitutes certain listed activities that require a Waste Management License prior to commencement of the activity. The process is undertaken in terms of the 2014 Environmental Impact Assessment (EIA) Regulations (as amended) as promulgated under the

¹ Note that the full report is a collation of sections and not a sequential compilation of report chapters.

National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

Activities 7 listed in of Category A under NEMWA, is the main activities associated with the proposed project, calling for a Basic Assessment process to be followed:

Activity 7: The treatment of hazardous waste using any form of treatment at a facility that has the capacity to process in excess of 500 kg but less than 1 ton per day ...

The BA process entails the assessment of the activity and the compilation of a BAR for public comment. Issues and concerns raised by the public after the distribution of the Background Information Document (BID), in general inform the BAR and concerns raised on the BAR are incorporated into the report which, together with the prescribed Comment and Responses Report, is submitted to DEDEAT for a decision. A typical Basic Assessment process is depicted in the Figure 1.

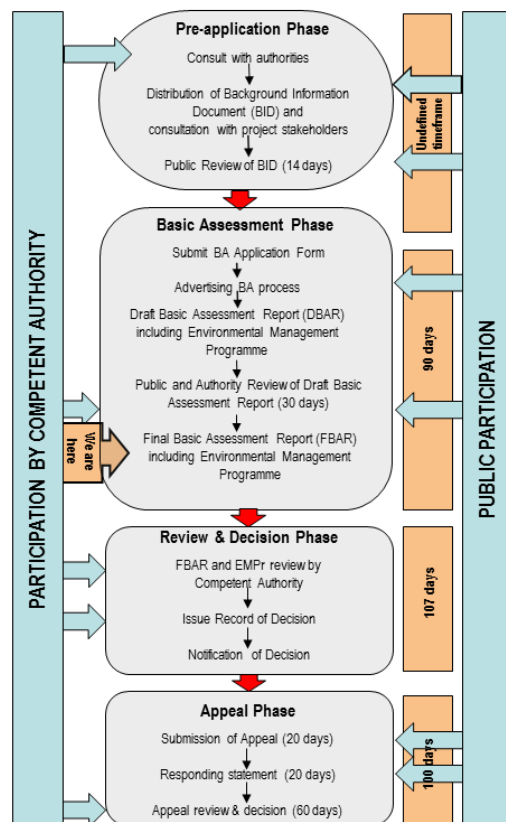


Figure 1: Typical Basic Assessment Process

1.3. Prescribed Requirements for the Basic Assessment

The BAR provides information about the proposed activity, a description of the affected environment (including ecological, land use and socio-economic aspects), a description of the process undertaken in order to consult the public on the activity, as well as a basic assessment of the potential impacts of the activity on the receiving environment.

Several appendices to the BAR are required as supporting documentation. The Appendices included in the BAR are the following:

- Appendix A - Site Plan(s);
- Appendix B - Photographs;
- Appendix C - Facility illustration(s);
- Appendix D - Specialist reports;
- Appendix E - Comments and Responses (Public Participation Process);
- Appendix F - Environmental Management Programme (EMPr)
- Appendix G - Other information;
- Appendix H – Waste License Application Form; and
- Appendix I – Proof of Submission of AEL

This information is contained in Section 2 of the BAR.

2. Motivation for the Proposed Development

The existing incinerator is used for incinerating organic waste at the Grahamstown State Veterinary Laboratory but it is more than 30 years old and as a result has become unserviceable. The chimney needs to be replaced due to holes caused by rust. Some of the main objectives of the proposed incinerator replacement are to ensure that the facility complies with the relevant air quality and waste legislation and standards.

The main reasons why incineration of veterinary waste is deemed important includes, but are not limited to, the following:

- Incineration minimises infection risk to other animals as well as humans;
- Volume reduction of waste resulting in greater environmental protection; and
- Incineration eliminates the problem of leachate that is produced by landfills.

It should be noted that the proposed activity constitutes the replacement of an existing unit with a similar unit ('replacing like with like' scenario), which in this case will be better and more modern technology and which is likely to have less environmental (air quality) impact than the current old incinerator. The existing setting within which the incinerator at the DRDAR State Clinic is located, is also not contrary to the surrounding land uses.

3. Project Description

The Department of Rural Development and Agrarian Reform (DRDAR) proposes to replace the existing incinerator at the Grahamstown Veterinary Laboratory. The Laboratory generates organic waste during the conduct of diagnostic and analytical testing of specimen of animal origin. Organic waste, which includes animal carcasses and tissue samples, is disposed of through incineration.

The existing incinerator is used for incinerating organic waste at the Grahamstown Veterinary Laboratory but it is

more than 30 years old and as a result has become unserviceable. It is currently not in use as the chimney needs to be replaced due to holes caused by rust. One of the main objectives of the proposed incinerator replacement are to ensure that the facility complies with the relevant air quality and waste legislation and standards.

Activity Alternatives

The current on-site activity is incineration of veterinary waste and remains the preferred activity alternative. The following activity alternatives were considered during the design phase but were not found to be feasible and is therefore not assessed any further in this report:

1. Other facilities:

Incineration at other nearby facilities with licensed incinerators was considered, but no nearby facilities are available.

2. Burial or Landfill method of carcass disposal:

Burial of animal carcasses has historically been used as a disposal method in massive disease outbreaks. This method cannot be used routinely as it is unsustainable. The main disadvantages include:

- Unsustainability in terms of exhaustion of land for burial around the laboratories; and
- Contamination of underground water resources.

3. Outsourcing of hazardous waste disposal:

Outsourcing of hazardous waste disposal is a practical method which is currently being used by DRDAR. Compass Medical Waste Company has been contracted for this purpose. However, they do not dispose of animal carcasses. They dispose of all other waste including chemical waste and expired drugs and medicines, plastics, syringes and needles.

Design Alternatives

The existing incinerator will be replaced with a similar system. No abatement equipment is currently installed at the incinerator. The Atmospheric Impact Report determined that, due of the low air addition rates in the primary chamber, and corresponding low flue gas velocities (and turbulence), the amount of solids entrained in the gases leaving the primary chamber is low. Therefore, the majority of controlled air incinerators do not have add-on gas cleaning devices. There are no air pollution control and abatement technology proposed at the DRDAR State Veterinary Laboratory

Technology Alternatives

Possible alternative methods for disposal of hazardous waste were considered but not deemed viable:

1. Hazardous Waste treatment and disposal at Landfills:

Hazardous waste can be sterilized through a number of methods including Autoclaving, irradiation or mechanical disinfection and then transported to the municipal landfill.

These methods are useful only for small quantities of hazardous waste generated by the laboratories but are impractical for disposal of animal carcasses. Radiation introduces its own hazard through exposure to the radiation rays.

2. Alkaline Hydrolysis:

Alkaline hydrolysis was also considered. This is a process by which organic matter is digested into a harmless liquid and bony material which material must still be disposed of. The disposal of these products would still be regulated by NEM:WA (norms and standards).

The major draw backs to this system were:

- Cost - it is very expensive to establish and maintain; and
- The volume of waste left over is still too large. In the USA the system was abandoned because the incinerator was still required to burn the resulting solid waste.

4. Public Consultation Process

A Public Participation Process (PPP) aimed at allowing the public to be involved in the environmental process has been carried out. IAPs were encouraged to review the Background Information Document (BID) to ensure that any comments have been accurately recorded and understood.

The PPP activities that have been conducted to date as part of this BA process are as follows:

- Placement of an onsite poster at the entrance of the Grahamstown Veterinary Diagnostic Centre on 25 February 2016;
- Placement of a notice in a newspaper circulating in the area (Grocott's Mail) on 26 February 2016 advertising the process and inviting registration as an IAP;
- Distribution of the Background Information Document (BID) for a 21-day comment period (9 March - 30 March 2016) to authorities, stakeholders and identified Interested and Affected Parties (IAPs);
- Distribution of the BID to the Ward 8 Councillor per electronic mail on 9 March 2016;
- Preparation of a Draft Basic Assessment Report (DBAR) (this report);
- Inclusion in the DBAR of issues that were raised in response to the onsite poster, newspaper notice and BID, along with responses to these issues;

- Distribution of the complete DBAR to the relevant authorities for comment;
- Making a hard copy of complete DBAR available at a public venue (Grahamstown Public Library) for review and comment by IAPs;
- Distribution of the Executive Summary of the DBAR to all IAPs and stakeholders registered for this project;
- Making an electronic copy of the complete DBAR available to IAPs and stakeholders upon request;
- Provision of a 30-day comment period on the DBAR (24 October 2017-22 November 2017);
- Collation of comments on the DBAR, and incorporation of these into the Final Basic Assessment Report (FBAR);
- Distribution of the FBAR to the relevant authorities for informational purposes;
- Distribution of the executive summary of the FBAR to registered IAPs and stakeholders for informational purposes;
- Making an electronic copy of the complete DBAR available to IAPs and stakeholders upon request; and
- Submission of the FBAR to DEA for a decision regarding granting of the Waste Management Licence.

Activities that will still be undertaken as part of the public participation process are:

- Informing authorities, stakeholders and registered IAPs of the decision and appeal procedure once it is received.

Comments received to date in response to public participation activities are summarised in Table 1 and Table 2 respectively. Original comments are included in Appendix E of the BAR.

Table 1: Comments and response table on the BID

Commentator	Issue Raised	Response (by SRK unless otherwise noted)
N Kohly (Rhodes University)	Requests registration as IAP.	Noted and effected.
L Mardon (DEDEAT)	Facility needs to undergo a Section 22A process in terms of the Air Emissions Licence (AEL). DEDEAT is the AEL licensing authority. Proposes a meeting to discuss the matter.	Meetings was held to discuss the required process (refer to meeting records in Appendix E6).

Table 2: Comments and response table on the DBAR

Commentator	Issue Raised	Response (by SRK unless otherwise noted)
S Childs (Local Resident)	Suspects that the incinerator is the source of unpleasant smell during easterly conditions and that the fumes are poisonous.	Dispersion modelling (refer to section 7.2.1 below and the specialist study in Appendix D) was used to predict ambient concentrations of particulates (PM10 and PM2.5), NO ₂ , SO ₂ and CO resulting from emissions from the proposed new incinerator and it was concluded that no exceedance of the National Ambient Air Quality Standards (NAAQS) is predicted within the site or in residential and sensitive receptor areas around the site. Ambient concentrations are predicted to be very low on site and reach a maximum approximately 200 m downwind of the site.
S Childs (Local Resident)	The incinerator is sited on the very southern edge of Grahamstown. The prevailing winds vary between south-westerly and south-easterly causes the	Dispersion modelling (refer to section Error! Reference source not found. below and the specialist study in Error!

Commentator	Issue Raised	Response (by SRK unless otherwise noted)
	emissions to be blown into town.	Reference source not found. was used to predict ambient concentrations of particulates (PM ₁₀ and PM _{2.5}), NO ₂ , SO ₂ and CO resulting from emissions from the proposed new incinerator and it was concluded that no exceedance of the NAAQS is predicted within the site or in residential and sensitive receptor areas around the site. Ambient concentrations are predicted to be very low on site and reach a maximum approximately 200 m downwind of the site.
S Childs (Local Resident)	Why is the incinerator in a residential area? It should be mothballed or moved to an industrial area.	The incinerator was installed more than 30 years ago and it is likely that residential areas were located much further away at the time of its construction. The nearest residential building is more than 200 m to the north-northwest of the incinerator. It was concluded in the Air Quality Report (see Error! Reference source not found.) that no exceedance of the NAAQS is predicted within the site or in residential and sensitive receptor areas around the site. Ambient concentrations are predicted to be very low on site and reach a maximum approximately 200 m downwind of the site.

Commentator	Issue Raised	Response (by SRK unless otherwise noted)
S Childs (Local Resident)	Why is the incinerator being used over weekends lately?	Once the Atmospheric Emission Licence and Waste Management Licence are issued, certain conditions attached to these licences would specify management measures for the use of the incinerator including operating times.
S Childs (Local Resident)	Strongly suspects that the incinerator is being used to incinerate sundry, weekend rubbish.	Once the Atmospheric Emission Licence and Waste Management Licence are issued, certain conditions attached to these licences would limit the permissible use of the incinerator.
M Ntongana	DEDEAT does not have any substantive comment at this time, but reserves its right to request additional information/ provide further comment once the FBAR has been received and reviewed.	The comment is noted and recorded.

5. Potential Impacts

5.1. Impact Rating Methodology

The identification of potential impacts of the proposed activity was based on the following factors:

- The legal requirements;
- The nature of the proposed activity;
- The nature of the receiving environment; and
- Issues raised during the public participation process.

Potential impacts were assessed using SRK's impact assessment methodology, detail of which is provided in Section 7 of the BAR. The significance of an impact is defined and assessed as a combination of the consequence of the impact occurring (based on its extent, intensity and duration) and the probability that the impact will occur.

The impact significance rating should be considered by the competent authority in their decision-making process based on the definitions of ratings ascribed below.

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity.
- **Medium:** the potential impact should influence the decision regarding the proposed activity.
- **High:** the potential impact will affect a decision regarding the proposed activity.
- **Very High:** the proposed activity should only be approved under special circumstances.
- **+ve** – positive impact;
- **-ve** – negative impact

Considering these factors, the key environmental and social impacts identified as potentially resulting from the proposed rezoning, are summarised below. The impact significance ratings after effective implementation of key management recommendations are also included.

5.2. Impacts

The following potential construction impacts were identified (note that all project alternatives obtained similar ratings except where indicated differently):

- **Dust Impacts**
During construction and decommissioning the old incinerator structures will be disassembled and moved off site. This may result in dust emissions however these are not expected to be high during as the site is not located in a dusty environment (mainly on paved surfaces). The impact was rated as INSIGNIFICANT (-ve) and no mitigation measures are proposed.
- **Impact of emissions and particulates:**
Particulate matter with a diameter equal to or less than 10 µm (PM10) are generally emitted from motor vehicles, construction sites (windblown dust) and unpaved roads during construction and decommissioning. The significance rating for this impact is INSIGNIFICANT (-ve) and no mitigation measures are proposed.
During operation impacts are anticipated to be similar to what they were before as this is a replacement of the existing incinerator. The significance rating for this impact is VERY LOW (-ve) with and without mitigation.
- **Waste Impacts:**
Construction waste and waste generated during the decommissioning phase will be removed off site by

trucks and either taken to a registered waste disposal facility or be recycled. Illegal disposal on site may lead to negative ecological as well as visual impacts. The significance rating for this impact is INSIGNIFICANT (-ve) with and without mitigation.

Operational activities will involve the incineration of veterinary waste that will generate ash. The significance rating for this impact is LOW (-ve) without mitigation and INSIGNIFICANT (-ve) with mitigation.

- **Noise:**

Noise will result mostly from the movement of vehicles and use of machinery (plant) for construction/ decommissioning related activities such as removal of the old incinerator and installation of the new incinerator. The significance rating for this impact is VERY LOW (-ve) with and without mitigation.

- **Socio-economic:**

During the construction and operational phase, no new employment opportunities will be created. The incinerator is likely to be installed by the manufacturers themselves and it would only take a few days to complete. During operation, no additional staff members would be required to operate the incinerators.

- **Cumulative impacts:**

Background concentrations were not assessed as part of the Atmospheric Impact Report. Other sources of atmospheric emissions in the area would include vehicle exhaust emissions and smoke from coal fires in informal areas. No significant cumulative impacts have been identified specifically with regards to air quality.

The Summary Impact Rating Table for the above-mentioned potential impacts is included in Table 3 below.

6. Key Management Recommendations

With effective implementation of the Environmental Management Programme (EMPr) included as Appendix F of the BAR, and regular audits throughout construction to monitor and report on compliance with the conditions of the EMPr, it is anticipated that the significance of all negative potential impacts identified can be reduced to low or less.

The following key management measures are included in the EMPr:

- The incinerator should be operated according to the supplier's operating manual;
- Training should be provided to personnel responsible for operating the incinerator;

- Only trained personnel should be allowed to operate the incinerator;
- No unauthorised waste should be placed in the incinerator; and
- Monitoring will be implemented at a frequency determined by DEA's Air Quality Management Department and specified in the Atmospheric Emission Licence;
- Where possible, material should be recycled or taken to recycling facilities such as scrap metal yards;
- No disposal of wastes, other than at the relevant registered landfill sites authorised to accept this waste;
- No waste may be burned; and
- Ensure that construction materials (e.g. bags of cement) are suitably stored and protected to avoid wastage;
- No dumping within the surrounding area shall be permitted, and no waste may be buried or burned on site;
- All veterinary waste destined for incineration must be kept in a cold room, on an impermeable surface, until it can be incinerated in order to prevent impacts related to groundwater contamination (odours, tampering etc.);
- Organic waste brought in from off-site should be stored in a suitable, marked, closed containers/ bags and also stored in cold rooms until incineration;
- Ash from incineration must be collected and stored in closed marked containers and disposed of via a contractor (e.g. Compass Medical Waste Services) or disposed of at a licensed facility authorised to accept this waste;
- A detailed record should be held of all wastes that are incinerated (including waste type, weight, date of incineration, etc.) as well as the use of diesel; and
- A detailed record should be held of all organic waste from outside sources (including waste type, weight,

date of arrival, date of incineration, etc.). Records should be able to prove that all wastes received from outside sources have been incinerated;

- Construction activities that are likely to result in noise levels in excess of 7 dB above ambient noise, at a distance of 100 m from the sources should be restricted to normal working hours (i.e. 6:00 to 18:00, Monday to Saturday) according to the Noise Control Regulations in terms of the Environmental Conservation Act (Act 73 of 1989) to reduce the noise impact to an acceptable level. Deliveries to the site should also be limited to these times.

7. The Way Forward

The public participation process has given IAPs the opportunity to assist with identification of issues and potential impacts and provides an additional opportunity to gauge 'public acceptance' of the proposed project. The DBAR was released to registered IAPs, stakeholders & the relevant organs of state for a 30 day review period as per the requirements of the 2014 NEMA EIA Regulations.

The FBAR is being released to registered IAPs, stakeholders & the relevant organs of state for informational purposes. The Executive Summary of this FBAR (this report) will be distributed to registered IAPs. A printed copy of the complete report will be available for public review at the Grahamstown Public Library.

The FBAR will be submitted to DEA for a decision. Registered IAPs, stakeholders and the relevant organs of state will be notified as soon as a decision is communicated.

Table 2: Summary Impact Rating Table

Impact group		Impact Description	+ / -	Significance without mitigation	Significance with mitigation
CONSTRUCTION					
Air Quality	AQ1: Impact of dust		-	Insignificant	Insignificant
	AQ2: Particulates (PM ₁₀ and PM _{2.5}), NO _x , SO ₂ and CO		-	Insignificant	Insignificant
Waste	W1: Waste management (general)		-	Insignificant	Insignificant
Noise	N1: Noise		-	Very Low	Very Low
OPERATION					

Impact group		Impact Description	+ /-	Significance without mitigation	Significance with mitigation
Air Quality	AQ3: Particulates (PM ₁₀ and PM _{2.5}), NO _x , SO ₂ and CO		-	Very Low	Very Low
Waste	W2: Ash from incineration		-	Low	Insignificant
DECOMMISSIONING					
Air Quality	AQ1: Impact of dust		-	Insignificant	Insignificant
	AQ2: Particulates (PM ₁₀ and PM _{2.5}), NO _x , SO ₂ and CO		-	Insignificant	Insignificant
Waste	W1: Waste management (general)		-	Insignificant	Insignificant
Noise	N1: Noise		-	Very Low	Very Low

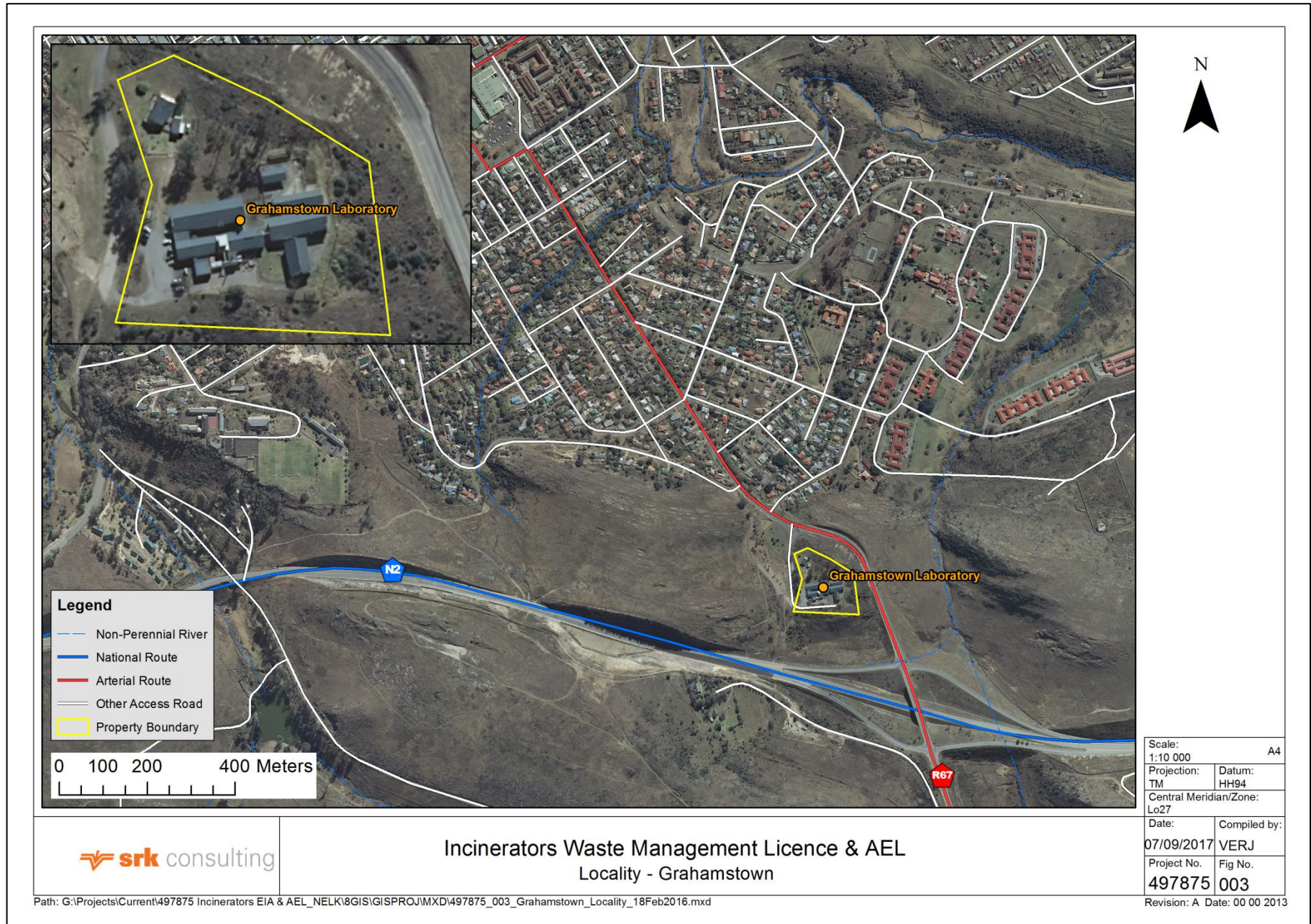


Figure 2: Site Locality Plan